**Install and Configure an NFS Server on Ubuntu 18.04**

**Network File System (NFS) is a distributed file system protocol that allows you to share remote directories over a network. With NFS, you can mount remote directories on your system and work with the files on the remote machine as if they were local files.**

**NFS protocol is not encrypted by default and unlike Samba, it does not provide user authentication. Access to the server is restricted by the clients IP addresses or hostnames.**

**NFS, or Network File System, is a distributed file system protocol that allows you to mount remote directories on your server. This lets you manage storage space in a different location and write to that space from multiple clients. NFS provides a relatively quick and easy way to access remote systems over a network and works well in situations where the shared resources must be accessed regularly**.

**we’ll use the following IP addresses as stand-ins for the host and client values:**

Host: 192.168.72.91

Client: 192.168.72.92 (ubuntu)

client: 192.168.72.94 (centos)

**On the host server, install the nfs-kernel-server package**

apt update

apt install nfs-kernel-server

**Creating the Share Directories on the Host**

**Telling NFS what to share is very simple. Everything is listed in the /etc/exports file. In that file, you'll list the directories that you want shared. Across from each, you'll list which IP address you want to share it with and the options that you want it to use.**

here, we are creating two export directory by the name of **"/home/nfsshare", "/opt/share"** in our server.

mkdir -p /home/nfsshare

mkdir -p /opt/share

**As we want all clients to access the directory, we will remove restrictive permissions of the export folder through the following commands:**

chown nobody:nogroup /home/nfsshare

chown nobody:nogroup /opt/share

chmod 777 /home/nfsshare

chmod 777 /opt/share

(optional)

**After creating the export folder, we will need to provide the clients the permission to access the host server machine. This permission is defined through the exports file located in your system’s /etc folder**

**The syntax is basically:**

/etc/exports

directory\_to\_share client(share\_option1,...,share\_optionN)

vi /etc/exports

*/home/nfsshare 192.168.72.92(rw,sync,no\_subtree\_check)*

*/opt/share \*(rw,sync,no\_subtree\_check)*

**\*=for all IP address , you can set for particular IP or range**

**now is the time to export the shared directory through the following command**

exportfs -a

**To confirm and view exported directory use following command**

exportfs -v

**to show list of share directories use following command:**

showmount -e

**Finally, restart the NFS Kernel server as follows:**

systemctl restarat nfs-kernal-server

**Configuring the Client Machine ubuntu**

**Install following packages on NFS client system, which is required to mount the remote directory using NFS protocol.**

apt-get update

apt-get install nfs-common

**Type the following command to list shared directories from an nfs server**

showmount -e 192.168.72.91

*output*

*Export list for 192.168.72.91:*

*/home/nfsshare 192.168.72.92*

*/opt/share \**

**We’ll create two directories for our mounts:**

mkdir -p /mnt/nfsshare

mkdir -p /mnt/share

**After creating mount point, mount remote NFS exported directory using following command.**

mount 192.168.72.91:/home/nfsshare/ /mnt/nfsshare

mount 192.168.1.72.91:/ /opt/share /mnt/share

**Check mounted file system**

df -h

*output*

*Filesystem Size Used Avail Use% Mounted on*

*/dev/sda1 20G 2.8G 16G 16% /*

*udev 371M 4.0K 371M 1% /dev*

*tmpfs 152M 812K 151M 1% /run*

*none 5.0M 0 5.0M 0% /run/lock*

*none 378M 8.0K 378M 1% /run/shm*

*/dev/sr0 32M 32M 0 100% /media/CDROM*

*/dev/sr1 702M 702M 0 100% /media/Ubuntu 12.04 LTS i386*

192.168.72.91:/home/nfsshare 20G 2.8G 16G 16% /mnt/nfsshare

192.168.72.91:/opt/share 20G 2.8G 16G 16% /mnt/share

**Setup Auto Mount**

**Append the following entries to /etc/fstab file to mount NFS directories automatically after system reboot. This will mount directories on startup.**

vi /etc/fstab

*192.168.72.91:/home/nfsshare /mnt/nfsshare nfs auto,noatime,nolock,bg,nfsvers=3,intr,tcp,actimeo=1800 0 0*

*192.168.72.91:/opt/share /mnt/share nfs auto,noatime,nolock,bg,nfsvers=3,intr,tcp,actimeo=1800 0 0*

**If you want to remove the mounted file system, You can simply unmount it using umount command. Also, you need to remove entries from /etc/fstab (if added)**

sudo umount /mnt/nfsshare

sudo umount /mnt/share

**nfs client on centos**

**As the first step, we will install these packages on the CentOS server with yum:**

yum install nfs-utils

**show list of share directories**

showmount -e 192.168.72.91

**Now create the NFS directory mount points:**

mkdir -p /mnt/centosshare

**mount the NFS shared home directory in the client machine**

mount -t nfs 192.168.0.100:/opt/share /mnt/centosshare

**check the mount**

df -h

**Permanent NFS mounting**

vi /etc/fstab

*192.168.72.91:/home/nfshare /mnt/centosshare nfs defaults 0 0*

**finishd**

ro: specifies that the directory may only be mounted as read only

rw: grants both read and write permissions on the directory

no\_root\_squash: is an extremely dangerous option that allows remote “root” users the same privilege as the “root” user of the host machine

subtree\_check: specifies that, in the case of a directory is exported instead of an entire filesystem, the host should verify the location of files and directories on the host filesystem

no\_subtree\_check: specifies that the host should not check the location of the files being accessed withing the host filesystem

sync: this just ensures that the host keeps any changes uploaded to the shared directory in sync

async: ignores synchronization checks in favor of increased speed.

links:

<https://vitux.com/install-nfs-server-and-client-on-ubuntu/>

<https://linuxconfig.org/how-to-configure-a-nfs-file-server-on-ubuntu-18-04-bionic-beaver>

<https://www.howtoforge.com/tutorial/how-to-configure-a-nfs-server-and-mount-nfs-shares-on-ubuntu-18.04/>

<https://www.howtoforge.com/nfs-server-and-client-on-centos-7>