

Installing and Configuring NFS-Ganesha

References:

1. How to Configure Highly Available Active-Active NFS-Ganesha Using Gluster in Red Hat Gluster Storage 3.1.x ?
<https://access.redhat.com/solutions/1986053>
2. Red Hat Gluster Storage 3.3 Administration Guide
6.2.3. NFS Ganesha
https://access.redhat.com/documentation/en-us/red_hat_gluster_storage/3.3/html-single/administration_guide/#nfs_ganesha

NFS-Ganesha Installation and Configuration

1. Verify software subscriptions

```
subscription-manager repos --enable=rhel-7-server-rpms
subscription-manager repos --enable=rh-gluster-3-for-rhel-7-server-rpms
subscription-manager repos --enable=rh-gluster-3-nfs-for-rhel-7-server-rpms
subscription-manager repos --enable=rhel-ha-for-rhel-7-server-rpms
subscription-manager repos --enable=rh-gluster-3-samba-for-rhel-7-server-rpms
```

2. Update the system

```
# yum -y upgrade
```

3. Verify all software installed

```
# yum install redhat-storage-server
# yum groupinstall RH-Gluster-Samba-Server
# yum groupinstall RH-Gluster-AD-Integration
# yum install glusterfs-ganesha
```

4. Open firewall ports:

```
# firewall-cmd --permanent --add-service=glusterfs
# firewall-cmd --permanent --add-service=nfs
# firewall-cmd --permanent --add-service=rpc-bind
# firewall-cmd --permanent --add-service=nlm
# firewall-cmd --permanent --add-service=high-availability
# firewall-cmd --permanent --add-service=mountd
# firewall-cmd --permanent --add-service=rquota
# firewall-cmd --permanent --add-port=662/tcp
# firewall-cmd --permanent --add-port=662/udp
# firewall-cmd --reload
```

5. Test the volume with the gluster fuse client

```
# mount -t glusterfs gluster1:/vol01 /mnt/vol01
# umount /mnt/vol01
```
6. Verify the ganesha rpms

```
# rpm -qa | grep ganesha
nfs-ganesha-2.4.4-18.el7rhgs.x86_64
glusterfs-ganesha-3.8.4-54.8.el7rhgs.x86_64
nfs-ganesha-gluster-2.4.4-18.el7rhgs.x86_64
```
7. Configure public-key ssh for the ganesha nodes:

```
# ssh-keygen -f /var/lib/glusterd/nfs/secret.pem -t rsa -N "
# ssh-copy-id -i /var/lib/glusterd/nfs/secret.pem.pub root@gluster2
```
8. Set the rpc_statd port:

```
# vi /etc/sysconfig/nfs
# /STATD_PORT/s/^//
# :wq
```
9. Start the pacemaker service:

```
# systemctl list-unit-files | grep pcsd
# systemctl start pcsd.service
# systemctl enable pcsd.service
```
10. Set the password for the hacluster user:

```
# passwd hacluster
```
11. Authenticate all nodes in the cluster to each other:

```
# pcs cluster auth gluster2 gluster3
```
12. Create and mount the shared storage volume for the pcs cluster:

```
# gluster volume set all cluster.enable-shared-storage enable
```
13. Configure /etc/ganesha/ganesha-ha.conf:

```
# cp /etc/ganesha/ganesha-ha.conf.sample /etc/ganesha/ganesha-ha.conf
```
14. Insure the VIP addresses are unique, not the host addresses of the nodes or used elsewhere on the network.
15. Insure the hostnames of all nodes in the cluster can be resolved, either through DNS or /etc/hosts.

16. Make sure the SELinux is in Enforcing mode.
17. Disable the NetworkManager service and enable the network service

```
# systemctl stop NetworkManager
# systemctl disable NetworkManager
# systemctl start network
# systemctl enable network
```
18. Create a directory named nfs-ganesha under /run/gluster/shared_storage

```
# mkdir /run/gluster/shared_storage/nfs-ganesha
```
19. Copy the ganesha.conf and ganesha-ha.conf files from /etc/ganesha to /run/gluster/shared_storage/nfs-ganesha

```
# cp /etc/ganesha/ganesha*.conf /run/gluster/shared_storage/nfs-ganesha
```
20. Enable the glusterfssharedstorage.service service using the following command:

```
# systemctl enable glusterfssharedstorage.service
```
21. Enable the nfs-ganesha service

```
# systemctl enable nfs-ganesha.service
```
22. Enable the pacemaker service

```
# systemctl enable pacemaker
```
23. Start the pcs service

```
# systemctl start pcsd
# systemctl enable pcsd
```
24. As part of cluster setup, port 875 is used to bind to the Rquota service. If this port is already in use, assign a different port to this service by modifying following line in /run/gluster/shared_storage/nfs-ganesha/ganesha.conf

```
# ss -aut | grep 875
```
25. Enable the selinux boolean required for nfs-ganesha

```
# setsebool -P gluster_use_execmem on
```
26. Enable NFS-Ganesha

```
# gluster nfs-ganesha enable
```
27. if rpcinfo -p shows the statd port different from 662, then, restart the statd service

```
# systemctl restart rpc-statd
# rpcinfo -p
```

28. Verify the status of the cluster

```
# /usr/libexec/ganesha/ganesha-ha.sh --status /run/gluster/shared_storage/nfs-ganesha  
# pcs status
```

29. Export a gluster volume through nfs-ganesha

```
# gluster volume set <volname> ganesha.enable on
```

Accessing NFS-Ganesha Exports

30. Set tunables on the client

```
# echo "options sunrpc tcp_slot_table_entries=128" >> /etc/modprobe.d/sunrpc.conf  
# echo "options sunrpc tcp_max_slot_table_entries=128" >> /etc/modprobe.d/sunrpc.conf  
# sysctl -p
```

31. Mount an export in NFSv3 mode

```
# mount -t nfs -o vers=3 virtual_ip:/volname /mountpoint
```

32. Mount an export in NFSv4 mode

```
# mount -t nfs -o vers=4.0 virtual_ip:/volname /mountpoint
```