# Disk Quota Management for Users & Groups in RHEL

As a Linux system admin we generally face low disk space issues. By implementing the user and group disk quota on the file system we can resolve the space issue.
Quota restricts the users to use only allowed disk and inodes on the particular file system. In this post we will discuss how to enable user & group disk quota on /home File system on CentOS 7 & RHEL 7

Step:1 Add usrquota & grpquota option on filesystem (/home in my case) in /etc/fstab file.
[root@rhel7.nehraclasses ~]# vim /etc/fstab
Add these contents there as per your system.
/dev/mapper/rhel-home /home ext4
defaults,noatime,usrjquota=aquota.user,grpjquota=aquota.group,jqfmt=vfsv0 0 1
Save & exit the file.
In this example i have add user and group quota options on /home

Step:2. Remount /home file system via mount command
[root@rhel7.nehraclasses ~]# mount -o remount /home

Now recheck the /home file system whether Quota is enable or not.
[root@rhel7.nehraclasses ~]# mount | grep /home
/dev/mapper/centos-home on /home type ext4 (rw,relatime,seclabel,quota,usrquota,grpquota,data=ordered)

Step:3 Create Quota Database Files using quotacheck
[root@rhel7.nehraclasses home]# quotacheck -cugv /home
Whereas :
-c : create quota file and don't use the existing file
-v : verbose ouput
-u : user disk quota
-g : group disk quota
Above Command will create aquota.user & aquota.group files under /home

After the files are created, run the following command to generate the table of current disk usage per file system with quotas enabled:
**quotacheck -avug**

Step:4 Turn on quota on /home using below command :
[root@rhel7.nehraclasses ~]# quotaon /home/

Step:5 Assign user & group disk quota via edquota commands
[root@rhel7.nehraclasses ~]# edquota -u jack
[root@rhel7.nehraclasses ~]# edquota -g quotagrp

As shown above we have two kind of Disk quota limits :
soft : It will warn the users if the soft limit of disk quota reached ( size is in KB), in above example for jack user soft limit is 5500 KB ( approx 5.5MB )
hard : It will not allow the users to create new files once the hard limit is reached. ( Size in KB ), in above example hard limit for jack user is 6000 KB ( approx 6 MB )

Note : We can also set the Quota on the basis of the inodes ( i.e numbers of files that the user can create on particular file system)

Let's take an example , login as jack user and try to create a file of 8MB.
[root@rhel7.nehraclasses ~]# su - jack

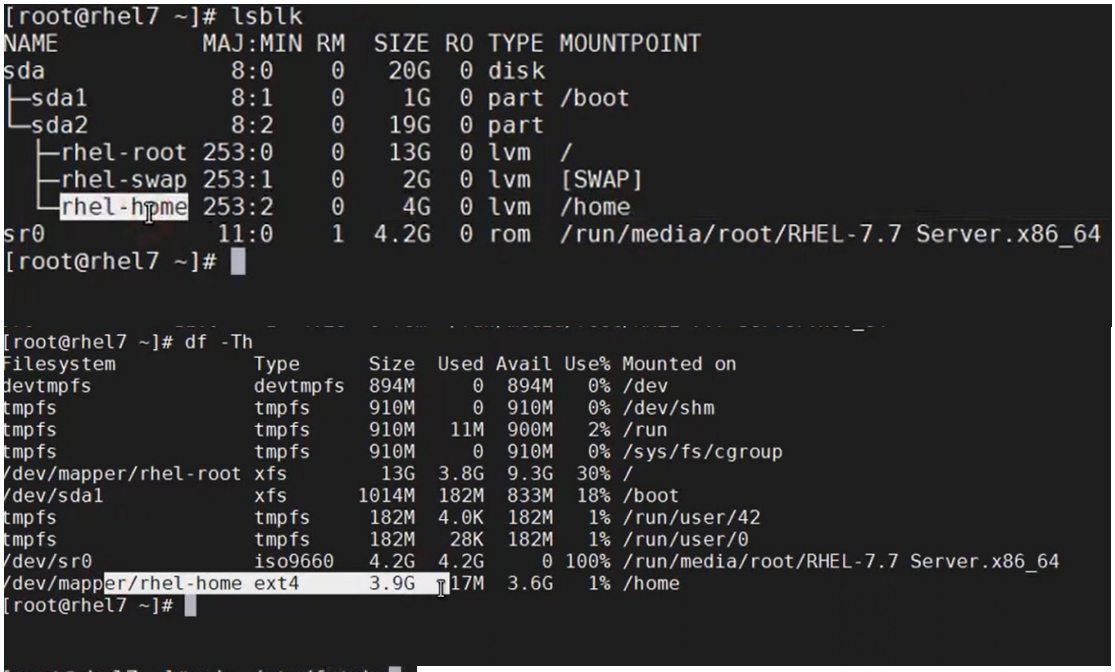
[jack@rhel7.nehraclasses ~]$ dd if=/dev/zero of=bgfile bs=1M count=8
dm-2: warning, user block quota exceeded.
dm-2: write failed, user block limit reached.
dd: error writing 'bgfile': Disk quota exceeded
6+0 records in
5+0 records out
6144000 bytes (6.1 MB) copied, 0.00711317 s, 864 MB/s
As we see above soft & hard limit is exceeded for jack user. Now onwards user jack can't create new files.

Step:6 Display Quota report for Users in human readable
[root@rhel7.nehraclasses ~]# repquota -as
OR # quota jack for (jack individual quota)

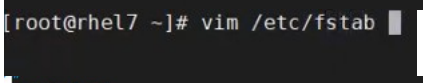
Step:7 Configure Grace Period for Soft Limit
Grace period is the amount of time during which soft limit can can be exceeded, once the grace period reached then soft limit will become the hard limit.
Use the edquota command to set Grace period .
[root@rhel7.nehraclasses ~]# edquota -t

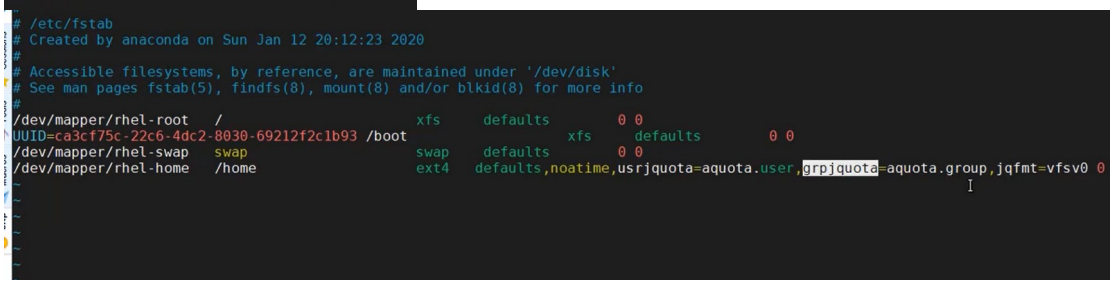
You have successfully configured journaled disk quota on ext4 filesystem in RHEL 7.

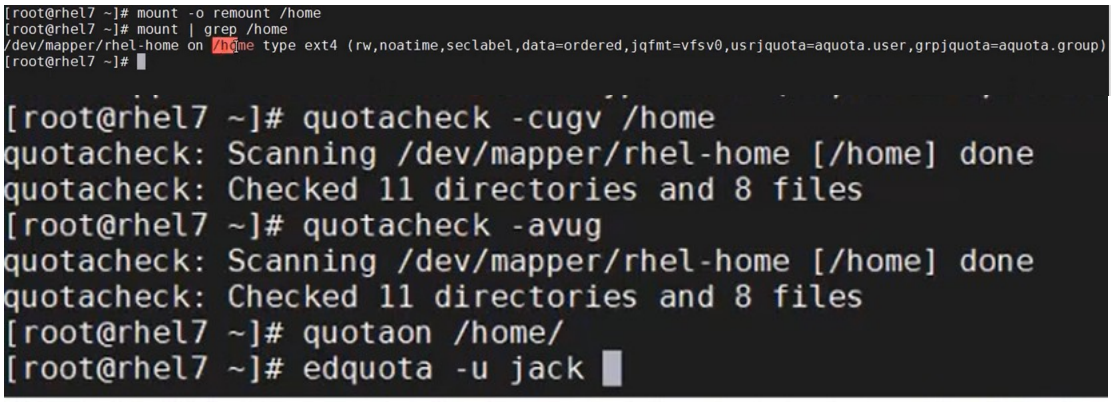
```
[root@rhel7 ~]# vim /etc/fstab

#
# /etc/fstab
# Created by anaconda on Sun Jan 12 20:12:23 2020
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
/dev/mapper/rhel-root   /                       xfs     defaults        0 0
UUID=ca3cf75c-22c6-4dc2-8030-69212f2c1b93 /boot                   xfs     defaults        0 0
/dev/mapper/rhel-swap   swap                    swap    defaults        0 0
~
~
~
~
~
~
```

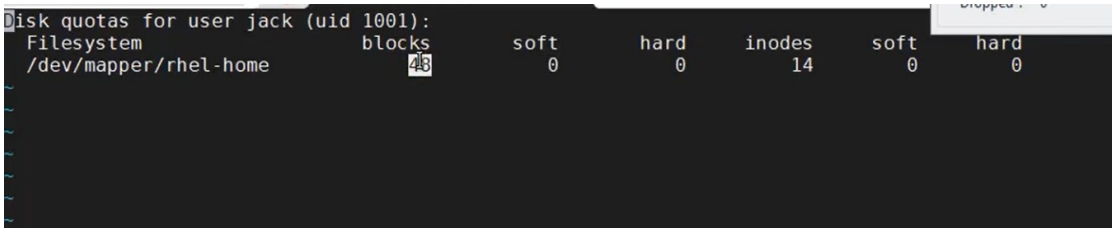

[root@rhel7 ~]# lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
sda 8:0 0 20G 0 disk
├─sda1 8:1 0 1G 0 part /boot
└─sda2 8:2 0 19G 0 part
├─rhel-root 253:0 0 13G 0 lvm /
├─rhel-swap 253:1 0 2G 0 lvm [SWAP]
└─rhel-home 253:2 0 4G 0 lvm /home
sr0 11:0 1 4.2G 0 rom /run/media/root/RHEL-7.7 Server.x86_64
[root@rhel7 ~]#


[root@rhel7 ~]# df -Th
Filesystem Type Size Used Avail Use% Mounted on
devtmpfs devtmpfs 894M 0 894M 0% /dev
tmpfs tmpfs 910M 0 910M 0% /dev/shm
tmpfs tmpfs 910M 11M 900M 2% /run
tmpfs tmpfs 910M 0 910M 0% /sys/fs/cgroup
/dev/mapper/rhel-root xfs 13G 3.8G 9.3G 30% /
/dev/sda1 xfs 1014M 182M 833M 18% /boot
tmpfs tmpfs 182M 4.0K 182M 1% /run/user/42
tmpfs tmpfs 182M 28K 182M 1% /run/user/0
/dev/sr0 iso9660 4.2G 4.2G 0 100% /run/media/root/RHEL-7.7 Server.x86_64
/dev/mapper/rhel-home ext4 3.9G 17M 3.6G 1% /home
[root@rhel7 ~]#


[root@rhel7 ~]# vim /etc/fstab


# /etc/fstab
# Created by anaconda on Sun Jan 12 20:12:23 2020
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
/dev/mapper/rhel-root / xfs defaults 0 0
UUID=ca3cf75c-22c6-4dc2-8030-69212f2c1b93 /boot xfs defaults 0 0
/dev/mapper/rhel-swap swap swap defaults 0 0
/dev/mapper/rhel-home /home ext4 defaults,noatime,usrjquota=aquota.user,grpjquota=aquota.group,jqfmt=vfsv0 0


[root@rhel7 ~]# mount -o remount /home
[root@rhel7 ~]# mount | grep /home
/dev/mapper/rhel-home on /home type ext4 (rw,noatime,seclabel,data=ordered,jqfmt=vfsv0,usrjquota=aquota.user,grpjquota=aquota.group)
[root@rhel7 ~]#
[root@rhel7 ~]# quotacheck -cugv /home
quotacheck: Scanning /dev/mapper/rhel-home [/home] done
quotacheck: Checked 11 directories and 8 files
[root@rhel7 ~]# quotacheck -avug
quotacheck: Scanning /dev/mapper/rhel-home [/home] done
quotacheck: Checked 11 directories and 8 files
[root@rhel7 ~]# quotaon /home/
[root@rhel7 ~]# edquota -u jack


Disk quotas for user jack (uid 1001):
Filesystem blocks soft hard inodes soft hard
/dev/mapper/rhel-home 48 0 0 14 0 0

Wq!

```
[root@rhel7 ~]# su - jack
Last login: Mon Jan 13 18:56:51 IST 2020 on pts/0
dm-2: write failed, user block limit reached.
'abrt-cli status' timed out
[jack@rhel7 ~]$ dd if=/dev/zero of=bgfile bs=1M count=80
dm-2: write failed, user block limit reached.
dd: error writing 'bgfile': Disk quota exceeded
1+0 records in
0+0 records out
4096 bytes (4.1 kB) copied, 0.00115696 s, 3.5 MB/s
[jack@rhel7 ~]$
```

```
[jack@rhel7 ~]$ logout
[root@rhel7 ~]#
```

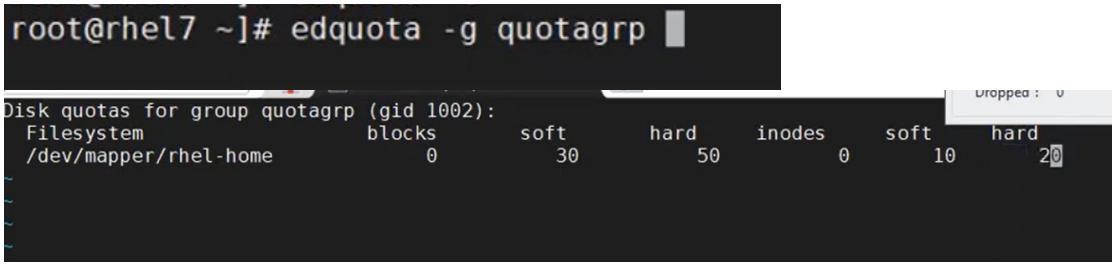
**# quota details for the users**

```
[root@rhel7 ~]# repquota -as
*** Report for user quotas on device /dev/mapper/rhel-home
Block grace time: 7days; Inode grace time: 7days
                        Space limits                File limits
User            used    soft    hard  grace    used  soft  hard  grace
----------------------------------------------------------------------
root      --      20K      0K      0K              2     0     0
jack      +-      48K      30K     50K  6days      14     0     0

[root@rhel7 ~]#
```

```
[root@rhel7 ~]# quota jack
Disk quotas for user jack (uid 1001):
     Filesystem  blocks   quota   limit   grace   files   quota   limit   grace
/dev/mapper/rhel-home
                  48*     30      50   6days      14       0       0
[root@rhel7 ~]# edquota -t
```

```
Grace period before enforcing soft limits for users:
Time units may be: days, hours, minutes, or seconds
  Filesystem             Block grace period     Inode grace period
  /dev/mapper/rhel-home                7days                  7days
```

**#implemented the Quota  for the grp users**




# Disk Quota Management on XFS File-System for Users & Groups in RHEL

DISK QUOTA ON "XFS" (RHEL-7):

A way to limit the users to eat disk space.
Quota can be implemented on behalf of,

- Block size: limit by block size
- Inode no: limit by inode/no. of files

XFS quotas are enabled as filesystem mount options when the filesystem is mounted.
User, Group and Project quotas are enabled independently.
Once quotas are enabled, the xfs_quota tool can be used to set limits and report on disk usage.
xfs_quota has two modes of operation, basic and expert mode
Basic mode includes commands for reporting disk usage to users.
Expert mode (xfs_quota -x) contains advanced commands that allow the modification of the quota system.

```
BASIC MODE:
[root@rhel7 ~]# xfs_quota
xfs_quota df
Filesystem          1K-blocks      Used  Available  Use% Pathname
/dev/mapper/rhel-root
                 13617152    3963504    9653648   29% /
/dev/mapper/rhel-home
                  4184064      33132    4150932    1% /home
/dev/sda1            1038336     186140     852196   18% /boot
xfs_quota print
Filesystem          Pathname
/                 /dev/mapper/rhel-root
/home               /dev/mapper/rhel-home
/boot             /dev/sda1
EXPERT MODE:
[root@rhel7 ~]# xfs_quota -x -c 'df -ih' /home
Filesystem   Inodes   Used   Free Use% Pathname
/dev/mapper/rhel-home
             2.1m     37   2.1m   0% /home
```

Setting quota for “tester” to limit block & inode via EXPERT MODE

```
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota /testdir
mount: can't find /testdir in /etc/fstab
[root@rhel7 ~]# mount | grep /testdir

#Nothing happened
#It means some more exercise required
[root@rhel7 ~]# umount /testdir
[root@rhel7 ~]# mount -o uquota,gquota,prjquota /dev/sdb1 /testdir
[root@rhel7 ~]# mount |grep /testdir
/dev/sdb1 on /testdir type xfs (rw,relatime,seclabel,attr2,inode64,usrquota,prjquota,grpquota)
Mount Permanent:
[root@rhel7 ~]# vim /etc/fstab
/dev/sdb1 /testdir xfs rw,seclabel,relatime,attr2,inode64,usrquota,prjquota,grpquota 0 0
```

```
[root@rhel7 ~]# xfs_quota -x /testdir
xfs_quota print
Filesystem          Pathname
/testdir            /dev/sdb1 (uquota, gquota, pquota)
xfs_quota state
User quota state on /testdir (/dev/sdb1)
  Accounting: ON
  Enforcement: ON
  Inode: #67 (1 blocks, 1 extents)
Group quota state on /testdir (/dev/sdb1)
  Accounting: ON
  Enforcement: ON
  Inode: #68 (1 blocks, 1 extents)
--
Setting quota via BASIC MODE
limit bsoft=10M bhard=15M tester
report -h
User quota on /testdir (/dev/sdb1)
                        Blocks
User ID      Used   Soft   Hard Warn/Grace
---
root            0      0      0  00 [------]
tester          0    10M    15M  00 [------]

SETTING QUOTA BY EXPERT MODE:

Setting User Quota (Block & Inode) on /testdir for user tester:
xfs_quota -x -c 'limit bsoft=25m bhard=50m isoft=50 ihard=100 tester' /testdir

Setting Group Quota (Block & Inode) on /testdir for group students:
[root@rhel7 ~]# xfs_quota -x -c 'limit -g bsoft=25m bhard=50m isoft=50 ihard=100 students' /testdir

[root@rhel7 ~]# xfs_quota -x -c "report -bih" /testdir
User quota on /testdir (/dev/sdb1)
                        Blocks                  Inodes
User ID      Used   Soft   Hard Warn/Grace    Used   Soft   Hard Warn/Grace
```

```
User ID      Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
--
root           0      0      0  00 [------]      4      0      0  00 [------]
tester         0    25M    50M  00 [------]      0     50    100  00 [------]

Group quota on /testdir (/dev/sdb1)
                        Blocks                            Inodes
Group ID     Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
--
root           0      0      0  00 [------]      4      0      0  00 [------]
students       0    25M    50M  00 [------]      0     50    100  00 [------]

REMOVING QUOTA BY EXPERT MODE:
For User:
[root@rhel7 ~]# xfs_quota -x -c 'limit bsoft=0 bhard=0 isoft=0 ihard=0 tester' /testdir

For Group:
[root@rhel7 ~]# xfs_quota -x -c 'limit -g bsoft=0m bhard=0m isoft=0 ihard=0 students' /testdir
Check:
[root@rhel7 ~]# xfs_quota -x -c "report -bih" /testdir
User quota on /testdir (/dev/sdb1)
                        Blocks                            Inodes
   User ID      Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
   --------
   root           0      0      0  00 [------]      4      0      0  00 [------]

   Group quota on /testdir (/dev/sdb1)
                        Blocks                            Inodes
   Group ID     Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
   --------
   root           0      0      0  00 [------]      4      0      0  00 [------]
   -----
```

```
[root@rhel7 ~]# xfs_quota
xfs_quota> df
Filesystem           1K-blocks       Used  Available  Use% Pathname
/dev/mapper/rhel-root
                      13617152    3963468    9653684   29% /
/dev/mapper/rhel-home
                       4184064      33132    4150932    1% /home
/dev/sda1              1038336     186140     852196   18% /boot
xfs_quota> print
Filesystem          Pathname
/                   /dev/mapper/rhel-root
/home               /dev/mapper/rhel-home
/boot               /dev/sda1
xfs_quota> help quota
```

```
xfs_quota> help quota
quota [-bir] [-g|-p|-u] [-hnNv] [-f file] [id|name]... -- show usage and limits

 display usage and quota information

 -g -- display group quota information
 -p -- display project quota information
 -u -- display user quota information
 -b -- display number of blocks used
 -i -- display number of inodes used
 -r -- display number of realtime blocks used
 -h -- report in a human-readable format
 -n -- skip identifier-to-name translations, just report IDs
 -N -- suppress the initial header
 -v -- increase verbosity in reporting (also dumps zero values)
 -f -- send output to a file
 The (optional) user/group/project can be specified either by name or by
 number (i.e. uid/gid/projid).
```

@ quit # q

```
[root@rhel7 ~]# xfs_quota -x -c
xfs_quota: option requires an argument -- 'c'
Usage: xfs_quota [-V] [-x] [-p prog] [-c cmd]... [-d project]... [path]
[root@rhel7 ~]# xfs_quota -x -c 'df -h' /home
Filesystem     Size   Used  Avail Use% Pathname
/dev/mapper/rhel-home
               4.0G  32.4M   4.0G   1% /home
[root@rhel7 ~]# xfs_quota -x -c 'df -ih' /home
Filesystem   Inodes   Used   Free Use% Pathname
/dev/mapper/rhel-home
               2.1m     37   2.1m   0% /home
[root@rhel7 ~]# #Setting quota for "tester" to limit block & inode via EXPERT MODE…
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# #Setting quota for "tester" to limit block & inode via EXPERT MODE……..
[root@rhel7 ~]# xfs_quota -x -c 'limit bsoft=20m bhard=30m isoft=50 ihard=75 tester' /testdir
xfs_quota: cannot setup path for mount /testdir: No such device or address
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# #Let's implement the function……
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota,prjquota /testdir
mount: /testdir not mounted or bad option

       In some cases useful info is found in syslog - try
       dmesg | tail or so.
[root@rhel7 ~]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda             8:0    0   20G  0 disk
├─sda1          8:1    0    1G  0 part /boot
└─sda2          8:2    0   19G  0 part
  ├─rhel-root 253:0    0   13G  0 lvm  /
  ├─rhel-swap 253:1    0    2G  0 lvm  [SWAP]
  └─rhel-home 253:2    0    4G  0 lvm  /home
sdb             8:16   0   10G  0 disk
└─sdb1          8:17   0   10G  0 part
sr0            11:0    1  4.2G  0 rom  /run/media/root/RHEL-7.7 Server.x86_64
[root@rhel7 ~]# mount /dev/sdb /testdir
mount: /dev/sdb is write-protected, mounting read-only
mount: wrong fs type, bad option, bad superblock on /dev/sdb,
       missing codepage or helper program, or other error

       In some cases useful info is found in syslog - try
       dmesg | tail or so.
[root@rhel7 ~]#
```

**# in Above mount the Quota**

```
[root@rhel7 ~]# mount /dev/sdb1 /testdir
[root@rhel7 ~]# cl
```

```
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota,prjquota /testdir
[root@rhel7 ~]# mount |grep /testdir
/dev/sdb1 on /testdir type xfs (rw,relatime,seclabel,attr2,inode64,noquota)
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# #Nothing happened……..
[root@rhel7 ~]#
[root@rhel7 ~]# #It means some more exercise required……
[root@rhel7 ~]# umount /testdir
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota,prjquota /testdir
mount: /testdir not mounted or bad option

       In some cases useful info is found in syslog - try
       dmesg | tail or so.
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota,prjquota /dev/sdb1 /testdir
mount: /testdir not mounted or bad option

       In some cases useful info is found in syslog - try
       dmesg | tail or so.
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda             8:0    0   20G  0 disk
├─sda1          8:1    0    1G  0 part /boot
└─sda2          8:2    0   19G  0 part
  ├─rhel-root 253:0    0   13G  0 lvm  /
  ├─rhel-swap 253:1    0    2G  0 lvm  [SWAP]
  └─rhel-home 253:2    0    4G  0 lvm  /home
sdb             8:16   0   10G  0 disk
└─sdb1          8:17   0   10G  0 part
sr0            11:0    1  4.2G  0 rom  /run/media/root/RHEL-7.7 Server.x86_64
[root@rhel7 ~]# mount /dev/sdb1 /testdir/
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota,prjquota /testdir
[root@rhel7 ~]# mount |grep /testdir
/dev/sdb1 on /testdir type xfs (rw,relatime,seclabel,attr2,inode64,noquota)
[root@rhel7 ~]#
```

**# error : as not formated in xfs filesystem**

```
[root@rhel7 ~]# umount /testdir/
[root@rhel7 ~]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda             8:0    0   20G  0 disk
├─sda1          8:1    0    1G  0 part /boot
└─sda2          8:2    0   19G  0 part
  ├─rhel-root 253:0    0   13G  0 lvm  /
  ├─rhel-swap 253:1    0    2G  0 lvm  [SWAP]
  └─rhel-home 253:2    0    4G  0 lvm  /home
sdb             8:16   0   10G  0 disk
└─sdb1          8:17   0   10G  0 part
sr0            11:0    1  4.2G  0 rom  /run/media/root/RHEL-7.7 Server.x86_64
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# mkfs.xfs /dev/sdb1
mkfs.xfs: /dev/sdb1 appears to contain an existing filesystem (xfs).
mkfs.xfs: Use the -f option to force overwrite.
[root@rhel7 ~]# mkfs.xfs /dev/sdb1 -f
meta-data=/dev/sdb1              isize=512    agcount=4, agsize=655296 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096   blocks=2621184, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0 ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
[root@rhel7 ~]# cl
```

```
[root@rhel7 ~]# mount /dev/sdb1 /testdir/
[root@rhel7 ~]# mount -o remount,rw,uquota,gquota,prjquota /dev/sdb1 /testdir
[root@rhel7 ~]# mount |grep /testdir
/dev/sdb1 on /testdir type xfs (rw,relatime,seclabel,attr2,inode64,noquota)
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# mount -o uquota,gquota,prjquota /dev/sdb1 /testdir
mount: /dev/sdb1 is already mounted or /testdir busy
       /dev/sdb1 is already mounted on /testdir
[root@rhel7 ~]# umount /testdir/
[root@rhel7 ~]# mount -o uquota,gquota,prjquota /dev/sdb1 /testdir
[root@rhel7 ~]# mount |grep /testdir
/dev/sdb1 on /testdir type xfs (rw,relatime,seclabel,attr2,inode64,usrquota,prjquota,grpquota)
[root@rhel7 ~]#
```

**# cat /etc/mtab**

```
cgroup /sys/fs/cgroup/freezer cgroup rw,seclabel,nosuid,nodev,noexec,relatime,freezer 0 0
cgroup /sys/fs/cgroup/cpu,cpuacct cgroup rw,seclabel,nosuid,nodev,noexec,relatime,cpuacct,cpu 0 0
cgroup /sys/fs/cgroup/blkio cgroup rw,seclabel,nosuid,nodev,noexec,relatime,blkio 0 0
cgroup /sys/fs/cgroup/devices cgroup rw,seclabel,nosuid,nodev,noexec,relatime,devices 0 0
cgroup /sys/fs/cgroup/net_cls,net_prio cgroup rw,seclabel,nosuid,nodev,noexec,relatime,net_prio,net_cls 0 0
cgroup /sys/fs/cgroup/memory cgroup rw,seclabel,nosuid,nodev,noexec,relatime,memory 0 0
cgroup /sys/fs/cgroup/pids cgroup rw,seclabel,nosuid,nodev,noexec,relatime,pids 0 0
cgroup /sys/fs/cgroup/hugetlb cgroup rw,seclabel,nosuid,nodev,noexec,relatime,hugetlb 0 0
cgroup /sys/fs/cgroup/perf_event cgroup rw,seclabel,nosuid,nodev,noexec,relatime,perf_event 0 0
configfs /sys/kernel/config configfs rw,relatime 0 0
/dev/mapper/rhel-root / xfs rw,seclabel,relatime,attr2,inode64,noquota 0 0
selinuxfs /sys/fs/selinux selinuxfs rw,relatime 0 0
systemd-1 /proc/sys/fs/binfmt_misc autofs rw,relatime,fd=25,pgrp=1,timeout=0,minproto=5,maxproto=5,direct,pipe_ino=14227 0 0
debugfs /sys/kernel/debug debugfs rw,relatime 0 0
mqueue /dev/mqueue mqueue rw,seclabel,relatime 0 0
hugetlbfs /dev/hugepages hugetlbfs rw,seclabel,relatime 0 0
/dev/mapper/rhel-home /home xfs rw,seclabel,relatime,attr2,inode64,noquota 0 0
/dev/sda1 /boot xfs rw,seclabel,relatime,attr2,inode64,noquota 0 0
sunrpc /var/lib/nfs/rpc_pipefs rpc_pipefs rw,relatime 0 0
tmpfs /run/user/42 tmpfs rw,seclabel,nosuid,nodev,relatime,size=186308k,mode=700,uid=42,gid=42 0 0
tmpfs /run/user/0 tmpfs rw,seclabel,nosuid,nodev,relatime,size=186308k,mode=700 0 0
gvfsd-fuse /run/user/0/gvfs fuse.gvfsd-fuse rw,nosuid,nodev,relatime,user_id=0,group_id=0 0 0
fusectl /sys/fs/fuse/connections fusectl rw,relatime 0 0
/dev/sr0 /run/media/root/RHEL-7.7\040Server.x86_64 iso9660 ro,nosuid,nodev,relatime,uid=0,gid=0,iocharset=utf8,mode=0400,dmo
0 0
/dev/sdb1 /testdir xfs rw,seclabel,relatime,attr2,inode64,usrquota,prjquota,grpquota 0 0
```

```
[root@rhel7 ~]# vim /etc/fstab
```

```
/etc/fstab
Created by anaconda on Sun Jan 12 20:12:23 2020

Accessible filesystems, by reference, are maintained under '/dev/disk'
See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info

dev/mapper/rhel-root   /                       xfs     defaults        0 0
UID=ca3cf75c-22c6-4dc2-8030-69212f2c1b93 /boot                   xfs     defaults
dev/mapper/rhel-home /home xfs rw,seclabel,relatime,attr2,inode64,noquota 0 0
dev/mapper/rhel-swap   swap                    swap    defaults        0 0
dev/sdb1 /testdir xfs rw,seclabel,relatime,attr2,inode64,usrquota,prjquota,grpquota 0 0
```

```
[root@rhel7 ~]# lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda             8:0    0   20G  0 disk
├─sda1          8:1    0    1G  0 part /boot
└─sda2          8:2    0   19G  0 part
  ├─rhel-root 253:0    0   13G  0 lvm  /
  ├─rhel-swap 253:1    0    2G  0 lvm  [SWAP]
  └─rhel-home 253:2    0    4G  0 lvm  /home
sdb             8:16   0   10G  0 disk
└─sdb1          8:17   0    5G  0 part /testdir
sr0            11:0    1  4.2G  0 rom  /run/media/root/RHEL-7.7 Server.x86_64
[root@rhel7 ~]#
```

**# Proceed to Quota Management**

```
[root@rhel7 ~]# xfs_quota -x /testdir
xfs_quota> print
Filesystem          Pathname
/testdir            /dev/sdb1 (uquota, gquota, pquota)
xfs_quota> state
User quota state on /testdir (/dev/sdb1)
  Accounting: ON
  Enforcement: ON
  Inode: #67 (1 blocks, 1 extents)
Group quota state on /testdir (/dev/sdb1)
  Accounting: ON
  Enforcement: ON
  Inode: #68 (1 blocks, 1 extents)
Project quota state on /testdir (/dev/sdb1)
  Accounting: ON
  Enforcement: ON
  Inode: #68 (1 blocks, 1 extents)
Blocks grace time: [7 days]
Inodes grace time: [7 days]
Realtime Blocks grace time: [7 days]
xfs_quota>
```

```
xfs_quota> report -h
User quota on /testdir (/dev/sdb1)
                        Blocks
User ID      Used   Soft   Hard Warn/Grace
---------- --------------------------------
root            0      0      0  00 [------]

Group quota on /testdir (/dev/sdb1)
                        Blocks
Group ID     Used   Soft   Hard Warn/Grace
---------- --------------------------------
root            0      0      0  00 [------]

Project quota on /testdir (/dev/sdb1)
                        Blocks
Project ID   Used   Soft   Hard Warn/Grace
---------- --------------------------------
#0              0      0      0  00 [------]

xfs_quota>
```

**# Quota for tester user**

```
xfs_quota> limit bsoft=10M bhard=15M tester
xfs_quota> report -h
User quota on /testdir (/dev/sdb1)
                        Blocks
User ID      Used   Soft   Hard Warn/Grace
---------- --------------------------------
root            0      0      0  00 [------]
tester          0    10M    15M  00 [------]

Group quota on /testdir (/dev/sdb1)
                        Blocks
Group ID     Used   Soft   Hard Warn/Grace
---------- --------------------------------
root            0      0      0  00 [------]

Project quota on /testdir (/dev/sdb1)
                        Blocks
Project ID   Used   Soft   Hard Warn/Grace
---------- --------------------------------
#0              0      0      0  00 [------]

xfs_quota>

xfs_quota> q
[root@rhel7 ~]#
```

**# now implement the Quote in expert mode**

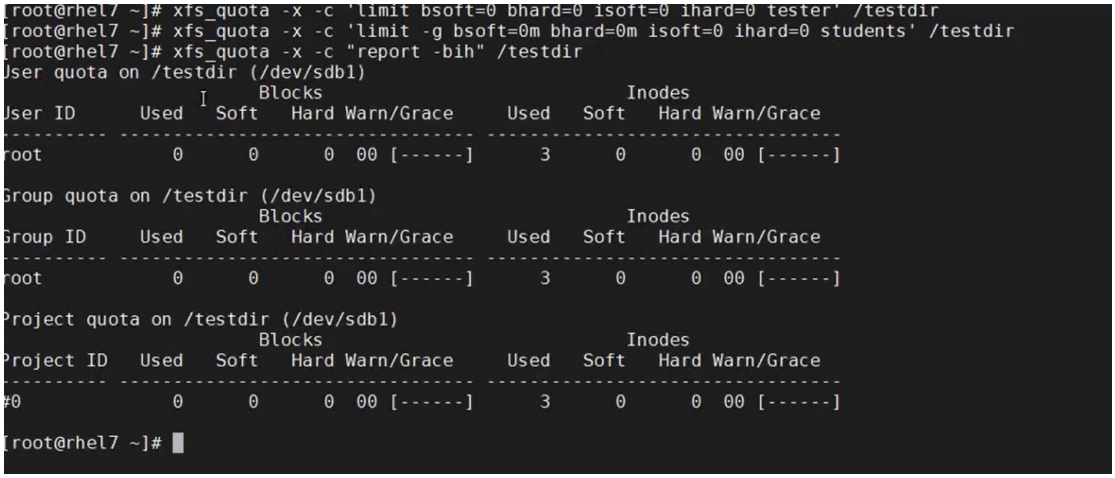
```
[root@rhel7 ~]# xfs_quota -x -c 'limit bsoft=25m bhard=50m isoft=50 ihard=100 tester' /testdir
[root@rhel7 ~]# xfs_quota -x -c "report -bih" /testdir
User quota on /testdir (/dev/sdb1)
                        Blocks                                  Inodes
User ID      Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
---------- -------------------------------- --------------------------------
root            0      0      0  00 [------]      3      0      0  00 [------]
tester          0    25M    50M  00 [------]      0     50    100  00 [------]

Group quota on /testdir (/dev/sdb1)
                        Blocks                                  Inodes
Group ID     Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
---------- -------------------------------- --------------------------------
root            0      0      0  00 [------]      3      0      0  00 [------]

Project quota on /testdir (/dev/sdb1)
                        Blocks                                  Inodes
Project ID   Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
---------- -------------------------------- --------------------------------
#0              0      0      0  00 [------]      3      0      0  00 [------]

[root@rhel7 ~]#
```

**# implement Quota on the Grp**

```
[root@rhel7 ~]# cat /etc/group
avahi:x:70:
postdrop:x:90:
postfix:x:89:
ntp:x:38:
stapusr:x:156:
stapsys:x:157:
stapdev:x:158:
tcpdump:x:72:
vikasnehra:x:1000:vikasnehra
TestUser:x:1002:
admin:x:1003:
quota:x:1004:
tester:x:1005:
students:x:1006:
[root@rhel7 ~]#
```

```
[root@rhel7 ~]# xfs_quota -x -c 'limit -g bsoft=25m bhard=50m isoft=50 ihard=100 students' /testdir
[root@rhel7 ~]# xfs_quota -x -c "report -bih" /testdir
User quota on /testdir (/dev/sdb1)
                        Blocks                                  Inodes
User ID      Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
---------- -------------------------------- --------------------------------
root            0      0      0  00 [------]      3      0      0  00 [------]
tester          0    25M    50M  00 [------]      0     50    100  00 [------]

Group quota on /testdir (/dev/sdb1)
                        Blocks                                  Inodes
Group ID     Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
---------- -------------------------------- --------------------------------
root            0      0      0  00 [------]      3      0      0  00 [------]
students        0    25M    50M  00 [------]      0     50    100  00 [------]

Project quota on /testdir (/dev/sdb1)
                        Blocks                                  Inodes
Project ID   Used   Soft   Hard Warn/Grace     Used   Soft   Hard Warn/Grace
---------- -------------------------------- --------------------------------
#0              0      0      0  00 [------]      3      0      0  00 [------]

[root@rhel7 ~]#
```

**# now Remove  user + grp Quota**


[root@rhel7 ~]# xfs_quota -x -c 'limit bsoft=0 bhard=0 isoft=0 ihard=0 tester' /testdir
[root@rhel7 ~]# xfs_quota -x -c 'limit -g bsoft=0m bhard=0m isoft=0 ihard=0 students' /testdir
[root@rhel7 ~]# xfs_quota -x -c "report -bih" /testdir
User quota on /testdir (/dev/sdb1)
Blocks Inodes
User ID Used Soft Hard Warn/Grace Used Soft Hard Warn/Grace
root 0 0 0 00 [------] 3 0 0 00 [------]
Group quota on /testdir (/dev/sdb1)
Blocks Inodes
Group ID Used Soft Hard Warn/Grace Used Soft Hard Warn/Grace
root 0 0 0 00 [------] 3 0 0 00 [------]
Project quota on /testdir (/dev/sdb1)
Blocks Inodes
Project ID Used Soft Hard Warn/Grace Used Soft Hard Warn/Grace
#0 0 0 0 00 [------] 3 0 0 00 [------]
[root@rhel7 ~]#