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104.4 - Gérer des quotas disque (1/60)

Important : Déconnectez-vous et re-connectez-vous directement en tant que root.

Sous Linux il est possible de mettre en place des quotas par utilisateur et par groupe. Ceci étant, Linux ne sait pas gérer des quotas par répertoire, uniquement des quotas par partition. L'administrateur met souvent des quotas en place sur l'arborescence de /home pour limiter l'espace de stockage occupé par les utilisateurs.

Commencez par vérifiez que le paquet **quota** est bien installé :

```
root@debian8:~# dpkg --get-selections | grep quota
root@debian8:~# apt-get install quota
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  libnet-ldap-perl
The following NEW packages will be installed:
  quota
0 upgraded, 1 newly installed, 0 to remove and 1 not upgraded.
Need to get 319 kB of archives.
After this operation, 1,580 kB of additional disk space will be used.
Get:1 http://ftp.fr.debian.org/debian/ jessie/main quota amd64 4.01-8+deb8u1 [319 kB]
Fetched 319 kB in 0s (1,884 kB/s)
Preconfiguring packages ...
Selecting previously unselected package quota.
(Reading database ... 146985 files and directories currently installed.)
Preparing to unpack .../quota_4.01-8+deb8u1_amd64.deb ...
```

```
Unpacking quota (4.01-8+deb8u1) ...
Processing triggers for man-db (2.7.0.2-5) ...
Processing triggers for systemd (215-17+deb8u4) ...
Setting up quota (4.01-8+deb8u1) ...
Processing triggers for systemd (215-17+deb8u4) ...
```

A Faire - Arrêtez votre machine virtuelle. Ajoutez un deuxième disque de 20 Go au contrôleur SATA en utilisant la section **Stockage** des paramètres de la machine virtuelle. Le format du disque doit être **vmdk**. Nommez ce disque **DebianHome** et re-démarrez la machine virtuelle.

Créez une seule partition sur **/dev/sdb** :

```
root@debian8:~# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.25.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x5b6171fe.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-41943039, default 41943039):

Created a new partition 1 of type 'Linux' and of size 20 GiB.
```

```
Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

Créez maintenant un système de fichiers ext4 sur **/dev/sdb1** :

```
root@debian8:~# mkfs.ext4 /dev/sdb1
mke2fs 1.42.12 (29-Aug-2014)
Creating filesystem with 5242624 4k blocks and 1310720 inodes
Filesystem UUID: 6e4ea901-a36d-4b3f-bbbf-eeea866fca40
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
```

Montez **/dev/sdb1** sur /mnt :

```
root@debian8:~# mount /dev/sdb1 /mnt
```

Copiez le contenu de /home vers /mnt :

```
root@debian8:~# cp -a /home/* /mnt
```

Démontez /dev/sdb1 et déplacez /home vers /root :

```
root@debian8:~# umount /mnt
root@debian8:~# mv /home /root
```

Identifiez l'UUID de /dev/sdb1 :

```
root@debian8:~# ls -l /dev/disk/by-uuid/ | grep sdb1
lrwxrwxrwx 1 root root 10 Aug 13 12:26 6e4ea901-a36d-4b3f-bbbf-eeea866fca40 -> ../../sdb1
```

Editez le fichier **/etc/fstab** en ajoutant la ligne pour le montage de /home :

/etc/fstab

```
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda1 during installation
UUID=4a230056-285f-42f4-bfe0-5a73dbc5b745 /               ext4    errors=remount-ro 0       1
# swap was on /dev/sda5 during installation
UUID=da5a77e9-344d-42aa-aed6-a38d381ba436 none            swap    sw              0       0
UUID=6e4ea901-a36d-4b3f-bbbf-eeea866fca40 /home       ext4      defaults    0 0
/dev/sr0        /media/cdrom0   udf,iso9660 user,noauto     0       0
```

Créez le point de montage /home :

```
root@debian8:~# mkdir /home
```

Montez /dev/sdb1 :

```
root@debian8:~# mount -a
root@debian8:~# mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
```

```
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,relatime,size=10240k,nr_inodes=61148,mode=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,relatime,size=101232k,mode=755)
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro,data=ordered)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k)
tmpfs on /sys/fs/cgroup type tmpfs (ro,nosuid,nodev,noexec,mode=755)
cgroup on /sys/fs/cgroup/systemd type cgroup
(rw,nosuid,nodev,noexec,relatime,xattr,release_agent=/lib/systemd/systemd-cgroups-agent,name=systemd)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime)
cgroup on /sys/fs/cgroup/cpuset type cgroup (rw,nosuid,nodev,noexec,relatime,cpuset)
cgroup on /sys/fs/cgroup/cpu,cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime,cpu,cpuacct)
cgroup on /sys/fs/cgroup/devices type cgroup (rw,nosuid,nodev,noexec,relatime,devices)
cgroup on /sys/fs/cgroup/freezer type cgroup (rw,nosuid,nodev,noexec,relatime,freezer)
cgroup on /sys/fs/cgroup/net_cls,net_prio type cgroup (rw,nosuid,nodev,noexec,relatime,net_cls,net_prio)
cgroup on /sys/fs/cgroup/blkio type cgroup (rw,nosuid,nodev,noexec,relatime,blkio)
cgroup on /sys/fs/cgroup/perf_event type cgroup (rw,nosuid,nodev,noexec,relatime,perf_event)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs
(rw,relatime,fd=23,pgrp=1,timeout=300,minproto=5,maxproto=5,direct)
debugfs on /sys/kernel/debug type debugfs (rw,relatime)
mqueue on /dev/mqueue type mqueue (rw,relatime)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime)
fusectl on /sys/fs/fuse/connections type fusectl (rw,relatime)
rpc_pipefs on /run/rpc_pipefs type rpc_pipefs (rw,relatime)
tmpfs on /run/user/0 type tmpfs (rw,nosuid,nodev,relatime,size=50616k,mode=700)
tmpfs on /run/user/1000 type tmpfs (rw,nosuid,nodev,relatime,size=50616k,mode=700,uid=1000,gid=1000)
/dev/sdb1 on /home type ext4 (rw,relatime,data=ordered)
```

Notez la taille de /home :

```
root@debian8:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
```

```
/dev/sda1       9.5G  5.7G  3.4G  63% /
udev             10M     0   10M   0% /dev
tmpfs            99M  4.8M   95M   5% /run
tmpfs           248M     0  248M   0% /dev/shm
tmpfs           5.0M  4.0K  5.0M   1% /run/lock
tmpfs           248M     0  248M   0% /sys/fs/cgroup
tmpfs            50M     0   50M   0% /run/user/0
tmpfs            50M     0   50M   0% /run/user/1000
/dev/sdb1        20G   46M   19G   1% /home
```

Editez le fichier **/etc/fstab** en ajoutant les options **usrquota** et **grpquota** à la ligne **/home** :

```
root@debian8:~# vi /etc/fstab
root@debian8:~# cat /etc/fstab
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda1 during installation
UUID=4a230056-285f-42f4-bfe0-5a73dbc5b745 /               ext4    errors=remount-ro 0       1
# swap was on /dev/sda5 during installation
UUID=da5a77e9-344d-42aa-aed6-a38d381ba436 none            swap    sw              0       0
UUID=6e4ea901-a36d-4b3f-bbbf-eeea866fca40 /home       ext4      defaults,usrquota,grpquota    0 0
/dev/sr0        /media/cdrom0   udf,iso9660 user,noauto     0       0
```

Démontez puis remontez /home :

```
root@debian8:~# umount /home
root@debian8:~# mount -a
```

Vérifiez ensuite que les options soient prises en compte :

```
root@debian8:~# cat /etc/mtab
rootfs / rootfs rw 0 0
sysfs /sys sysfs rw,nosuid,nodev,noexec,relatime 0 0
proc /proc proc rw,nosuid,nodev,noexec,relatime 0 0
udev /dev devtmpfs rw,relatime,size=10240k,nr_inodes=61148,mode=755 0 0
devpts /dev/pts devpts rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000 0 0
tmpfs /run tmpfs rw,nosuid,relatime,size=101232k,mode=755 0 0
/dev/sda1 / ext4 rw,relatime,errors=remount-ro,data=ordered 0 0
securityfs /sys/kernel/security securityfs rw,nosuid,nodev,noexec,relatime 0 0
tmpfs /dev/shm tmpfs rw,nosuid,nodev 0 0
tmpfs /run/lock tmpfs rw,nosuid,nodev,noexec,relatime,size=5120k 0 0
tmpfs /sys/fs/cgroup tmpfs ro,nosuid,nodev,noexec,mode=755 0 0
cgroup /sys/fs/cgroup/systemd cgroup rw,nosuid,nodev,noexec,relatime,xattr,release_agent=/lib/systemd/systemd-
cgroups-agent,name=systemd 0 0
pstore /sys/fs/pstore pstore rw,nosuid,nodev,noexec,relatime 0 0
cgroup /sys/fs/cgroup/cpuset cgroup rw,nosuid,nodev,noexec,relatime,cpuset 0 0
cgroup /sys/fs/cgroup/cpu,cpuacct cgroup rw,nosuid,nodev,noexec,relatime,cpu,cpuacct 0 0
cgroup /sys/fs/cgroup/devices cgroup rw,nosuid,nodev,noexec,relatime,devices 0 0
cgroup /sys/fs/cgroup/freezer cgroup rw,nosuid,nodev,noexec,relatime,freezer 0 0
cgroup /sys/fs/cgroup/net_cls,net_prio cgroup rw,nosuid,nodev,noexec,relatime,net_cls,net_prio 0 0
cgroup /sys/fs/cgroup/blkio cgroup rw,nosuid,nodev,noexec,relatime,blkio 0 0
cgroup /sys/fs/cgroup/perf_event cgroup rw,nosuid,nodev,noexec,relatime,perf_event 0 0
systemd-1 /proc/sys/fs/binfmt_misc autofs rw,relatime,fd=23,pgrp=1,timeout=300,minproto=5,maxproto=5,direct 0 0
hugetlbfs /dev/hugepages hugetlbfs rw,relatime 0 0
debugfs /sys/kernel/debug debugfs rw,relatime 0 0
mqueue /dev/mqueue mqueue rw,relatime 0 0
fusectl /sys/fs/fuse/connections fusectl rw,relatime 0 0
rpc_pipefs /run/rpc_pipefs rpc_pipefs rw,relatime 0 0
tmpfs /run/user/0 tmpfs rw,nosuid,nodev,relatime,size=50616k,mode=700 0 0
/dev/sdb1 /home ext4 rw,relatime,quota,usrquota,grpquota,data=ordered 0 0
```

La Commande quotacheck

Pour activer les quotas sur /home, il convient d'utiliser la commande **quotacheck** :

```
root@debian8:~# quotacheck -cugvm -f /dev/sdb1
quotacheck: Your kernel probably supports journaled quota but you are not using it. Consider switching to
journaled quota to avoid running quotacheck after an unclean shutdown.
quotacheck: Scanning /dev/sdb1 [/home] done
quotacheck: Cannot stat old user quota file /home/aquota.user: No such file or directory. Usage will not be
subtracted.
quotacheck: Cannot stat old group quota file /home/aquota.group: No such file or directory. Usage will not be
subtracted.
quotacheck: Cannot stat old user quota file /home/aquota.user: No such file or directory. Usage will not be
subtracted.
quotacheck: Cannot stat old group quota file /home/aquota.group: No such file or directory. Usage will not be
subtracted.
quotacheck: Checked 6754 directories and 64246 files
quotacheck: Old file not found.
quotacheck: Old file not found.
```

Les options de la commande quotacheck sont :

```
root@debian8:~# quotacheck --help
Utility for checking and repairing quota files.
quotacheck [-gucbfinvdmMR] [-F <quota-format>] filesystem|-a

-u, --user                check user files
-g, --group               check group files
-c, --create-files        create new quota files
-b, --backup              create backups of old quota files
-f, --force               force check even if quotas are enabled
-i, --interactive         interactive mode
-n, --use-first-dquot     use the first copy of duplicated structure
```

```
-v, --verbose             print more information
-d, --debug               print even more messages
-m, --no-remount          do not remount filesystem read-only
-M, --try-remount         try remounting filesystem read-only,
                          continue even if it fails
-R, --exclude-root        exclude root when checking all filesystems
-F, --format=formatname   check quota files of specific format
-a, --all                 check all filesystems
-h, --help                display this message and exit
-V, --version             display version information and exit

Bugs to jack@suse.cz
```

Les quotas ont été activés et les fichier **aquota.user** et **aquota.group** ont été créés dans le répertoire /home :

```
root@debian8:~# ls -la /home
total 44
drwxr-xr-x  4 root    root     4096 Aug 14 09:25 .
drwxr-xr-x 23 root    root     4096 Aug 13 15:38 ..
-rw-------  1 root    root     7168 Aug 14 09:25 aquota.group
-rw-------  1 root    root     7168 Aug 14 09:25 aquota.user
drwx------  2 root    root    16384 Aug 13 12:26 lost+found
drwxr-xr-x 18 trainee trainee  4096 Aug 13 13:31 trainee
```

Créez maintenant un utilisateur **fenestros** avec le mot de passe **fenestros** :

```
root@debian8:~# groupadd fenestros && useradd -m fenestros -c FenestrOs -d /home/fenestros -g fenestros -s
/bin/bash
root@debian8:~# passwd fenestros
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
```

La Commande edquota

Mettez en place maintenant un quota de 10Mo pour l'utilisateur **fenestros** :

```
root@debian8:~# EDITOR=/usr/bin/vi
root@debian8:~# export EDITOR
root@debian8:~# edquota -u fenestros -f /home
```

L'éditeur **vi** se lance et vous obtiendrez un résultat similaire à celui-ci :

```
Disk quotas for user fenestros (uid 1001):
  Filesystem                   blocks       soft       hard     inodes     soft     hard
  /dev/sdb1                         0          0          0          0        0        0
```

Modifiez ce fichier ainsi :

```
Disk quotas for user fenestros (uid 1001):
  Filesystem                   blocks       soft       hard     inodes     soft     hard
  /dev/sdb1                         0       8000      10000          0        0        0
```

Les options de la commande **edquota** sont :

```
root@debian8:~# edquota --help
edquota: Usage:
    edquota [-rm] [-u] [-F formatname] [-p username] [-f filesystem] username ...
    edquota [-rm] -g [-F formatname] [-p groupname] [-f filesystem] groupname ...
    edquota [-u|g] [-F formatname] [-f filesystem] -t
    edquota [-u|g] [-F formatname] [-f filesystem] -T username|groupname ...

-u, --user                    edit user data
-g, --group                   edit group data
-r, --remote                  edit remote quota (via RPC)
```

```
-m, --no-mixed-pathnames      trim leading slashes from NFSv4 mountpoints
-F, --format=formatname       edit quotas of a specific format
-p, --prototype=name          copy data from a prototype user/group
    --always-resolve          always try to resolve name, even if it is
                              composed only of digits
-f, --filesystem=filesystem   edit data only on a specific filesystem
-t, --edit-period             edit grace period
-T, --edit-times              edit grace time of a user/group
-h, --help                    display this help text and exit
-V, --version                 display version information and exit

Bugs to: jack@suse.cz
```

Important - Pour mettre en place un quota par group, la procédure est similaire. Il suffit d'utiliser l'option -g de la commande edquota.

La Commande quotaon

Appliquez maintenant les quotas :

```
root@debian8:~# quotaon -a
```

Les options de la commande **quotaon** sont :

```
root@debian8:~# quotaon --help
quotaon: Usage:
    quotaon [-guvp] [-F quotaformat] [-x state] -a
    quotaon [-guvp] [-F quotaformat] [-x state] filesys ...

-a, --all               turn quotas on for all filesystems
```

```
-f, --off                turn quotas off
-u, --user               operate on user quotas
-g, --group              operate on group quotas
-p, --print-state        print whether quotas are on or off
-x, --xfs-command=cmd    perform XFS quota command
-F, --format=formatname  operate on specific quota format
-v, --verbose            print more messages
-h, --help               display this help text and exit
-V, --version            display version information and exit
```

De cette manière vous avez mis en place un quota **souple** pour fenestros de 8 000 Ko et un quota **stricte** de 10 000 Ko.

Quand l'utilisateur fenestros aura dépassé le quota **souple**, il recevra un message d'avertissement. Quand il dépasse le quota **stricte**, il ne pourra plus enregistrer dans /home, sauf dans le cas où il supprime des fichiers pour retomber en dessous de la limite **stricte**.

Il est à noter que vous pouvez soit mettre en place un quota en taille, soit mettre en place un quota basé sur le nombre d'inodes utilisés par l'utilisateur.

Important - La commande pour désactivez les quotas est **quotaoff**.

La Commande repquota

Pour visualiser les quotas utilisez la commande **repquota** :

```
root@debian8:~# repquota /home
*** Report for user quotas on device /dev/sdb1
Block grace time: 7days; Inode grace time: 7days
                        Block limits                File limits
User            used    soft    hard  grace    used  soft  hard  grace
```

```
--------------------------------------------------------------------------
root      --      20       0       0              2     0     0
trainee   -- 1125912       0       0          70998     0     0
```

Important - Notez que l'utilisateur fenestros ne figure pas dans la liste. Sous Debian, le quota n'est pas visible tant que l'utilisateur ne s'est pas connecté pour la première fois. Notez aussi les période de grâce de **7** jours.

Les options de la commande **repquota** sont :

```
root@debian8:~# repquota --help
repquota: Utility for reporting quotas.
Usage:
repquota [-vugsi] [-c|C] [-t|n] [-F quotaformat] (-a | mntpoint)

-v, --verbose               display also users/groups without any usage
-u, --user                  display information about users
-g, --group                 display information about groups
-s, --human-readable        show numbers in human friendly units (MB, GB, ...)
-t, --truncate-names        truncate names to 9 characters
-p, --raw-grace             print grace time in seconds since epoch
-n, --no-names              do not translate uid/gid to name
-i, --no-autofs             avoid autofs mountpoints
-c, --batch-translation     translate big number of ids at once
-C, --no-batch-translation  translate ids one by one
-F, --format=formatname     report information for specific format
-h, --help                  display this help message and exit
-V, --version               display version information and exit

Bugs to jack@suse.cz
```

La Commande quota

Pour visualiser les quotas d'un utilisateur spécifique, il convient d'utiliser la commande **quota** :

```
root@debian8:~# quota fenestros
Disk quotas for user fenestros (uid 1001): none
root@debian8:~# su - fenestros
fenestros@debian8:~$ touch test
fenestros@debian8:~$ exit
logout
root@debian8:~# quota fenestros
Disk quotas for user fenestros (uid 1001):
     Filesystem  blocks   quota   limit   grace   files   quota   limit   grace
      /dev/sdb1      20    8000   10000               6       0       0
```

Les options de la commande **quota** sont :

```
root@debian8:~# quota --help
quota: Usage: quota [-guqvswim] [-l | [-Q | -A]] [-F quotaformat]
    quota [-qvswim] [-l | [-Q | -A]] [-F quotaformat] -u username ...
    quota [-qvswim] [-l | [-Q | -A]] [-F quotaformat] -g groupname ...
    quota [-qvswugQm] [-F quotaformat] -f filesystem ...

-u, --user                display quota for user
-g, --group               display quota for group
-q, --quiet               print more terse message
-v, --verbose             print more verbose message
-s, --human-readable      display numbers in human friendly units (MB, GB...)
    --always-resolve      always try to translate name to id, even if it is
              composed of only digits
-w, --no-wrap             do not wrap long lines
-p, --raw-grace           print grace time in seconds since epoch
-l, --local-only          do not query NFS filesystems
```

```
-Q, --quiet-refuse        do not print error message when NFS server does
                          not respond
-i, --no-autofs           do not query autofs mountpoints
-F, --format=formatname   display quota of a specific format
-f, --filesystem-list     display quota information only for given filesystems
-A, --nfs-all             display quota for all NFS mountpoints
-m, --no-mixed-pathnames  trim leading slashes from NFSv4 mountpoints
    --show-mntpoint       show mount point of the file system in output
    --hide-device         do not show file system device in output
-h, --help                display this help message and exit
-V, --version             display version information and exit

Bugs to: jack@suse.cz
```

La Commande warnquota

La commande **warnquota** vérifie le ou les disques et envoie un message par mail à tout utilisateur qui a dépassé la limite soft. Elle est enrègle générale appelée par un job cron. Cependant elle peut aussi est appelée d'une manière intéractive.

Les options de la commande **warnquota** sont :

```
root@debian8:~# warnquota --help
warnquota: Usage:
  warnquota [-ugsid] [-F quotaformat] [-c configfile] [-q quotatabfile] [-a adminsfile] [filesystem...]

-u, --user                    warn users
-g, --group                   warn groups
-s, --human-readable          send information in more human friendly units
-i, --no-autofs               avoid autofs mountpoints
-d, --no-details              do not send quota information itself
-F, --format=formatname       use quotafiles of specific format
-c, --config=config-file      non-default config file
```

```
-q, --quota-tab=quotatab-file   non-default quotatab
-a, --admins-file=admins-file   non-default admins file
-h, --help                      display this help message and exit
-v, --version                   display version information and exit

Bugs to jack@suse.cz
```

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