

LPIC-1 101-400 – Lesson 20

104.4 Manage disk quotas

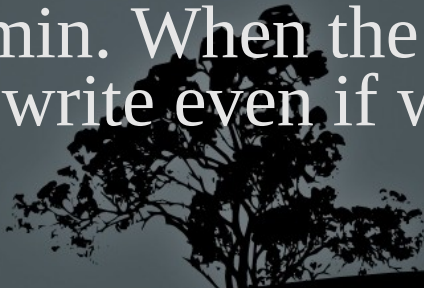


Disk quotas

- Disk quotas give the system administrator better control over the utilization of a filesystem, by restricting the allowed amount of storage each users can have
- This protects the system from filling up and makes disk management easier for the system administrator



Quota limits

- **Per-user hard limit:** this is the maximum limit a user can have. When this limit is reached the user is not allowed to write anything
 - **Per-user soft limit:** when this limit is reached a warning is issued
 - **Per-group hard limit:** this is the maximum limit a group can have. When this limit is reached the users of the group are not allowed to write anything
 - **Per-group soft limit:** when the groups limit is reached the group users will get a warning
 - **Grace period:** when the soft limit is reached we enter a grace period which is set by the sysadmin. When the grace period expires we can no longer write even if we haven't reach the hard limit yet
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Steps to enable quotas

1. Add the options **usrquota**, **grpquota** in the mount parameters of a filesystem in **/etc/fstab**, e.g.:

```
/dev/sda5/home ext3 defaults,usrquota,grpquota 0 2
```

2. Create the **aquota.user** and **aquota.group** to the parent directory of the filesystem:

```
# quotacheck -cug # create files  
/home/aquota.user and /home/aquota.group
```

3. Run the **quotacheck -avug** command to initialize the aquota.* files

4. Set quotas per user and group

```
# edquota user  
# edquota -g group
```

5. Check user and group quotas

```
# quota user ; # quota -g group
```



Steps to enable quotas

6. Set up grace period


7. # edquota -t

8. Activate quotas from the filesystem (e.g. /home)
quoton -vug /home

9. Quota summary
repquota -a

10. Periodic update of quotas using cron

```
# cat > /etc/cron.daily/quota.sh << EOF # create a  
# script  
  
> #!/bin/sh  
> /sbin/quotacheck -aug >> /etc/cron.daily/quota.sh  
> EOF  
  
# chmod +x /etc/cron.daily/quota.sh # make the script  
executable
```



The `quotacheck` command

- The **quotacheck** command is used for checking the usage of the filesystem and for the creation control and repair of the quota database files (aquota.user, aquota.group)
- **# quotacheck -cug** # create the aquota.user and aquota.group files
- **# quotacheck -avug** # create the quota tables in the files above



The `quotacheck` command

Options:

- `-a` # check all quota enabled filesystems in `/etc/fstab`
- `-u` # quota check for users (default)
- `-g` # quota check for groups
- `-c` # create new quota database files
- `-v` # verbose output



Set quota limits with `edquota`

- The `edquota` command sets the quota limits for users and groups
- `# edquota user1 # = edquota -u user1.`
Set limits for user `user1`
- `# edquota -g group1 # set limits for group1`
- `# edquota -t # = edquota -tu.` Set grace period for all users
- `# edquota -tg # Set grace period for all groups`
- `# edquota -p template_user user1 user2`
`# copy settings from the template_user to user1 and user2`

Check quotas with `quota`

- The **quota** command shows the quota limits as well as disk usage by each user:

- # **quota user # = quota -u user.**

Disk quotas for user user (uid 1001):

Filesystem	blocks	quota	limit	grace	files	quota	limit
/dev/sda6	22000*	20000	22000	6days	6	0	0

blocks: Used blocks. An asterisk (*) declares that we have surpassed the hard limit

quota: soft limit for blocks

limit: hard limit for blocks

grace: grace period for days

files: number of files

quota: soft limit for inodes

limit: hard limit for inodes

grace: grace period for inodes



Check quotas with `quota`

Options:

- `-u` # show user quotas (default)
- `-g` # show group quotas
- `-q` # quiet mode. Show results only if the limits have been reached
- `-v` # verbose output. Show quotas even if the disk has not yet been used



Activate quotas with `quotaon`

- The **quotaon** command activates the quota feature on a filesystem
- `# quotaon -v /home # = quotaon -uv /home.`
Activate users quotas on the /home filesystem, with verbose output
- `# quotaon -av #` Activate users and group quotas for all filesystems in /etc/fstab using the **usrquota** and/or **grpquota** options



Activate quotas with `quotaon`

Options:

- `-u` # activate user quotas (default)
- `-g` # activate group quota
- `-a` # activate quotas for all quota enabled filesystems in `/etc/fstab`
- `-v` # verbose output



Deactivate quotas with `quotaoff`

- The **quotaoff** command deactivates the quota feature on a filesystem
- **# quotaoff -ugv /home # deactivate user and group quotas on /home, with verbose output**
- **# quotaoff -av # deactivate user and group quotas on all filesystem in /etc/fstab with the usrquota and/or grpquota options**



Deactivate quotas with `quotaoff`

Options:

- `-u` # disable user quotas (default)
- `-g` # disable group quotas
- `-a` # disable all quotas on all quota enabled filesystems in `/etc/fstab`
- `-v` # verbose output



Quotas summary view with `repquota`

- The `repquota` command shows a summary view of the disk usage and limits per user
- `# repquota /home`

*** Report for user quotas on device /dev/sda6
Block grace time: 7days; Inode grace time: 7days

User		used	Block limits			File limits		
			soft	hard	grace	used	soft	hard
root	--	20	0	0		2	0	0
theo	--	20	0	0		5	0	0
user	+-	22000	20000	22000	6days	6	0	0



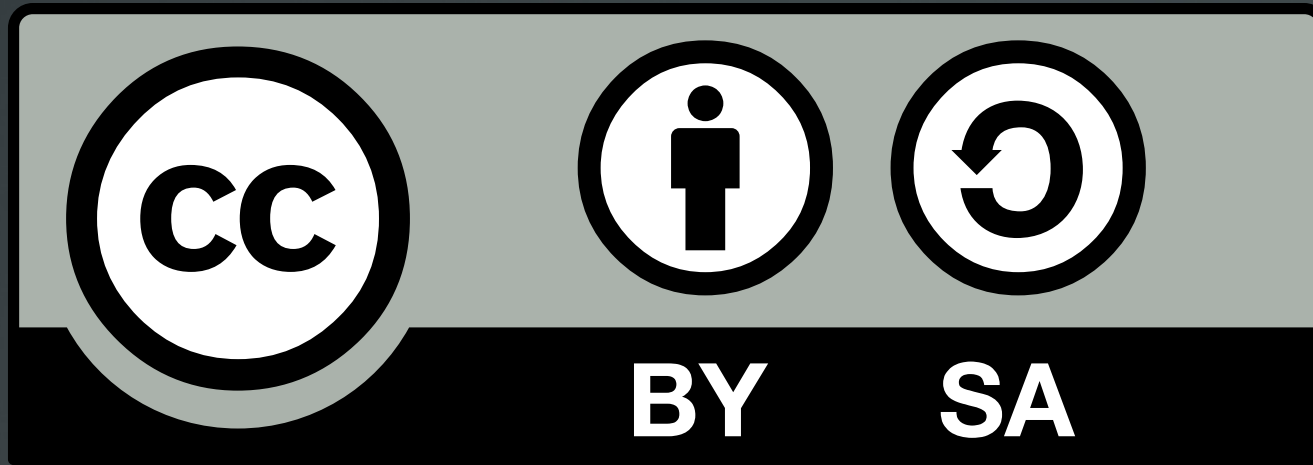
Quotas summary view with `repquota`

Options:

- `-u` # quotas summary for users (default)
- `-g` # quota summary for groups
- `-a` # quota summary for all quota enabled filesystems in `/etc/fstab`
- `-v` # verbose output



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