QUOTAS

CephFS allows quotas to be set on any directory in the system. The quota can restrict the number of *bytes* or the number of *files* stored beneath that point in the directory hierarchy.

LIMITATIONS

1. *Quotas are cooperative and non-adversarial.* CephFS quotas rely on the cooperation of the client who is mounting the file system to stop writers when a limit is reached. A modified or adversarial client cannot be prevented from writing as much data as it needs. Quotas should not be relied on to prevent filling the system in environments where the clients are fully untrusted.
2. *Quotas are imprecise.* Processes that are writing to the file system will be stopped a short time after the quota limit is reached. They will inevitably be allowed to write some amount of data over the configured limit. How far over the quota they are able to go depends primarily on the amount of time, not the amount of data. Generally speaking writers will be stopped within 10s of seconds of crossing the configured limit.
3. *Quotas are not yet implemented in the kernel client.* Quotas are supported by the userspace client (libcephfs, ceph-fuse) but are not yet implemented in the Linux kernel client.
4. *Quotas must be configured carefully when used with path-based mount restrictions.* The client needs to have access to the directory inode on which quotas are configured in order to enforce them. If the client has restricted access to a specific path (e.g., `/home/user`) based on the MDS capability, and a quota is configured on an ancestor directory they do not have access to (e.g., `/home`), the client will not enforce it. When using path-based access restrictions be sure to configure the quota on the directory the client is restricted too (e.g., `/home/user`) or something nested beneath it.

CONFIGURATION

Like most other things in CephFS, quotas are configured using virtual extended attributes:

- `ceph.quota.max_files` – file limit
- `ceph.quota.max_bytes` – byte limit

If the attributes appear on a directory inode that means a quota is configured there. If they are not present then no quota is set on that directory (although one may still be configured on a parent directory).

To set a quota:

```
setfattr -n ceph.quota.max_bytes -v 100000000 /some/dir     # 100 MB
setfattr -n ceph.quota.max_files -v 10000 /some/dir         # 10,000 files
```

To view quota settings:

```
getfattr -n ceph.quota.max_bytes /some/dir
getfattr -n ceph.quota.max_files /some/dir
```

Note that if the value of the extended attribute is `0` that means the quota is not set.

To remove a quota:

```
setfattr -n ceph.quota.max_bytes -v 0 /some/dir
setfattr -n ceph.quota.max_files -v 0 /some/dir
```