`filestore debug omap check`

- **Description:** Debugging check on synchronization. Expensive. For debugging only.
- **Type:** Boolean
- **Required:** No
- **Default:** `0`

EXTENDED ATTRIBUTES

Extended Attributes (XATTRs) are an important aspect in your configuration. Some file systems have limits on the number of bytes stored in XATTRS. Additionally, in some cases, the filesystem may not be as fast as an alternative method of storing XATTRs. The following settings may help improve performance by using a method of storing XATTRs that is extrinsic to the underlying filesystem.

Ceph XATTRs are stored as `inline xattr`, using the XATTRs provided by the underlying file system, if it does not impose a size limit. If there is a size limit (4KB total on ext4, for instance), some Ceph XATTRs will be stored in an key/value database (aka `omap`) when the `filestore max inline xattr size` or `filestore max inline xattrs` threshold are reached.

`filestore xattr use omap`

- **Description:** Use object map for XATTRS. Set to `true` for `ext4` file systems.
- **Type:** Boolean
- **Required:** No
- **Default:** `false`

`filestore max inline xattr size`

- **Description:** The maximimum size of an XATTR stored in the filesystem (i.e., XFS, btrfs, ext4, etc.) per object. Should not be larger than the filesytem can handle.
- **Type:** Unsigned 32-bit Integer
- **Required:** No
- **Default:** 512

`filestore max inline xattrs`

- **Description:** The maximum number of XATTRs stored in the fileystem per object.
- **Type:** 32-bit Integer
- **Required:** No
- **Default:** 2

SYNCHRONIZATION INTERVALS

Periodically, the filestore needs to quiesce writes and synchronize the filesystem, which creates a consistent commit point. It can then free journal entries up to the commit point. Synchronizing more frequently tends to reduce the time required to perform synchronization, and reduces the amount of data that needs to remain in the journal. Less frequent synchronization allows the backing filesystem to coalesce small writes and metadata updates more optimally–potentially resulting in more efficient synchronization.

`filestore max sync interval`

- **Description:** The maximum interval in seconds for synchronizing the filestore.
- **Type:** Double
- **Required:** No
- **Default:** 5

`filestore min sync interval`

- **Description:** The minimum interval in seconds for synchronizing the filestore.
- **Type:** Double

Required: No
Default: `.01`

FLUSHER

The filestore flusher forces data from large writes to be written out using `sync_file_range` before the sync in order to (hopefully) reduce the cost of the eventual sync. In practice, disabling 'filestore flusher' seems to improve performance in some cases.

`filestore flusher`

Description: Enables the filestore flusher.
Type: Boolean
Required: No
Default: `false`

`filestore flusher max fds`

Description: Sets the maximum number of file descriptors for the flusher.
Type: Integer
Required: No
Default: `512`

`filestore sync flush`

Description: Enables the synchronization flusher.
Type: Boolean
Required: No
Default: `false`

`filestore fsync flushes journal data`

Description: Flush journal data during filesystem synchronization.
Type: Boolean
Required: No
Default: `false`

QUEUE

The following settings provide limits on the size of filestore queue.

`filestore queue max ops`

Description: Defines the maximum number of in progress operations the file store accepts before blocking on queuing new operations.
Type: Integer
Required: No. Minimal impact on performance.
Default: `500`

`filestore queue max bytes`

Description: The maximum number of bytes for an operation.
Type: Integer
Required: No
Default: `100 << 20`

`filestore queue committing max ops`

Description: The maximum number of operations the filestore can commit.
Type: Integer
Required: No
Default: `500`

`filestore queue committing max bytes`

Description: The maximum number of bytes the filestore can commit.
Type: Integer
Required: No
Default: `100 << 20`

TIMEOUTS

`filestore op threads`

Description: The number of filesystem operation threads that execute in parallel.
Type: Integer
Required: No
Default: 2

`filestore op thread timeout`

Description: The timeout for a filesystem operation thread (in seconds).
Type: Integer
Required: No
Default: `60`

`filestore op thread suicide timeout`

Description: The timeout for a commit operation before cancelling the commit (in seconds).
Type: Integer
Required: No
Default: `180`

B-TREE FILESYSTEM

`filestore btrfs snap`

Description: Enable snapshots for a `btrfs` filestore.
Type: Boolean
Required: No. Only used for `btrfs`.
Default: `true`

`filestore btrfs clone range`

Description: Enable cloning ranges for a `btrfs` filestore.
Type: Boolean
Required: No. Only used for `btrfs`.
Default: `true`

JOURNAL

`filestore journal parallel`

Description: Enables parallel journaling, default for btrfs.
Type: Boolean
Required: No
Default: `false`

`filestore journal writeahead`

Description: Enables writeahead journaling, default for xfs.
Type: Boolean
Required: No
Default: `false`

`filestore journal trailing`

Description: Deprecated, never use.
Type: Boolean
Required: No
Default: `false`

MISC

`filestore merge threshold`

Description: Min number of files in a subdir before merging into parent
Type: Integer
Required: No
Default: `10`

`filestore split multiple`

Description: `filestore_split_multiple * filestore_merge_threshold * 16` is the maximum number of files in a subdirectory before splitting into child directories.
Type: Integer
Required: No
Default: 2

`filestore update to`

Description: Limits filestore auto upgrade to specified version.
Type: Integer
Required: No
Default: `1000`

`filestore blackhole`

Description: Drop any new transactions on the floor.
Type: Boolean
Required: No
Default: `false`

`filestore dump file`

Description: File onto which store transaction dumps.
Type: Boolean
Required: No
Default: `false`

`filestore kill at`

Description: inject a failure at the n’th opportunity
Type: String
Required: No
Default: `false`

`filestore fail eio`

Description: Fail/Crash on eio.
Type: Boolean
Required: No
Default: `true`