Storage metadata format V5

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Metadata

- Domain metadata
  - File storage domains store domain metadata in files.
  - Block storage domains store domain metadata in LVM VG tags.
- Volume metadata
  - File storage domains store volume metadata in files.
  - Block storage domains store volume metadata in metadata LV (approptiate metadata slots are stored in LVM LV tags).

Why we need it?

4k!

- Domain metadata: need to store block size (and also alignment) for storage domains - needed by sanlock.
- Volume metadata: volume size is stored in multiples of block size (512b) in V4 - would be very confusing in for 4k storage.

Domain metadata

- Added **ALIGNMENT** (alignment of sanlock in bytes) and **BLOCK_SIZE** (device block size in bytes).
- Removed legacy **LOGBLKSIZE** and **PHYBLKSIZE** (were present only block storage domains).

Volume metadata

- **SIZE** (size in blocks) replaced by **CAP** (size in bytes).
- Removed unused **MTIME** and **POOL_UUID**.

- Already implemented, merged and released in vdsm **4.30.10**.
- Storage format V5 is the default storage format since engine **4.3.3.2**.

How to read file domain metadata

```
1  cat /path/to/sd-id/dom_md/metadata
```

e.g.

```
1  cat /rhev/data-center/bec2943a-722f-11e9
     -8565-525400f7bf49/696be7a4-fe13-4cca-8023-1
     a1997080176/dom_md/metadata
```

Demo

How to read block domain metadata

```
1  vgs -o tags sd-id
```

e.g.

```
1  vgs -o tags e455cfc6-a3ac-4ab8-b288-
     a2254f9226a0
```

Demo

How to read file volume metadata

```
1 cat /path/to/sd-id/images/img-id/vol-id.meta
```

e.g.

```
1 cat /rhev/data-center/bec2943a-722f-11e9
    -8565-525400f7bf49/696be7a4-fe13-4cca-8023-1
    a1997080176/images/26b9d4ed-99a1-48ab-99fe-
    fb6917d55693/9c618bb3-1302-4b31-8f35-48856
    c6b3b9d.meta
```

Demo

How to read block volume metadata

```
1 export SLOT=$(lvs -o tags sd-id/vol-id | cut -s
    -d , -f 2 | cut -d _ -f 2)
2 export OFFSET=$((1024 * 1024 + $SLOT * 8192))
3 dd if=/dev/sd-id/metadata bs=512 count=1 \
4    skip=$OFFSET iflag=direct,skip_bytes
```

e.g.

```
1 export SLOT=$(lvs -o tags e455cfc6-a3ac-4ab8-
    b288-a2254f9226a0/31649514-2b8d-41c0-a7a6
    -08104e485aea | cut -s -d , -f 2 | cut -d _ -
    f 2)
2 export OFFSET=$((1024 * 1024 + $SLOT * 8192))
3 dd if=/dev/e455cfc6-a3ac-4ab8-b288-a2254f9226a0
    /metadata bs=512 count=1 skip=$OFFSET iflag=
    direct,skip_bytes
```

Demo