ACTIVATE

Once prepare is completed, and all the various steps that entails are done, the volume is ready to get “activated”.

This activation process enables a systemd unit that persists the OSD ID and its UUID (also called `fsid` in Ceph CLI tools), so that at boot time it can understand what OSD is enabled and needs to be mounted.

Note: The execution of this call is fully idempotent, and there is no side-effects when running multiple times

NEW OSDS

To activate newly prepared OSDs both the OSD id and OSD uuid need to be supplied. For example:

```
ceph-volume lvm activate --bluestore 0 0263644D-0BF1-4D6D-BC34-28BD98AE3BC8
```

Note: The UUID is stored in the `fsid` file in the OSD path, which is generated when prepare is used.

REQUIRING UUIDS

The OSD uuid is being required as an extra step to ensure that the right OSD is being activated. It is entirely possible that a previous OSD with the same id exists and would end up activating the incorrect one.

DISCOVERY

With OSDs previously created by `ceph-volume`, a *discovery* process is performed using LVM tags to enable the systemd units.

The systemd unit will capture the OSD id and OSD uuid and persist it. Internally, the activation will enable it like:

```
systemctl enable ceph-volume@lvm-$id-$uuid
```

For example:

```
systemctl enable ceph-volume@lvm-0-8715BEB4-15C5-49DE-BA6F-401086EC7B41
```

Would start the discovery process for the OSD with an id of `0` and a UUID of `8715BEB4-15C5-49DE-BA6F-401086EC7B41`.

Note: for more details on the systemd workflow see systemd

The systemd unit will look for the matching OSD device, and by looking at its LVM tags will proceed to:

mount the device in the corresponding location (by convention this is `/var/lib/ceph/osd/<cluster name>-<osd id>/`)

ensure that all required devices are ready for that OSD. In the case of a journal (when `--filestore` is selected) the device will be queried (with `blkid` for partitions, and lvm for logical volumes) to ensure that the correct device is being linked. The symbolic link will *always* be re-done to ensure that the correct device is linked.

start the `ceph-osd@0` systemd unit

Note: The system infers the objectstore type (filestore or bluestore) by inspecting the LVM tags applied to the OSD devices

EXISTING OSDS

For exsiting OSDs that have been deployed with different tooling, the only way to port them over to the new mechanism is to prepare them again (losing data). See Existing OSDs for details on how to proceed.

SUMMARY

To recap the `activate` process for bluestore:

1. require both OSD id and OSD uuid
2. enable the system unit with matching id and uuid
3. Create the `tmpfs` mount at the OSD directory in `/var/lib/ceph/osd/$cluster-$id/`
4. Recreate all the files needed with `ceph-bluestore-tool prime-osd-dir` by pointing it to the OSD `block` device.
5. the systemd unit will ensure all devices are ready and linked
6. the matching `ceph-osd` systemd unit will get started

And for filestore:

1. require both OSD id and OSD uuid
2. enable the system unit with matching id and uuid
3. the systemd unit will ensure all devices are ready and mounted (if needed)
4. the matching `ceph-osd` systemd unit will get started