

```

    min_size 1
    max_size 10
    step take DC1
    step chooseleaf firstn 0 type rack
    step emit
}

```

Using CRUSH Tunables

You can also modify the CRUSH algorithm's behavior using *tunables*. Tunables adjust and disable or enable features of the CRUSH algorithm. Ceph defines the tunables at the beginning of the decompiled CRUSH map, and you can get their current values by using the following command:

```
[ceph: root@node /]# ceph osd crush show-tunables
```

```

{
  "choose_local_tries": 0,
  "choose_local_fallback_tries": 0,
  "choose_total_tries": 50,
  "chooseleaf_descend_once": 1,
  "chooseleaf_vary_r": 1,
  "chooseleaf_stable": 1,
  "straw_calc_version": 1,
  "allowed_bucket_algs": 54,
  "profile": "jewel",
  "optimal_tunables": 1,
  "legacy_tunables": 0,
  "minimum_required_version": "jewel",
  "require_feature_tunables": 1,
  "require_feature_tunables2": 1,
  "has_v2_rules": 1,
  "require_feature_tunables3": 1,
  "has_v3_rules": 0,
  "has_v4_buckets": 1,
  "require_feature_tunables5": 1,
  "has_v5_rules": 0
}

```



Important

Adjusting CRUSH tunables will probably change how CRUSH maps placement groups to OSDs. When that happens, the cluster needs to move objects to different OSDs in the cluster to reflect the recalculated mappings. Cluster performance could degrade during this process.

Rather than modifying individual tunables, you can select a predefined profile with the `ceph osd crush tunables profile` command. Set the value of *profile* to `optimal` to enable the best (optimal) values for the current version of Red Hat Ceph Storage.



Important

Red Hat recommends that all cluster daemons and clients use the same release version.