

```

-19          3.000000          host hoste
  2   hdd  1.000000          osd.2
  7   hdd  1.000000          osd.7
  8   hdd  1.000000          osd.8
-1          0   root default
-3          0   host serverc
-5          0   host serverd
-7          0   host servere

```

All the OSDs with SSD devices are in the rack1 bucket and no OSDs are in the default tree.

- 4. Add a custom CRUSH rule by decompiling the binary CRUSH map and editing the resulting text file to add a new CRUSH rule called `ssd-first`. This rule always selects OSDs backed by SSD storage as the primary OSD, and OSDs backed by HDD storage as secondary OSDs for each placement group.

When the rule is created, compile the map and load it into your cluster. Create a new replicated pool called `testcrush` that uses the rule, and verify that its placement groups are mapped correctly.

Clients accessing the pools that are using this new rule will read data from fast drives because clients always read and write from the primary OSDs.

- 4.1. Retrieve the current CRUSH map by using the `ceph osd getcrushmap` command. Store the binary map in the `/home/ceph/cm-org.bin` file.

```

[ceph: root@clienta /]# ceph osd getcrushmap -o ~/cm-org.bin
...output omitted...

```

- 4.2. Use the `crushtool` command to decompile the binary map to the `~/cm-org.txt` text file. When successful, this command returns no output, but immediately use the `echo $?` command to determine its return code.

```

[ceph: root@clienta /]# crushtool -d ~/cm-org.bin -o ~/cm-org.txt
[ceph: root@clienta /]# echo $?
0

```

- 4.3. Save a copy of the CRUSH map as `~/cm-new.txt`, and add the following rule at the end of the file.

```

[ceph: root@clienta /]# cp ~/cm-org.txt ~/cm-new.txt
[ceph: root@clienta /]# cat ~/cm-new.txt
...output omitted...
rule onssd {
    id 3
    type replicated
    min_size 1
    max_size 10
    step take default class ssd
    step chooseleaf firstn 0 type host
    step emit
}
rule ssd-first {
    id 5

```