

[node01.srv.world]	[node02.srv.world]	[node03.srv.world]
Object Storage	Object Storage	Object Storage
Monitor Daemon		
Manager Daemon		

[1] [Configure \[Monitor Daemon\] and \[Manager Daemon\] first, refer to here.](#)

[2] Configure OSD (Object Storage Device) to each Node from Admin Node.

Block devices ([/dev/sdb] on this example) are formatted for OSD, Be careful if some existing data are saved.

# configure settings for OSD to each Node

```
root@node01:~# for NODE in node01 node02 node03
do
    if [ ! ${NODE} = "node01" ]
    then
        scp /etc/ceph/ceph.conf ${NODE}:/etc/ceph/ceph.conf
        scp /etc/ceph/ceph.client.admin.keyring ${NODE}:/etc/ceph
        scp /var/lib/ceph/bootstrap-osd/ceph.keyring ${NODE}:/var/lib/ceph/bootstrap-osd
    fi
    ssh $NODE \
    "chown ceph. /etc/ceph/ceph.* /var/lib/ceph/bootstrap-osd/*; \
    parted --script /dev/sdb 'mklabel gpt'; \
    parted --script /dev/sdb 'mkpart primary 0% 100%'; \
    ceph-volume lvm create --data /dev/sdb1"
done
```

Running command: /usr/bin/ceph-authtool --gen-print-key

Running command: /usr/bin/ceph --cluster ceph --name client.bootstrap-osd --keyring /var/lib/ceph/bootstrap-osd/ceph.keyring

Running command: vgcreate --force --yes ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8 /dev/vdb1

stdout: Physical volume "/dev/vdb1" successfully created.

stdout: Volume group "ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8" successfully created

Running command: lvcreate --yes -l 40959 -n osd-block-f6d9e163-0df9-4a20-8450-5f89f3900372 ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8

stdout: Logical volume "osd-block-f6d9e163-0df9-4a20-8450-5f89f3900372" created.

Running command: /usr/bin/ceph-authtool --gen-print-key

Running command: /usr/bin/mount -t tmpfs tmpfs /var/lib/ceph/osd/ceph-0

--> Executable selinuxenabled not in PATH: /usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/sbin:/usr/local/bin

Running command: /usr/bin/chown -h ceph:ceph /dev/ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8/osd-block-f6d9e163-0df9-4a20-8450-5f89f3900372

Running command: /usr/bin/chown -R ceph:ceph /dev/dm-1

Running command: /usr/bin/ln -s /dev/ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8/osd-block-f6d9e163-0df9-4a20-8450-5f89f3900372 /dev/ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8/osd-block

Running command: /usr/bin/ceph --cluster ceph --name client.bootstrap-osd --keyring /var/lib/ceph/bootstrap-osd/ceph.keyring

stderr: got monmap epoch 2

Running command: /usr/bin/ceph-authtool /var/lib/ceph/osd/ceph-0/keyring --create-keyring --name osd.0 --add-key AQB9w5jzRD7KxAXw+8h26IA6a1GVkqZW3upA==

stdout: creating /var/lib/ceph/osd/ceph-0/keyring

stdout: added entity osd.0 auth(key=AQB9w5jzRD7KxAXw+8h26IA6a1GVkqZW3upA==)

Running command: /usr/bin/chown -R ceph:ceph /var/lib/ceph/osd/ceph-0/keyring

Running command: /usr/bin/chown -R ceph:ceph /var/lib/ceph/osd/ceph-0/

Running command: /usr/bin/ceph-osd --cluster ceph --osd-objectstore bluestore --mkfs -i 0 --monmap /var/lib/ceph/osd/ceph-0/monmap

stderr: 2022-08-31T05:53:23.379+0000 7fe48b96a5c0 -1 bluestore(/var/lib/ceph/osd/ceph-0/) \_read\_fsid unparsable uuid

--> ceph-volume lvm prepare successful for: /dev/vdb1

Running command: /usr/bin/chown -R ceph:ceph /var/lib/ceph/osd/ceph-0

Running command: /usr/bin/ceph-bluestore-tool --cluster=ceph prime-osd-dir --dev /dev/ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8/osd-block-f6d9e163-0df9-4a20-8450-5f89f3900372

Running command: /usr/bin/ln -snf /dev/ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8/osd-block-f6d9e163-0df9-4a20-8450-5f89f3900372 /dev/ceph-242fd528-8e1f-44b0-bdc4-1c4f3c66ede8/osd-block

Running command: /usr/bin/chown -h ceph:ceph /var/lib/ceph/osd/ceph-0/block

Running command: /usr/bin/chown -R ceph:ceph /dev/dm-1

Running command: /usr/bin/chown -R ceph:ceph /var/lib/ceph/osd/ceph-0

Running command: /usr/bin/systemctl enable ceph-volume@lvm-0-f6d9e163-0df9-4a20-8450-5f89f3900372

stderr: Created symlink /etc/systemd/system/multi-user.target.wants/ceph-volume@lvm-0-f6d9e163-0df9-4a20-8450-5f89f3900372.service

Running command: /usr/bin/systemctl enable --runtime ceph-osd@0

stderr: Created symlink /run/systemd/system/ceph-osd.target.wants/ceph-osd@0.service → /lib/systemd/system/ceph-osd@0.service

Running command: /usr/bin/systemctl start ceph-osd@0

--> ceph-volume lvm activate successful for osd ID: 0

--> ceph-volume lvm create successful for: /dev/vdb1

ceph.conf 100% 273 166.0KB/s 00:00

ceph.client.admin.keyring 100% 151 90.6KB/s 00:00

ceph.keyring 100% 129 79.9KB/s 00:00

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# confirm cluster status

# that's OK if [HEALTH\_OK]

root@node01:~#

ceph -s

cluster:

id: 3adf5d85-7d69-455d-82cf-f799e63981e4

health: HEALTH\_OK

services:

```
mon: 1 daemons, quorum node01 (age 9m)
mgr: node01(active, since 8m)
osd: 3 osds: 3 up (since 74s), 3 in (since 3m)

data:
  pools: 1 pools, 1 pgs
  objects: 2 objects, 449 KiB
  usage: 61 MiB used, 480 GiB / 480 GiB avail
  pgs: 1 active+clean
```

# confirm OSD tree

```
root@node01:~#
ceph osd tree
```

ID	CLASS	WEIGHT	TYPE NAME	STATUS	REWEIGHT	PRI-AFF
-1		0.46857	root default			
-3		0.15619	host node01			
0	hdd	0.15619	osd.0	up	1.00000	1.00000
-5		0.15619	host node02			
1	hdd	0.15619	osd.1	up	1.00000	1.00000
-7		0.15619	host node03			
2	hdd	0.15619	osd.2	up	1.00000	1.00000

```
root@node01:~# ceph df
--- RAW STORAGE ---
CLASS      SIZE      AVAIL      USED    RAW USED    %RAW USED
hdd      480 GiB    480 GiB    61 MiB      61 MiB         0.01
TOTAL    480 GiB    480 GiB    61 MiB      61 MiB         0.01
```

```
--- POOLS ---
POOL ID PGS   STORED OBJECTS   USED %USED  MAX AVAIL
.mgr  1   1  389 KiB      2  1.1 MiB     0    152 GiB
```

```
root@node01:~# ceph osd df
ID CLASS WEIGHT  REWEIGHT  SIZE      RAW USE  DATA    OMAP  META  AVAIL  %USE  VAR  PGS  STATUS
0   hdd  0.15619  1.00000  160 GiB   20 MiB  544 KiB  0 B   20 MiB  160 GiB  0.01  1.00  1    up
1   hdd  0.15619  1.00000  160 GiB   20 MiB  544 KiB  0 B   20 MiB  160 GiB  0.01  1.00  1    up
2   hdd  0.15619  1.00000  160 GiB   20 MiB  540 KiB  0 B   20 MiB  160 GiB  0.01  1.00  1    up
      TOTAL 480 GiB   61 MiB  1.6 MiB  0 B   59 MiB  480 GiB  0.01
MIN/MAX VAR: 1.00/1.00  STDDEV: 0
```

M a t c h e d   C o n t e n t														
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