克隆 ceph2 ceph3

主机 → 当前位置

```
[root@ceph1 ~]# cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1          localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.70.10 ceph1
192.168.70.20 ceph2
192.168.70.30 ceph3
192.168.70.40 ceph4
[root@ceph1 ~]#
```
ssh://192.168.70.10:22   🔒 SSH2   xterm   ⌐126x31 ⫿31,17   4会话 ▲ ↑ ↓ CAP NUM

```
[root@ceph1 ~]# cat   /etc/sudoers.d/cephduser
cephduser ALL = (root) NOPASSWD:ALL
[root@ceph1 ~]#
```
ssh://192.168.70.10:22   🔒 SSH2   xterm   ⌐126x31 ⫿31,17   4会话 ▲ ↑ ↓ CAP NUM

systemctl restart chronyd

systemctl enable chronyd

chronyc sources -v

其中一台作为时钟源服务器 ceph1

```
# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
#server 0.centos.pool.ntp.org iburst
#server 1.centos.pool.ntp.org iburst
#server 2.centos.pool.ntp.org iburst
#server 3.centos.pool.ntp.org iburst
server 192.168.70.10 iburst
allow 192.168.70.0/24
local stratum 10
```

```
[root@ceph1 ~]# chronyc sources -v
210 Number of sources = 1

  .-- Source mode  '^' = server, '=' = peer, '#' = local clock.
 / .- Source state '*' = current synced, '+' = combined , '-' = not combined,
| /   '?' = unreachable, 'x' = time may be in error, '~' = time too variable.
||                                                 .- xxxx [ yyyy ] +/- zzzz
||      Reachability register (octal) -.           |   xxxx = adjusted offset,
||      Log2(Polling interval) --.      |          |   yyyy = measured offset,
||                                \     |          |   zzzz = estimated error.
||                                 |    |           \
MS Name/IP address         Stratum Poll Reach LastRx Last sample
===============================================================================
^* ceph1                        10   6    7     0   -269ns[-2114ns] +/- 4919ns
[root@ceph1 ~]#
```

```
[root@ceph2 ~]# chronyc sources -v
210 Number of sources = 1

  .-- Source mode  '^' = server, '=' = peer, '#' = local clock.
 / .- Source state '*' = current synced, '+' = combined , '-' = not combined,
| /   '?' = unreachable, 'x' = time may be in error, '~' = time too variable.
||                                                 .- xxxx [ yyyy ] +/- zzzz
||      Reachability register (octal) -.           |   xxxx = adjusted offset,
||      Log2(Polling interval) --.      |          |   yyyy = measured offset,
||                                \     |          |   zzzz = estimated error.
||                                 |    |           \
MS Name/IP address         Stratum Poll Reach LastRx Last sample
===============================================================================
^* ceph1                        11   8   77    35   +34us[  +45us] +/-   23ms
[root@ceph2 ~]#
```

```
[root@ceph3 ~]# chronyc sources -v
210 Number of sources = 1

  .-- Source mode  '^' = server, '=' = peer, '#' = local clock.
 / .- Source state '*' = current synced, '+' = combined , '-' = not combined,
| /   '?' = unreachable, 'x' = time may be in error, '~' = time too variable.
||                                         .- xxxx [ yyyy ] +/- zzzz
||      Reachability register (octal) -.   |  xxxx = adjusted offset,
||      Log2(Polling interval) --.      |  |  yyyy = measured offset,
||                               \     |  |  zzzz = estimated error.
||                                |    |   \
MS Name/IP address          Stratum Poll Reach LastRx Last sample
===============================================================================
^* ceph1                       11   7   377   100    +50us[ +43us] +/-   22ms
[root@ceph3 ~]#
```

```
[root@ceph4 ~]# chronyc sources -v
210 Number of sources = 1

  .-- Source mode  '^' = server, '=' = peer, '#' = local clock.
 / .- Source state '*' = current synced, '+' = combined , '-' = not combined,
| /   '?' = unreachable, 'x' = time may be in error, '~' = time too variable.
||                                         .- xxxx [ yyyy ] +/- zzzz
||      Reachability register (octal) -.   |  xxxx = adjusted offset,
||      Log2(Polling interval) --.      |  |  yyyy = measured offset,
||                               \     |  |  zzzz = estimated error.
||                                |    |   \
MS Name/IP address          Stratum Poll Reach LastRx Last sample
===============================================================================
^* ceph1                       11   8   77    38    -109us[ -133us] +/-   23ms
[root@ceph4 ~]#
```

免密 ssh-keygen

ssh-copy-id cephduser@ceph1

ssh-copy-id cephduser@ceph2

ssh-copy-id cephduser@ceph3

```
[root@ceph1 ~]# ssh ceph2
Last login: Mon Jun 16 01:48:04 2025 from 192.168.70.1
[root@ceph2 ~]# exit
logout
Connection to ceph2 closed.
[root@ceph1 ~]# ceph 3
no valid command found; 10 closest matches:
config get <who> {<key>}
config dump
config set <who> <name> <value> {--force}
config rm <who> <name>
mgr count-metadata <property>
mgr versions
osd crush reweight <name> <float[0.0-]>
osd crush reweight-all
osd crush unlink <name> {<ancestor>}
osd crush rm <name> {<ancestor>}
Error EINVAL: invalid command
[root@ceph1 ~]# ceph3
-bash: ceph3: command not found
[root@ceph1 ~]# ssh ceph3
Last login: Mon Jun 16 01:48:15 2025 from 192.168.70.1
[root@ceph3 ~]# exit
logout
Connection to ceph3 closed.
[root@ceph1 ~]#
```

ssh://192.168.70.10:22   SSH2   xterm   126x31   31,17   4会话   CAP NUM

三节点一样生成 Ceph yum 源文件

```
[root@ceph1 ~]# cd /etc/yum.repos.d/
[root@ceph1 yum.repos.d]# cat /etc/yum.repos.d/ceph.repo
[Ceph]
name=Ceph packages for
baseurl=https://mirrors.tuna.tsinghua.edu.cn/ceph/rpm-nautilus/el7/x86_64/

enabled=1
gpgcheck=1
type=rpm-md
gpgkey=https://download.ceph.com/keys/release.asc
priority=1

[Ceph-noarch]
name=Ceph noarch packages
baseurl=https://mirrors.tuna.tsinghua.edu.cn/ceph/rpm-nautilus/el7/noarch
enabled=1
gpgcheck=1
type=rpm-md
gpgkey=https://download.ceph.com/keys/release.asc
priority=1

[ceph-source]
name=Ceph source packages
baseurl=https://mirrors.tuna.tsinghua.edu.cn/ceph/rpm-nautilus/el7/SRPMS
enabled=1
gpgcheck=1
type=rpm-md
gpgkey=https://download.ceph.com/keys/release.asc
[root@ceph1 yum.repos.d]#
```

ssh://192.168.70.10:22   SSH2   xterm   118x55   55,27   4会话   CAP NUM

```
[root@ceph1 ceph_cluster]# ceph-deploy new ceph1 ceph2
Traceback (most recent call last):
  File "/usr/bin/ceph-deploy", line 5, in <module>
    from pkg_resources import load_entry_point
ImportError: No module named pkg_resources
[root@ceph1 ceph_cluster]# python get-pip.py
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please upgrade your Python as Python 2
.7 is no longer maintained. pip 21.0 will drop support for Python 2.7 in January 2021. More details about Python
 2 support in pip can be found at https://pip.pypa.io/en/latest/development/release-process/#python-2-support pi
p 21.0 will remove support for this functionality.
Collecting pip<21.0
  Downloading pip-20.3.4-py2.py3-none-any.whl (1.5 MB)
     |████████████████████████████| 1.5 MB 21 kB/s
Collecting setuptools<45
  Downloading setuptools-44.1.1-py2.py3-none-any.whl (583 kB)
     |████████████████████████████| 583 kB 11 kB/s
Collecting wheel
```

```
[root@ceph1 ~]# yum list | grep ceph-deploy
Repodata is over 2 weeks old. Install yum-cron? Or run: yum makecache fast
ceph-deploy.noarch                     2.0.1-0                     @Ceph-noarch
[root@ceph1 ~]#
```

ssh://192.168.70.10:22   SSH2   xterm   126x31   31,17   4会话   CAP NUM

ceph-deploy new ceph1 ceph2 ceph3

```
[root@ceph1 ceph_cluster]# ceph-deploy new ceph1 ceph2 ceph3
[ceph_deploy.conf][DEBUG ] found configuration file at: /root/.cephdeploy.conf
[ceph_deploy.cli][INFO  ] Invoked (2.0.1): /usr/bin/ceph-deploy new ceph1 ceph2 ceph3
[ceph_deploy.cli][INFO  ] ceph-deploy options:
[ceph_deploy.cli][INFO  ]  username                      : None
```

```
[root@ceph1 ~]# ceph -s
  cluster:
    id:     160331b1-12f9-4a84-bfde-cb6f2ce05282
    health: HEALTH_WARN
            Reduced data availability: 161 pgs inactive, 139 pgs peering
            208 pgs not deep-scrubbed in time
            208 pgs not scrubbed in time
            8 slow ops, oldest one blocked for 1549 sec, osd.0 has slow ops
            mons are allowing insecure global_id reclaim

  services:
    mon: 3 daemons, quorum ceph1,ceph2,ceph3 (age 8m)
    mgr: ceph2(active, since 26m), standbys: ceph3, ceph1
    osd: 3 osds: 3 up (since 25m), 3 in (since 4w)

  data:
    pools:   7 pools, 208 pgs
    objects: 245 objects, 37 MiB
    usage:   3.1 GiB used, 57 GiB / 60 GiB avail
    pgs:     77.404% pgs not active
             139 peering
             47  active+clean
             22  activating
```

vim ceph.conf 三台

```
[root@ceph1 ceph_cluster]# cat ceph.conf
[global]
fsid = 160331b1-12f9-4a84-bfde-cb6f2ce05282
mon_initial_members = ceph1, ceph2, ceph3
mon_host = 192.168.70.10,192.168.70.20,192.168.70.30
auth_cluster_required = cephx
auth_service_required = cephx
auth_client_required = cephx
public_network = 192.168.70.0/24
cluster_network = 172.18.1.0/24
```

后端网络 172.18.1.10 / 11 / 12

```
3: ens34: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 00:0c:29:95:e5:51 brd ff:ff:ff:ff:ff:ff
    inet 172.18.1.10/24 brd 172.18.1.255 scope global noprefixroute ens34
```

推送

ceph-deploy --overwrite-conf config push ceph1 ceph2

sudo systemctl restart ceph-*.target

```
[root@ceph1 ceph_cluster]# sudo systemctl restart ceph-*.target
[root@ceph1 ceph_cluster]# yum list | grep ceph.x86_64
calceph.x86_64                     3.5.3-2.el7                    epel
ceph.x86_64                        2:14.2.22-0.el7                Ceph
collectd-ceph.x86_64               5.8.1-2.el7                    epel
[root@ceph1 ceph_cluster]# sudo yum install -y ceph
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
```

初始化 mon，生成检测集群所需的密钥

```
[root@ceph1 ceph_cluster]# ceph-deploy mon create-initial
[ceph_deploy.conf][DEBUG ] found configuration file at: /root/.cephdeploy.conf
[ceph_deploy.cli][INFO  ] Invoked (2.0.1): /usr/bin/ceph-deploy mon create-initial
[ceph_deploy.cli][INFO  ] ceph-deploy options:
[ceph_deploy.cli][INFO  ]  username                      : None
[ceph_deploy.cli][INFO  ]  verbose                       : False
[ceph_deploy.cli][INFO  ]  overwrite_conf                : False
[ceph_deploy.cli][INFO  ]  subcommand                    : create-initial
[ceph_deploy.cli][INFO  ]  quiet                         : False
[ceph_deploy.cli][INFO  ]  cd_conf                       : <ceph_deploy.conf.cephdeploy.Conf instance at 0x7f46e462be18
>
```

ceph-deploy mon create-initial

```
[root@ceph1 ceph_cluster]# ceph-deploy mon create-initial
[ceph_deploy.conf][DEBUG ] found configuration file at: /root/.cephdeploy.conf
[ceph_deploy.cli][INFO  ] Invoked (2.0.1): /usr/bin/ceph-deploy mon create-initial
[ceph_deploy.cli][INFO  ] ceph-deploy options:
[ceph_deploy.cli][INFO  ]  username                      : None
[ceph_deploy.cli][INFO  ]  verbose                       : False
[ceph_deploy.cli][INFO  ]  overwrite_conf                : False
```

```
[root@ceph1 ceph_cluster]# ls
ceph.bootstrap-mds.keyring  ceph.bootstrap-osd.keyring  ceph.client.admin.keyring  ceph-deploy-ceph.log  y?
ceph.bootstrap-mgr.keyring  ceph.bootstrap-rgw.keyring  ceph.conf                  ceph.mon.keyring      y?.pub
[root@ceph1 ceph_cluster]#
```

```
ssh://192.168.70.10:22                                    SSH2    xterm    118x55  55,28    4会话    CAP NUM
```

sudo systemctl status ceph-mon@ceph1

```
[root@ceph1 ceph_cluster]# sudo systemctl status ceph-mon@ceph1
● ceph-mon@ceph1.service - Ceph cluster monitor daemon
   Loaded: loaded (/usr/lib/systemd/system/ceph-mon@.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2025-06-16 02:49:09 EDT; 38s ago
 Main PID: 2828 (ceph-mon)
   CGroup: /system.slice/system-ceph\x2dmon.slice/ceph-mon@ceph1.service
           └─2828 /usr/bin/ceph-mon -f --cluster ceph --id ceph1 --setuser ceph --setgroup ceph

Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:19] Unknown lvalue 'LockPersonality' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:20] Unknown lvalue 'MemoryDenyWriteExecute' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:24] Unknown lvalue 'ProtectControlGroups' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:26] Unknown lvalue 'ProtectKernelModules' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:27] Unknown lvalue 'ProtectKernelTunables' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:19] Unknown lvalue 'LockPersonality' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:20] Unknown lvalue 'MemoryDenyWriteExecute' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:24] Unknown lvalue 'ProtectControlGroups' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:26] Unknown lvalue 'ProtectKernelModules' in section 'Service'
Jun 16 02:49:23 ceph1 systemd[1]: [/usr/lib/systemd/system/ceph-mon@.service:27] Unknown lvalue 'ProtectKernelTunables' in section 'Service'
[root@ceph1 ceph_cluster]#
```

```
ssh://192.168.70.10:22                                    SSH2    xterm    166x75  75,28    4会话    CAP NUM
```

```
sudo systemctl status ceph-mon@ceph2
```


认证

Mgr

```
[root@ceph1 ceph_cluster]# ceph -s
  cluster:
    id:     160331b1-12f9-4a84-bfde-cb6f2ce05282
    health: HEALTH_WARN
            application not enabled on 1 pool(s)
            mons are allowing insecure global_id reclaim

  services:
    mon: 3 daemons, quorum ceph1,ceph2,ceph3 (age 12m)
    mgr: ceph1(active, since 11m), standbys: ceph2, ceph3
    osd: 6 osds: 6 up (since 7m), 6 in (since 7m)
    rgw: 1 daemon active (ceph3)

  task status:

  data:
    pools:   8 pools, 224 pgs
    objects: 249 objects, 38 MiB
    usage:   6.2 GiB used, 84 GiB / 90 GiB avail
    pgs:     224 active+clean

[root@ceph1 ceph_cluster]#
```
ssh://root@192.168.70.10:22   SSH2   xterm   118x55   55,28   4会话   CAP NUM

ceph-deploy osd create --data /dev/sdb ceph1

ceph-deploy osd create --data /dev/sdb ceph2

ceph-deploy osd create --data /dev/sdb ceph3

检查 osd 服务状态

- 能查询到正确的 osd 服务数量，并且都处于 up 和 in 状态


```
[root@ceph1 ceph_cluster]# ceph -s
  cluster:
    id:     160331b1-12f9-4a84-bfde-cb6f2ce05282
    health: HEALTH_WARN
            Degraded data redundancy: 245/735 objects degraded (33.333%), 62 pgs degraded, 208 pgs undersized
            208 pgs not deep-scrubbed in time
            208 pgs not scrubbed in time
            mons are allowing insecure global_id reclaim

  services:
    mon: 3 daemons, quorum ceph1,ceph2,ceph3 (age 10m)
    mgr: ceph2(active, since 74m), standbys: ceph3, ceph1
    osd: 3 osds: 2 up (since 10m), 2 in (since 16m)
    rgw: 1 daemon active (ceph3)
```



```
[root@ceph1 ceph_cluster]# ceph df
RAW STORAGE:
    CLASS     SIZE        AVAIL       USED        RAW USED     %RAW USED
    hdd       40 GiB      38 GiB      85 MiB      2.1 GiB          5.21
    TOTAL     40 GiB      38 GiB      85 MiB      2.1 GiB          5.21

POOLS:
    POOL                         ID     PGS     STORED      OBJECTS     USED        %USED     MAX AVAIL
    rpdpool                       2      16      49 MiB          19     100 MiB      0.18        27 GiB
    .rgw.root                     3      32     1.8 KiB           4     768 KiB         0        27 GiB
    default.rgw.control           4      32         0 B           8         0 B         0        27 GiB
    default.rgw.meta              5      32     1.2 KiB           5     768 KiB         0        27 GiB
    default.rgw.log               6      32         0 B         207         0 B         0        27 GiB
    default.rgw.buckets.index     7      32       221 B           1       221 B         0        27 GiB
    default.rgw.buckets.data      8      32        24 B           1     192 KiB         0        27 GiB
[root@ceph1 ceph_cluster]#
```
ssh://192.168.70.10:22   SSH2   xterm   118x55   55,28   4会话   CAP NUM

ceph health detail


```
158 more pgs...
SLOW_OPS 8 slow ops, oldest one blocked for 1614 sec, osd.0 has slow ops
AUTH_INSECURE_GLOBAL_ID_RECLAIM_ALLOWED mons are allowing insecure global_id reclaim
    mon.ceph1 has auth_allow_insecure_global_id_reclaim set to true
    mon.ceph2 has auth_allow_insecure_global_id_reclaim set to true
    mon.ceph3 has auth_allow_insecure_global_id_reclaim set to true
[root@ceph1 ~]#
```

```
[root@ceph1 ceph_cluster]# ceph osd tree
ID CLASS WEIGHT   TYPE NAME      STATUS REWEIGHT PRI-AFF
-1       0.05846 root default
-3       0.01949     host ceph1
 0   hdd 0.01949         osd.0       up  1.00000 1.00000
-5       0.01949     host ceph2
 1   hdd 0.01949         osd.1       up  1.00000 1.00000
-7       0.01949     host ceph3
 2   hdd 0.01949         osd.2       up  1.00000 1.00000
[root@ceph1 ceph_cluster]#
```
ssh://192.168.70.10:22   SSH2   xterm   118x55   55,28   4 会话   CAP NUM

```
[root@ceph1 ~]# ceph mon stat
e1: 3 mons at {ceph1=[v2:192.168.70.10:3300/0,v1:192.168.70.10:6789/0],ceph2=[v2:192.168.70.20:3300/0,v1:192.168.70.2
0:6789/0],ceph3=[v2:192.168.70.30:3300/0,v1:192.168.70.30:6789/0]}, election epoch 34, leader 0 ceph1, quorum 0,1,2 c
eph1,ceph2,ceph3
[root@ceph1 ~]# ceph mon stat
e1: 3 mons at {ceph1=[v2:192.168.70.10:3300/0,v1:192.168.70.10:6789/0],ceph2=[v2:192.168.70.20:3300/0,v1:192.168.70.2
0:6789/0],ceph3=[v2:192.168.70.30:3300/0,v1:192.168.70.30:6789/0]}, election epoch 34, leader 0 ceph1, quorum 0,1,2 c
eph1,ceph2,ceph3
[root@ceph1 ~]# ceph osd stat
3 osds: 3 up (since 27m), 3 in (since 4w); epoch: e63
[root@ceph1 ~]#
```
ssh://192.168.70.10:22   SSH2   xterm   126x31   31,17   4 会话   CAP NUM

ceph-deploy disk list

```
[root@ceph1 ceph_cluster]# ceph-deploy disk list ceph1
[ceph_deploy.conf][DEBUG ] found configuration file at: /root/
[ceph_deploy.cli][INFO  ] Invoked (2.0.1): /usr/bin/ceph-deplo
[ceph_deploy.cli][INFO  ] ceph-deploy options:
[ceph_deploy.cli][INFO  ]  username                      : Nor
[ceph_deploy.cli][INFO  ]  verbose                       : Fa
[ceph_deploy.cli][INFO  ]  debug                         : Fa
[ceph_deploy.cli][INFO  ]  overwrite_conf                : Fa
[ceph_deploy.cli][INFO  ]  subcommand                    : lis
[ceph_deploy.cli][INFO  ]  quiet                         : Fa
[ceph_deploy.cli][INFO  ]  cd_conf                       : <ce
0>
[ceph_deploy.cli][INFO  ]  cluster                       : cep
[ceph_deploy.cli][INFO  ]  host                          : ['
[ceph_deploy.cli][INFO  ]  func                          : <fu
[ceph_deploy.cli][INFO  ]  ceph_conf                     : Nor
[ceph_deploy.cli][INFO  ]  default_release               : Fa
[ceph1][DEBUG ] connected to host: ceph1
[ceph1][DEBUG ] detect platform information from remote host
[ceph1][DEBUG ] detect machine type
[ceph1][DEBUG ] find the location of an executable
[ceph1][INFO  ] Running command: fdisk -l
[ceph1][INFO  ] Disk /dev/sda: 21.5 GB, 21474836480 bytes, 419
[ceph1][INFO  ] Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 419
[ceph1][INFO  ] Disk /dev/mapper/centos-root: 18.2 GB, 182494
[ceph1][INFO  ] Disk /dev/mapper/centos-swap: 2147 MB, 214748
[ceph1][INFO  ] Disk /dev/mapper/ceph--b563822c--dc3d--444d--8
--f8f328c2f6f4: 21.5 GB, 21470642176 bytes, 41934848 sectors
```

再加三块三台都三块

```
[root@ceph1 ceph_cluster]# ceph-deploy disk list ceph2
[ceph_deploy.conf][DEBUG ] found configuration file at: /root/.c
[ceph_deploy.cli][INFO  ] Invoked (2.0.1): /usr/bin/ceph-deploy
[ceph_deploy.cli][INFO  ] ceph-deploy options:
[ceph_deploy.cli][INFO  ]  username                      : None
[ceph_deploy.cli][INFO  ]  verbose                       : False
[ceph_deploy.cli][INFO  ]  debug                         : False
[ceph_deploy.cli][INFO  ]  overwrite_conf                : False
[ceph_deploy.cli][INFO  ]  subcommand                    : list
[ceph_deploy.cli][INFO  ]  quiet                         : False
[ceph_deploy.cli][INFO  ]  cd_conf                       : <ceph
0>
[ceph_deploy.cli][INFO  ]  cluster                       : ceph
[ceph_deploy.cli][INFO  ]  host                          : ['cep
[ceph_deploy.cli][INFO  ]  func                          : <func
[ceph_deploy.cli][INFO  ]  ceph_conf                     : None
[ceph_deploy.cli][INFO  ]  default_release               : False
[ceph2][DEBUG ] connected to host: ceph2
[ceph2][DEBUG ] detect platform information from remote host
[ceph2][DEBUG ] detect machine type
[ceph2][DEBUG ] find the location of an executable
[ceph2][INFO  ] Running command: fdisk -l
[ceph2][INFO  ] Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 41943
[ceph2][INFO  ] Disk /dev/sda: 21.5 GB, 21474836480 bytes, 41943
[ceph2][INFO  ] Disk /dev/mapper/centos-root: 18.2 GB, 18249416
[ceph2][INFO  ] Disk /dev/mapper/centos-swap: 2147 MB, 214748364
[ceph2][INFO  ] Disk /dev/mapper/ceph--26bee39d--7da1--4bbe--884
--7a60427489be: 21.5 GB, 21470642176 bytes, 41934848 sectors
```

```
[root@ceph1 ceph_cluster]# ceph-deploy disk list ceph3
[ceph_deploy.conf][DEBUG ] found configuration file at: /roo
[ceph_deploy.cli][INFO  ] Invoked (2.0.1): /usr/bin/ceph-dep
[ceph_deploy.cli][INFO  ] ceph-deploy options:
[ceph_deploy.cli][INFO  ]  username                      : N
[ceph_deploy.cli][INFO  ]  verbose                       : F
[ceph_deploy.cli][INFO  ]  debug                         : F
[ceph_deploy.cli][INFO  ]  overwrite_conf                : F
[ceph_deploy.cli][INFO  ]  subcommand                    : l
[ceph_deploy.cli][INFO  ]  quiet                         : F
[ceph_deploy.cli][INFO  ]  cd_conf                       : <
0>
[ceph_deploy.cli][INFO  ]  cluster                       : c
[ceph_deploy.cli][INFO  ]  host                          : [
[ceph_deploy.cli][INFO  ]  func                          : <
[ceph_deploy.cli][INFO  ]  ceph_conf                     : N
[ceph_deploy.cli][INFO  ]  default_release               : F
[ceph3][DEBUG ] connected to host: ceph3
[ceph3][DEBUG ] detect platform information from remote host
[ceph3][DEBUG ] detect machine type
[ceph3][DEBUG ] find the location of an executable
[ceph3][INFO  ] Running command: fdisk -l
[ceph3][INFO  ] Disk /dev/sda: 21.5 GB, 21474836480 bytes, 4
[ceph3][INFO  ] Disk /dev/sdb: 21.5 GB, 21474836480 bytes, 4
[ceph3][INFO  ] Disk /dev/mapper/centos-root: 18.2 GB, 18249
[ceph3][INFO  ] Disk /dev/mapper/centos-swap: 2147 MB, 21474
[ceph3][INFO  ] Disk /dev/mapper/ceph--e333a0f7--640b--4db5--
--7f6b88a26fe1: 21.5 GB, 21470642176 bytes, 41934848 sectors
```

再加三块三台都三块

Sdc

ceph-deploy disk zap ceph1 /dev/sdc

ceph-deploy osd create --data /dev/sdc ceph1

ceph-deploy osd create --data /dev/sdc ceph2

ceph-deploy osd create --data /dev/sdc ceph3

查看

Pool 列出

```
[root@ceph1 ceph_cluster]# ceph osd pool ls
rpdpool
.rgw.root
default.rgw.control
default.rgw.meta
default.rgw.log
default.rgw.buckets.index
default.rgw.buckets.data
[root@ceph1 ceph_cluster]#
```

`ssh://192.168.70.10:22`　　　　　　SSH2　xterm　118x55　55,28　4会话　CAP NUM

sudo yum install ceph-mgr -y（ceph3 执行）

为集群添加 mgr 节点（主节点执行）

ceph-deploy mgr create ceph3

查询运行状态（节点 3 执行）

```
[root@ceph3 yum.repos.d]# sudo systemctl status ceph-mgr@ceph3.service
● ceph-mgr@ceph3.service - Ceph cluster manager daemon
   Loaded: loaded (/usr/lib/systemd/system/ceph-mgr@.service; enabled; vendor preset: disabled)
   Active: active (running) since Mon 2025-06-16 01:45:27 EDT; 1h 17min ago
 Main PID: 1015 (ceph-mgr)
   CGroup: /system.slice/system-ceph\x2dmgr.slice/ceph-mgr@ceph3.service
           └─1015 /usr/bin/ceph-mgr -f --cluster ceph --id ceph3 --setuser ceph --setgroup ceph

Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:15] Unknown lvalue 'LockPersonal...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:18] Unknown lvalue 'MemoryDenyWr...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:21] Unknown lvalue 'ProtectContr...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:23] Unknown lvalue 'ProtectKerne...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:24] Unknown lvalue 'ProtectKerne...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:15] Unknown lvalue 'LockPersonal...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:18] Unknown lvalue 'MemoryDenyWr...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:21] Unknown lvalue 'ProtectContr...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:23] Unknown lvalue 'ProtectKerne...rvice'
Jun 16 02:59:07 ceph3 systemd[1]: [/usr/lib/systemd/system/ceph-mgr@.service:24] Unknown lvalue 'ProtectKerne...rvice'
Hint: Some lines were ellipsized, use -l to show in full.
[root@ceph3 yum.repos.d]#
```

RBD

主节点

```
[root@ceph1 ~]# scp -p /etc/ceph/ceph.conf root@192.168.70.40:/etc/ceph/
root@192.168.70.40's password:
ceph.conf                                                    100%  303     78.3KB/s   00:00
[root@ceph1 ~]# scp -p /etc/ceph/ceph.client.admin.keyring root@192.168.70.40:/etc/ceph
root@192.168.70.40's password:
ceph.client.admin.keyring                                    100%  151    141.4KB/s   00:00
[root@ceph1 ~]#
```

`ssh://root@192.168.70.10:22`　　　　　SSH2　xterm　118x55　55,17　4会话　CAP NUM

Ceph4

```
[root@ceph4 ~]# yum install -y ceph-common.x86_64
Loaded plugins: fastestmirror
Determining fastest mirrors
Could not get metalink https://mirrors.fedoraproject.org/metalink?repo=epel-7&arch=x86_64 error was
12: Timeout on https://mirrors.fedoraproject.org/metalink?repo=epel-7&arch=x86_64: (28, 'Operation timed out after 300
01 milliseconds with 0 out of 0 bytes received')
 * base: mirrors.aliyun.com
 * epel: d2lzkl7pfhq30w.cloudfront.net
 * extras: mirrors.aliyun.com
```

```
[root@ceph4 ~]# rbd map rpdpool/sqldb
/dev/rbd0
[root@ceph4 ~]# lsblk
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda               8:0    0   20G  0 disk
├─sda1            8:1    0    1G  0 part /boot
└─sda2            8:2    0   19G  0 part
  ├─centos-root 253:0    0   17G  0 lvm  /
  └─centos-swap 253:1    0    2G  0 lvm  [SWAP]
sdb               8:16   0   20G  0 disk
sr0              11:0    1  973M  0 rom
rbd0            252:0    0    1G  0 disk
[root@ceph4 ~]# mkfs.ext4 /dev/rbd0
mke2fs 1.42.9 (28-Dec-2013)
Discarding device blocks: done
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=1024 blocks, Stripe width=1024 blocks
65536 inodes, 262144 blocks
13107 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=268435456
8 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done
```

在 ceph4 创建挂载

```
[root@ceph4 ~]# mkdir /mnt/rbd
[root@ceph4 ~]# mount /dev/rbd0 /mnt/rbd
[root@ceph4 ~]# df -h
Filesystem               Size  Used Avail Use% Mounted on
devtmpfs                 1.9G     0  1.9G   0% /dev
tmpfs                    1.9G     0  1.9G   0% /dev/shm
tmpfs                    1.9G   12M  1.9G   1% /run
tmpfs                    1.9G     0  1.9G   0% /sys/fs/cgroup
/dev/mapper/centos-root   17G  1.9G   16G  11% /
/dev/sda1               1014M  151M  864M  15% /boot
tmpfs                    378M     0  378M   0% /run/user/0
/dev/rbd0                976M  2.6M  907M   1% /mnt/rbd
[root@ceph4 ~]#
```
ssh://192.168.70.40:22   SSH2   xterm   118x55   55,17   4会话   CAP NUM

写入赵文宇 +230303060 +云计算 2 班

```
[root@ceph4 ~]# echo "赵文宇 +230303060 +云计算 2班 " > /mnt/rbd/student_info.txt
[root@ceph4 ~]# cat /mnt/rbd/student_info.txt
赵文宇 +230303060 +云计算 2班
[root@ceph4 ~]# df -h
Filesystem               Size  Used Avail Use% Mounted on
devtmpfs                 1.9G     0  1.9G   0% /dev
tmpfs                    1.9G     0  1.9G   0% /dev/shm
tmpfs                    1.9G   12M  1.9G   1% /run
tmpfs                    1.9G     0  1.9G   0% /sys/fs/cgroup
/dev/mapper/centos-root   17G  1.9G   16G  11% /
/dev/sda1               1014M  151M  864M  15% /boot
tmpfs                    378M     0  378M   0% /run/user/0
/dev/rbd0                976M  2.6M  907M   1% /mnt/rbd
[root@ceph4 ~]#
```
ssh://192.168.70.40:22   SSH2   xterm   118x55   55,17   4会话   CAP NUM