

CephFS

-
- Ceph ceph-deploy
- Ceph



:

- Astra Linux Special Edition .10015-01 (1.7), .10015-10
- Astra Linux Special Edition .10015-17
- Astra Linux Special Edition .10015-37 (7.7)
- Astra Linux Special Edition .10015-03 (7.6)
- Astra Linux Special Edition .10152-02 (4.7)
- Astra Linux Special Edition .10015-01 (1.6)
- Astra Linux Special Edition .10015-16 . 1
- Astra Linux Special Edition .10015-16 . 2
- Astra Linux Special Edition .10265-01 (8.1)
- Astra Linux Common Edition 2.12

, . Astra Linux Ceph.

Ceph --- , .
, , . . Ceph .

Ceph :

- cephfs;
- rbd;
- s3- api.

Ceph ceph-deploy

Ceph 3:

- astra-ceph1;
- astra-ceph2;
- astra-ceph3.

astra-ceph-admin.

:

- (MON);
- (OSD).



Ceph. OSD .

:

- /dev/sda Astra Linux;
- /dev/sdb OSD.

, astra-ceph1 ceph-mgr (Ceph Manager Daemon).

, Ceph astra-ceph1, astra-ceph2 astra-ceph3 :

- IP-, DNS IP- astra-ceph-admin;
- . astra-ceph-admin.



, Ceph .

ceph-deploy astra-ceph-admin. , /etc/hosts :

10.0.0.100	astra-ceph-admin
10.0.0.171	astra-ceph1
10.0.0.172	astra-ceph2
10.0.0.173	astra-ceph3

ceph-deploy Ceph , ssh,sudo Python.

1. :

a. python ssh, :

```
sudo apt install python ssh
```

b. ssh, :

```
sudo systemctl enable --now ssh
```



, SSH ;

c. ,,ceph-admin:

```
sudo adduser ceph-admin
```

, . "y" ("");

d. (sudo) , :

```
echo "ceph-admin ALL = (root) NOPASSWD:ALL" | sudo tee /etc/sudoers.d  
/ceph-admin  
sudo chmod 0440 /etc/sudoers.d/ceph-admin
```

e. ceph-admin:

```
sudo pdpl-user -i 63 ceph-admin
```



Ceph ceph-deploy astra-ceph-admin ceph-admin.
ceph-deploy (sudo root).

Ceph astra-ceph-admin :

1. ceph-deploy:

```
sudo apt install ceph-deploy python
```

2. ceph-admin:

```
su - ceph-admin
```

3. ceph-admin :

a. ssh- :

```
ssh-keygen
for N in $(seq 1 3); do ssh-copy-id ceph-adm@astra-ceph$N; done

<<yes>> (<<>>) ceph-adm;
```

b. ssh- :

```
ssh-copy-id ceph-adm@astra-ceph-admin
```

c. Ceph :

```
ceph-deploy --username ceph-adm install --mon --osd astra-ceph1
astra-ceph2 astra-ceph3
```

```
--mon --osd Ceph, . Ceph;
```

d. :

```
for N in $(seq 1 3); do ssh ceph-adm@astra-ceph$N sudo reboot; done
```

e. astra-ceph1 ceph-mgr():

```
ceph-deploy --username ceph-adm install --mgr astra-ceph1
```

f. Ceph, , :

```
ceph-deploy --username ceph-adm new astra-ceph1 astra-ceph2 astra-
ceph3
```

```
ceph.conf keyring-;
```

g. :

```
ceph-deploy --username ceph-adm mon create-initial
```

h. mgr astra-ceph1 :

```
ceph-deploy --username ceph-adm mgr create astra-ceph1
```

i. OSD /dev/sdb :

```
ceph-deploy --username ceph-adm osd create --data /dev/sdb astra-
ceph1
ceph-deploy --username ceph-adm osd create --data /dev/sdb astra-
ceph2
ceph-deploy --username ceph-adm osd create --data /dev/sdb astra-
ceph3
```

j. Ceph astra-ceph-admin :

```
ceph-deploy --username ceph-adm install --cli astra-ceph-admin
```

k. keyring- admin astra-ceph-admin :

```
ceph-deploy admin astra-ceph-admin
```

- l. RBD (), Metadata Server Daemon - astra-ceph1:

```
ceph-deploy --username ceph-adm install --mds astra-ceph1
ceph-deploy --username ceph-adm mds create astra-ceph1
```

- m. ceph-adm:

```
exit
```

4. Ceph :

```
sudo ceph -s
```

health HEALTH_OK:

```
cluster:
  id:      03ff5b8a-a453-4da3-8296-2d473649bcc4
  health: HEALTH_OK
services:
  mon: 3 daemons, quorum astra-ceph1,astra-ceph2,astra-ceph3 (age 3h)
  mgr: astra-ceph1(active, since 3h)
  osd: 3 osds: 3 up (since 3h), 3 in (since 25h)
data:
  pools:   0 pools, 0 pgs
  objects: 0 objects, 0 bytes
  usage:   3.0 GiB used, 45 GiB / 48 GiB avail
  pgs:
```

Ceph

cephfs. cephfs , . , Ceph , (MDS).

cephfs astra-ceph-admin:

1. Metadata Server Daemon - astra-ceph1:

```
ceph-deploy --username ceph-adm install --mds astra-ceph1
ceph-deploy --username ceph-adm mds create astra-ceph1
```

2. cephfs_data cephfs_metadata, - (PG) 64:

```
sudo ceph osd pool create cephfs_data 64
sudo ceph osd pool create cephfs_metadata 64
sudo ceph osd pool application enable cephfs_metadata cephfs
```

PG , 2 (64, 128, 256...). OSD . PG OSD, . PG, . PG:

```
Total PGs = (Number OSD * 100) / max_replication_count
```

Ceph: <https://docs.ceph.com/en/latest/rados/operations/placement-groups/#choosing-the-number-of-placement-groups>.

3. cephfs:

```
sudo ceph fs new cephfs cephfs_metadata cephfs_data
```

4. cephfs astra-ceph-admin:

a. , :

```
cat ceph.client.admin.keyring | grep key
```

key. :

```
key = AQBbVX1gl2oJJBAAh40D+1Kphz/0QA/Gbkz1sw==
```

b. ():

```
echo "AQBbVX1gl2oJJBAAh40D+1Kphz/0QA/Gbkz1sw==" > admin.secret
```

c. , cephfs:

```
sudo mkdir /mnt/cephfs
```

d. cephfs:

```
sudo mount -t ceph 10.0.0.171:6789:/ /mnt/cephfs -o name=admin,secretfile=admin.secret
```

10.0.0.171 --- . , , , , . , :

```
sudo mount -t ceph 10.0.0.171,10.0.0.172,10.0.0.173:/ /mnt/mycephfs -o name=admin,secretfile=admin.secret
```

e. , :

```
df -h | grep cephfs
```

:

```
10.0.0.171:6789:/ 15G 0 15G 0% /mnt/cephfs
```

15 (3 16, 3 1). , 15 ceph. .

. cephfs :

1. astra-ceph-admin cephfs data1, :

```
sudo mkdir /mnt/cephfs/data1
```

2. client.data1 data1, :

```
sudo ceph auth get-or-create client.data1 mon 'allow r' mds 'allow r, allow rw path=/data1' osd 'allow rw pool=cephfs_data'
```

key. :

```
[client.data1]
key = AQDh335g/MDeKBAAOxnXO/H4W7g2snP0pq+lCA==
```

:

```
sudo ceph auth get-key client.data1
```

3. , cephfs, data1, IP- :

```
sudo mount -t ceph 10.0.0.171,10.0.0.172,10.0.0.173:/ /mnt -o  
name=data1,secret='AQDh335g/MDeKBAAOxnXO/H4W7g2snPOpq+lCA=='
```

10.0.0.171,10.0.0.172,10.0.0.173 --- IP- , secret --- , .

4. , :

```
df -h | grep mnt
```

:

```
10.0.0.171,10.0.0.172,10.0.0.173:/      15G      0      15G      0% /mnt
```

, data1 cephfs . , , .