

→ Convenciones:

```
# En todos los nodos como 'sudo su'.
[root@srv1 ~]# Solo en servidor 'srv1'→ como 'sudo su'.
[root@srv2 ~]# Solo en servidor 'srv2'→ como 'sudo su'.
```

hp00 # → Anfitrión.

→ Objetivos:

SERVER NAME	CEPH COMPONENT	Server Specs
cephadmin	ceph-ansible	2gb ram, 2vpcus
cephmon01	Ceph Monitor	2gb ram, 2vpcus
cephmon02	Ceph MON, MGR,MDS	2gb ram, 2vpcus
cephosd01	Ceph OSD	2gb ram, 2vpcus
cephosd02	Ceph OSD	2gb ram, 2vpcus

cat /etc/hosts

```
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
```

→ Preparación para poblado de: Discos/Isos/Redes → Ambiente: → --os-variant → rhel8.1

```
hp00 ~ # mkdir /var/lib/libvirt/Discos -p
hp00 ~ #mkdir /var/lib/libvirt/Isos -p
hp00 ~ #mkdir /var/lib/libvirt/Redes -p
```

→ Creación del: bridge → br10 en modo NAT.

```
hp00 ~ #virsh net-list --all
Nombre          Estado    Inicio automático Persistente
-----
default        activo    si      si
```

```
hp00 ~ # vim /var/lib/libvirt/Redes/br10.xml
<network>
  <name>br10</name>
  <forward mode='nat'>
    <nat>
      <port start='1024' end='65535' />
    </nat>
  </forward>
  <bridge name='br10' stp='on' delay='0' />
  <ip address='192.168.10.5' netmask='255.255.255.0'>
    <dhcp>
```



```
<range start='192.168.10.151' end='192.168.10.155'/'>
</dhcp>
</ip>
</network>
```

hp00 ~ #virsh net-define /var/lib/libvirt/Redes/br10.xml

La red **br10** se encuentra definida desde /var/lib/libvirt/Redes/br10.xml

hp00 ~ #virsh net-start br10

La red **br10** se ha iniciado

hp00 ~ #virsh net-autostart br10

La red **br10** ha sido marcada para iniciarse automáticamente

hp00 ~ #virsh net-list --all

Nombre	Estado	Inicio automático	Persistente
--------	--------	-------------------	-------------

br10	activo	si	si
default	activo	si	si

hp00 ~ #ip addr show dev br10

```
4: br10: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN
group default qlen 1000
```

```
    link/ether 52:54:00:48:bc:3a brd ff:ff:ff:ff:ff:ff
```

```
    inet 192.168.10.5/24 brd 192.168.10.255 scope global br10
```

```
        valid_lft forever preferred_lft forever
```

**hp00 ~ #virt-install **

```
--virt-type=kvm \
--name cephadmin \
--ram 2048 \
--vcpus=2 \
--os-variant=rhel8.1 \
--cdrom=/var/lib/libvirt/Isos/CentOS-8.1.1911-x86_64-dvd1.iso \
--network=bridge=br10,model=virtio \
--graphics vnc \
--disk path=/var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB,size=25,bus=virtio,format=qcow2 \
--disk path=/var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB,size=20,bus=virtio,format=qcow2 \
--disk path=/var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB,size=20,bus=virtio,format=qcow2
```

→ Finalizamos instalación a través de consola, y conectamos con la máquina KVM, ...

```
[root@cephadmin ~]# dnf update -y
[root@cephadmin ~]# dnf install vim bash-completion tmux -y
[root@cephadmin ~]# tee -a .tmux.conf<<EOF
```



```
> ### Keyboard bindings
>
> ### Split windows with easier shortcuts: | and -
> unbind %
> bind | split-window -h
> bind - split-window -v
> EOF
### Keyboard bindings
```

```
### Split windows with easier shortcuts: | and -
unbind %
bind | split-window -h
bind - split-window -v
```

```
[root@cephadmin ~]# tee -a /etc/hosts<<EOF
```

```
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
```

```
EOF
```

```
[root@cephadmin ~]# lsblk
```

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
sr0	11:0	1	1024M	0	rom	
vda	252:0	0	25G	0	disk	
└─vda1	252:1	0	1G	0	part	/boot
└─vda2	252:2	0	24G	0	part	
└─cl_cephadmin-root	253:0	0	22G	0	lvm	/
└─cl_cephadmin-swap	253:1	0	2,1G	0	lvm	[SWAP]
vdb	252:16	0	20G	0	disk	
vdc	252:32	0	20G	0	disk	

```
[root@cephadmin ~]# shutdown -r 0
```

```
[root@cephadmin ~]# dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
```

```
[root@cephadmin ~]# dnf update -y
```

```
[root@cephadmin ~]# dnf config-manager --set-enabled PowerTools
```

```
[root@cephadmin ~]# dnf install git vim bash-completion -y
```

```
[root@cephadmin ~]# cd /opt/
```

```
[root@cephadmin opt]# git clone https://github.com/ceph/ceph-ansible.git
```

```
Clonando en 'ceph-ansible'...
```

```
remote: Enumerating objects: 146, done.
```

```
remote: Counting objects: 100% (146/146), done.
```

```
remote: Compressing objects: 100% (111/111), done.
```

```
remote: Total 49764 (delta 52), reused 61 (delta 22), pack-reused 49618
```

```
Recibiendo objetos: 100% (49764/49764), 9.20 MiB | 420.00 KiB/s, listo.
```



Resolviendo deltas: 100% (34086/34086), listo.

```
[root@cephadmin opt]# cd ceph-ansible
```

```
[root@cephadmin ceph-ansible]# git checkout stable-5.0
```

Rama 'stable-5.0' configurada para hacer seguimiento a la rama remota 'stable-5.0' de 'origin'.

Cambiado a nueva rama 'stable-5.0'

```
[root@cephadmin ceph-ansible]# dnf install python3-pip -y
```

```
[root@cephadmin ceph-ansible]# pip3 install -r requirements.txt
```

WARNING: Running pip install with root privileges is generally not a good idea. Try `pip3 install --user` instead.

Collecting ansible!=2.9.10,<2.10,>=2.9 (from -r requirements.txt (line 2))

 Downloading

https://files.pythonhosted.org/packages/00/5d/e10b83e0e6056dbd5b4809b451a191395175a57e3175ce04e35d9c5fc2a0/ansible-2.9.9.tar.gz (14.2MB)

 100% |██████████| 14.2MB 77kB/s

Collecting netaddr (from -r requirements.txt (line 3))

 Downloading

https://files.pythonhosted.org/packages/f4/7a/d514cd5ab61bfc9d09d0c2bd52a2336134515cc3c9949b9054dfc1c2f7ac/netaddr-0.7.20-py2.py3-none-any.whl (1.9MB)

 100% |██████████| 1.9MB 218kB/s

Collecting jinja2 (from ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

 Downloading

https://files.pythonhosted.org/packages/30/9e/f663a2aa66a09d838042ae1a2c5659828bb9b41ea3a6efa20a20fd92b121/Jinja2-2.11.2-py2.py3-none-any.whl (125kB)

 100% |██████████| 133kB 770kB/s

Collecting PyYAML (from ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

 Downloading

https://files.pythonhosted.org/packages/64/c2/b80047c7ac2478f9501676c988a5411ed5572f35d1bef9cae07d321512c/PyYAML-5.3.1.tar.gz (269kB)

 100% |██████████| 276kB 623kB/s

Requirement already satisfied: cryptography in /usr/lib64/python3.6/site-packages (from ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

Collecting importlib-resources; python_version < "3.7" (from netaddr->-r requirements.txt (line 3))

 Downloading

https://files.pythonhosted.org/packages/ce/06/94cb4028cbc834c3a6a0c239ab37e76e293c75bed51a9cee2cb8337b47e/importlib_resources-2.0.1-py2.py3-none-any.whl

Collecting MarkupSafe>=0.23 (from jinja2->ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

 Downloading

https://files.pythonhosted.org/packages/b2/5f/23e0023be6bb885d00ffbefad2942bc51a620328ee910f64abe5a8d18dd1/MarkupSafe-1.1.1-cp36-cp36m-manylinux1_x86_64.whl

Requirement already satisfied: idna>=2.1 in /usr/lib/python3.6/site-packages (from cryptography->ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

Requirement already satisfied: asn1crypto>=0.21.0 in /usr/lib/python3.6/site-packages (from cryptography->ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

Requirement already satisfied: six>=1.4.1 in /usr/lib/python3.6/site-packages (from cryptography->ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))



Requirement already satisfied: cffi!=1.11.3,>=1.7 in /usr/lib64/python3.6/site-packages (from cryptography->ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

Collecting zipp>=0.4; python_version < "3.8" (from importlib-resources; python_version < "3.7"->netaddr->-r requirements.txt (line 3))

 Downloading

https://files.pythonhosted.org/packages/b2/34/bfcbb43cc0ba81f527bc4f40ef41ba2ff4080e047acb0586b56b3d017ace4/zipp-3.1.0-py3-none-any.whl

Collecting importlib-metadata; python_version < "3.8" (from importlib-resources; python_version < "3.7"->netaddr->-r requirements.txt (line 3))

 Downloading

https://files.pythonhosted.org/packages/98/13/a1d703ec396ade42c1d33df0e1cb691a28b7c08b336a5683912c87e04cd7/importlib_metadata-1.6.1-py3-none-any.whl

Requirement already satisfied: pycparser in /usr/lib/python3.6/site-packages (from cffi!=1.11.3,>=1.7->cryptography->ansible!=2.9.10,<2.10,>=2.9->-r requirements.txt (line 2))

Installing collected packages: MarkupSafe, jinja2, PyYAML, ansible, zipp, importlib-metadata, importlib-resources, netaddr

 Running setup.py install for PyYAML ... done

 Running setup.py install for ansible ... done

Successfully installed MarkupSafe-1.1.1 PyYAML-5.3.1 ansible-2.9.9 importlib-metadata-1.6.1 importlib-resources-2.0.1 jinja2-2.11.2 netaddr-0.7.20 zipp-3.1.0

[root@cephadmin ceph-ansible]# echo \$PATH

/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/bin

[root@cephadmin ceph-ansible]# ansible --version

[WARNING]: log file at /root/ansible/ansible.log is not writeable and we cannot create it, aborting

ansible 2.9.9

 config file = /opt/ceph-ansible/ansible.cfg

 configured module search path = ['/opt/ceph-ansible/library']

 ansible python module location = /usr/local/lib/python3.6/site-packages/ansible

 executable location = /usr/local/bin/ansible

 python version = 3.6.8 (default, Apr 16 2020, 01:36:27) [GCC 8.3.1 20191121 (Red Hat 8.3.1-5)]

[root@cephadmin ceph-ansible]# ssh-keygen

Generating public/private rsa key pair.

Enter file in which to save the key (/root/.ssh/id_rsa):

Created directory '/root/.ssh'.

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /root/.ssh/id_rsa.

Your public key has been saved in /root/.ssh/id_rsa.pub.

The key fingerprint is:

SHA256:/kvV442rn1vcBnQ3xiu9tootolr/I6+7HLraPBVFBWE root@cephadmin.enermol.lan

The key's randomart image is:

+---[RSA 3072]---

| .E+. |



```
| .. . |
| .. .+o|
| .. oo.+|
| S ..+o |
| .....*o|
| .o.. oo*|
| +.=.oo .=.|
| oo*+*@=+=*o |
+---[SHA256]---
```

[root@cephadmin ceph-ansible]# shutdown -r 0

→ Tiempo de clonar.

hp00 ~ # virsh list --all | grep -i ceph
- cephadmin apagado

hp00 ~ # virsh snapshot-create-as --domain cephadmin --name "Inicial-OK" --atomic
Ha sido creada la captura instantánea Inicial-OK del dominio

→ Debemos clonar exactamente '**cephadmin**' => **cephmon01** **cephmon02** **cephosd01** **cephosd02**

hp00 ~ # time for clonacion in cephmon01 cephmon02 cephosd01 cephosd02; do virt-clone --original cephadmin --name \$clonacion --auto-clone; done
Asignando 'disco1-octopus-cephadmin-25GB-clone'
| 25 GB 00:04:19
Asignando 'disco2-octopus-cephadmin-20GB-clone'
| 20 GB 00:00:01
Asignando 'disco3-octopus-cephadmin-20GB-clone'
| 20 GB 00:00:00

El clon 'cephmon01' ha sido creado exitosamente.

Asignando 'disco1-octopus-cephadmin-25GB-clone-1'
| 25 GB 00:01:21
Asignando 'disco2-octopus-cephadmin-20GB-clone-1'
| 20 GB 00:02:17
Asignando 'disco3-octopus-cephadmin-20GB-clone-1'
| 20 GB 00:00:00

El clon 'cephmon02' ha sido creado exitosamente.

Asignando 'disco1-octopus-cephadmin-25GB-clone-2'
| 25 GB 00:00:08
Asignando 'disco2-octopus-cephadmin-20GB-clone-2'
| 20 GB 00:02:55
Asignando 'disco3-octopus-cephadmin-20GB-clone-2'
| 20 GB 00:00:00



El clon 'cephosd01' ha sido creado exitosamente.

Asignando 'disco1-octopus-cephadmin-25GB-clone-3'

| 25 GB 00:00:12

Asignando 'disco2-octopus-cephadmin-20GB-clone-3'

| 20 GB 00:03:03

Asignando 'disco3-octopus-cephadmin-20GB-clone-3'

| 20 GB 00:00:00

El clon 'cephosd02' ha sido creado exitosamente.

```
real 14m24,093s
user 0m3,618s
sys 0m0,757s
```

hp00 ~ # virsh list --all |grep -i ceph

- cephadmin	apagado
- cephmon01	apagado
- cephmon02	apagado
- cephosd01	apagado
- cephosd02	apagado

hp00 ~ # ls /var/lib/libvirt/Discos/disco?-octopus* -ahl

-rw-----.	1	root	root	26G	jun 25 12:51	/var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB
-rw-----.	1	root	root	2,3G	jun 25 12:56	/var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone
-rw-----.	1	root	root	2,3G	jun 25 12:57	/var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-1
-rw-----.	1	root	root	2,3G	jun 25 13:00	/var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-2
-rw-----.	1	root	root	2,3G	jun 25 13:03	/var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-3
-rw-----.	1	root	root	21G	jun 25 12:51	/var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB
-rw-----.	1	root	root	193K	jun 25 12:56	/var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone
-rw-----.	1	root	root	193K	jun 25 13:00	/var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-1
-rw-----.	1	root	root	193K	jun 25 13:03	/var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-2
-rw-----.	1	root	root	193K	jun 25 13:06	/var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-3
-rw-----.	1	root	root	21G	jun 25 12:51	/var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB
-rw-----.	1	root	root	193K	jun 25 12:56	/var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone
-rw-----.	1	root	root	193K	jun 25 13:00	/var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-1
-rw-----.	1	root	root	193K	jun 25 13:03	/var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-2



-rw-----. 1 root root 193K jun 25 13:06 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-3

→ Usamos tmux, ...

```
Archivo Editar Ver Buscar Terminal Ayuda
hp00 ~ # ls /var/lib/libvirt/Discos/disco3-octopus* -ahl
-rw-----. 1 root root 2.36 jun 25 12:51 /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB
-rw-----. 1 root root 2.36 jun 25 12:56 /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone
-rw-----. 1 root root 2.36 jun 25 12:57 /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-1
-rw-----. 1 root root 2.36 jun 25 13:00 /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-2
-rw-----. 1 root root 2.36 jun 25 13:03 /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-3
hp00 ~ #

hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #
```

```
hp00 ~ # mv /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone /var/lib/libvirt/Discos/disco1-octopus-cephmon01-25GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-1 /var/lib/libvirt/Discos/disco1-octopus-cephmon02-25GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-2 /var/lib/libvirt/Discos/disco1-octopus-cephosd01-25GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB-clone-3 /var/lib/libvirt/Discos/disco1-octopus-cephosd02-25GB
hp00 ~ #
hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #
```

[0] 0:bash* root@hp00:~ 13:34:23 jun 24

```
Archivo Editar Ver Buscar Terminal Ayuda
hp00 ~ # ls /var/lib/libvirt/Discos/disco2-octopus* -ahl
-rw-----. 1 root root 216 jun 25 12:51 /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB
-rw-----. 1 root root 193K jun 25 12:51 /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone
-rw-----. 1 root root 193K jun 25 13:00 /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-1
-rw-----. 1 root root 193K jun 25 13:03 /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-2
-rw-----. 1 root root 193K jun 25 13:06 /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-3
hp00 ~ #

hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #
```

```
hp00 ~ # mv /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone /var/lib/libvirt/Discos/disco2-octopus-cephmon01-20GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-1 /var/lib/libvirt/Discos/disco2-octopus-cephmon02-20GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-2 /var/lib/libvirt/Discos/disco2-octopus-cephosd01-20GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB-clone-3 /var/lib/libvirt/Discos/disco2-octopus-cephosd02-20GB
hp00 ~ #
```

[0] 0:bash* root@hp00:~ 13:34:23 jun 24



```
Archivo Editar Ver Buscar Terminal Ayuda
hp00 ~ # ls /var/lib/libvirt/Discos/disco3-octopus* -alh
-rw----- 1 root root 21G jun 25 12:51 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB
-rw----- 1 root root 193K jun 25 12:56 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone
-rw----- 1 root root 193K jun 25 13:00 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-1
-rw----- 1 root root 193K jun 25 13:03 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-2
-rw----- 1 root root 193K jun 25 13:06 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-3
hp00 ~ #
hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #
hp00 ~ # mv /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone /var/lib/libvirt/Discos/disco3-octopus-cephmon01-20GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-1 /var/lib/libvirt/Discos/disco3-octopus-cephmon02-20GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-2 /var/lib/libvirt/Discos/disco3-octopus-cephosd01-20GB
hp00 ~ # mv /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB-clone-3 /var/lib/libvirt/Discos/disco3-octopus-cephosd02-20GB
hp00 ~ #
hp00 ~ #
```

hp00 ~ # ls /var/lib/libvirt/Discos/disco?-octopus* -alh

```
-rw----- 1 root root 26G jun 25 12:51 /var/lib/libvirt/Discos/disco1-octopus-cephadmin-25GB
-rw----- 1 root root 2,3G jun 25 12:56 /var/lib/libvirt/Discos/disco1-octopus-cephmon01-25GB
-rw----- 1 root root 2,3G jun 25 12:57 /var/lib/libvirt/Discos/disco1-octopus-cephmon02-25GB
-rw----- 1 root root 2,3G jun 25 13:00 /var/lib/libvirt/Discos/disco1-octopus-cephosd01-25GB
-rw----- 1 root root 2,3G jun 25 13:03 /var/lib/libvirt/Discos/disco1-octopus-cephosd02-25GB
-rw----- 1 root root 21G jun 25 12:51 /var/lib/libvirt/Discos/disco2-octopus-cephadmin-20GB
-rw----- 1 root root 193K jun 25 12:56 /var/lib/libvirt/Discos/disco2-octopus-cephmon01-20GB
-rw----- 1 root root 193K jun 25 13:00 /var/lib/libvirt/Discos/disco2-octopus-cephmon02-20GB
-rw----- 1 root root 193K jun 25 13:03 /var/lib/libvirt/Discos/disco2-octopus-cephosd01-20GB
-rw----- 1 root root 193K jun 25 13:06 /var/lib/libvirt/Discos/disco2-octopus-cephosd02-20GB
-rw----- 1 root root 21G jun 25 12:51 /var/lib/libvirt/Discos/disco3-octopus-cephadmin-20GB
-rw----- 1 root root 193K jun 25 12:56 /var/lib/libvirt/Discos/disco3-octopus-cephmon01-20GB
-rw----- 1 root root 193K jun 25 13:00 /var/lib/libvirt/Discos/disco3-octopus-cephmon02-20GB
-rw----- 1 root root 193K jun 25 13:03 /var/lib/libvirt/Discos/disco3-octopus-cephosd01-20GB
-rw----- 1 root root 193K jun 25 13:06 /var/lib/libvirt/Discos/disco3-octopus-cephosd02-20GB
```

→ Tiempo de snap's

hp00 ~ # virsh list --all

Id	Nombre	Estado
-	cephadmin	apagado



- cephmon01 apagado
- cephmon02 apagado
- cephosd01 apagado
- cephosd02 apagado

hp00 ~ # virsh snapshot-create-as --domain cephadmin --name "Pre-Inicial-OK" --atomic

Ha sido creada la captura instantánea Pre-Inicial-OK del dominio

hp00 ~ # virsh edit --domain cephmon01,

```
Archivo Editar Ver Buscar Terminal Ayuda
hp00 ~ # ls /var/lib/libvirt/Discos/disco* |grep cephmon01* -alh
-rw-----. 1 root root 2.3G jun 25 12:56 /var/lib/libvirt/Discos/disco1-octopus-cephmon01-25GB
-rw-----. 1 root root 193K jun 25 12:56 /var/lib/libvirt/Discos/disco2-octopus-cephmon01-20GB
-rw-----. 1 root root 193K jun 25 12:56 /var/lib/libvirt/Discos/disco3-octopus-cephmon01-20GB
hp00 ~ #
hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #

<on_crash>destroy</on_crash>
<pm>
  <suspend-to-mem enabled='no' />
  <suspend-to-disk enabled='no' />
</pm>
<devices>
  <emulator>/usr/libexec/qemu-kvm</emulator>
  <disk type='file' device='disk'>
    <driver name='qemu' type='qcow2' />
    <source file='/var/lib/libvirt/Discos/disco1-octopus-cephmon01-25GB' />
    <target dev='vda' bus='virtio' />
    <address type='pci' domain='0x0000' bus='0x04' slot='0x00' function='0x0' />
  </disk>
  <disk type='file' device='disk'>
    <driver name='qemu' type='qcow2' />
    <source file='/var/lib/libvirt/Discos/disco2-octopus-cephmon01-20GB' />
    <target dev='vdb' bus='virtio' />
    <address type='pci' domain='0x0000' bus='0x05' slot='0x00' function='0x0' />
  </disk>
  <disk type='file' device='disk'>
    <driver name='qemu' type='qcow2' />
    <source file='/var/lib/libvirt/Discos/disco3-octopus-cephmon01-20GB' />
    <target dev='vdc' bus='virtio' />
    <address type='pci' domain='0x0000' bus='0x06' slot='0x00' function='0x0' />
  </disk>
  <disk type='file' device='cdrom'>
    <driver name='qemu' type='raw' />
  </disk>
</devices>
<insert> --
```



```
Archivo Editar Ver Buscar Terminal Ayuda
hp00 ~ # ls /var/lib/libvirt/Discos?cephmon02*.alh
-rw----- 1 root root 2.3G jun 25 12:57 /var/lib/libvirt/Discos/disco1-cephmon02-25GB
-rw----- 1 root root 193K jun 25 13:00 /var/lib/libvirt/Discos/disco2-cephmon02-20GB
-rw----- 1 root root 193K jun 25 13:00 /var/lib/libvirt/Discos/disco3-cephmon02-20GB
hp00 ~ #

hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #
```



```
<on_crash>destroy</on_crash>
<pm>
<suspend-to-mem enabled='no' />
<suspend-to-disk enabled='no' />
</pm>
<devices>
<emulator>/usr/libexec/qemu-img/emuulator>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco1-cephmon02-25GB' />
<target dev='vda' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x04' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco2-cephmon02-20GB' />
<target dev='vdb' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x05' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco3-cephmon02-20GB' />
<target dev='vdc' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x06' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='cdrom'>
<driver name='qemu' type='raw' />
</disk>
```

/tmp/virshquIUK.xml" 154L, 6212C written

[root@centos ~]# tail -6 /etc/hosts



```
Archivo Editar Ver Buscar Terminal Ayuda
hp00 ~ # ls /var/lib/libvirt/Discos/*cephosd01*.xml
-rw-r--r--. 1 root root 2.36 jun 25 13:00 /var/lib/libvirt/Discos/disco1-octopus-cephosd01-25GB
-rw-r--r--. 1 root root 193K jun 25 13:03 /var/lib/libvirt/Discos/disco2-octopus-cephosd01-20GB
-rw-r--r--. 1 root root 193K jun 25 13:03 /var/lib/libvirt/Discos/disco3-octopus-cephosd01-20GB
hp00 ~ #

hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #

<on_reboot>restart</on_reboot>
<on_crash>destroy</on_crash>
</pm>
<suspend-to-mem enabled='no' />
<suspend-to-disk enabled='no' />
</pm>
<devices>
<emulator>/usr/libexec/qemu-kvm</emulator>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco1-octopus-cephosd01-25GB' />
<target dev='vda' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x00' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco2-octopus-cephosd01-20GB' />
<target dev='vdb' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x05' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco3-octopus-cephosd01-20GB' />
<target dev='vdc' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x06' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='cdrom'>
</disk>
hp00 ~ # virsh list --all | grep -i ceph
hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #

</pm>
<devices>
<emulator>/usr/libexec/qemu-kvm</emulator>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco1-octopus-cephosd02-25GB' />
<target dev='vda' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x04' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco2-octopus-cephosd02-20GB' />
<target dev='vdb' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x05' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='disk'>
<driver name='qemu' type='qcow2' />
<source file='/var/lib/libvirt/Discos/disco3-octopus-cephosd02-20GB' />
<target dev='vdc' bus='virtio' />
<address type='pci' domain='0x0000' bus='0x06' slot='0x00' function='0x0' />
</disk>
<disk type='file' device='cdrom'>
<driver name='qemu' type='raw' />
<target dev='sda' bus='sata' />
<readonly>/</readonly>
<address type='drive' controller='0' bus='0' target='0' unit='0' />
</disk>
hp00 ~ # virsh list --all | grep -i ceph
hp00 ~ # tail -6 /etc/hosts
192.168.10.10 cephadmin
192.168.10.11 cephmon01
192.168.10.12 cephmon02
192.168.10.13 cephosd01
192.168.10.14 cephosd02
hp00 ~ #
```

hp00 ~ # virsh list --all | grep -i ceph

- cephadmin	apagado
- cephmon01	apagado
- cephmon02	apagado
- cephosd01	apagado
- cephosd02	apagado



→ Debemos ajustar ahora las ‘ip’s’ de las máquinas y sus ‘hostnamectl’. Por tanto iniciamos de forma consecutiva las máquinas clonadas => `cephmon01` `cephmon02` `cephosd01` `cephosd01`. Este proceso se puede realizar de forma automatizada previamente. Pero no es ahora objeto de esta presentación.

→ Ejemplo de configuración para `cephmon01`. El método es similar para `cephmon02` `cephosd01` y `cephosd02`.

```
hp00 ~ # virsh start --domain cephmon01
```

Se ha iniciado el dominio cephmon01

```
hp00 ~ # ssh root@192.168.10.10
```

root@192.168.10.10's password:

Last login: Thu Jun 25 12:46:39 2020 from 192.168.10.5

```
[root@cephadmin ~]# hostnamectl
```

Static hostname: cephadmin.enermol.lan

Icon name: computer-vm

Chassis: vm

Machine ID: 4cb0da955e9e4f8bae11d744eed10fa2

Boot ID: 4c030de8477e4dfc9326f0c0fa6d4d1e

Virtualization: kvm

Operating System: CentOS Linux 8 (Core)

CPE OS Name: cpe:/o:centos:centos:8

Kernel: Linux 4.18.0-193.6.3.el8_2.x86_64

Architecture: x86-64

```
[root@cephadmin ~]# hostnamectl set-hostname cephmon01
```

```
[root@cephadmin ~]# su
```

```
[root@cephmon01 ~]# ip a
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default  
qlen 1000
```

link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00

inet 127.0.0.1/8 scope host lo

valid_lft forever preferred_lft forever

inet6 ::1/128 scope host

valid_lft forever preferred_lft forever

```
2: enp1s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP  
group default qlen 1000
```

link/ether 52:54:00:bf:a4:94 brd ff:ff:ff:ff:ff:ff

inet 192.168.10.10/24 brd 192.168.10.255 scope global noprefixroute enp1s0

valid_lft forever preferred_lft forever

inet6 fe80::d7e3:f788:bb8f:8e46/64 scope link noprefixroute

valid_lft forever preferred_lft forever

```
[root@cephmon01 ~]# nmcli connection modify enp1s0 ipv4.addresses 192.168.10.11/24
```

```
[root@cephmon01 ~]# shutdown -h 0
```

→ Se procede de la misma forma con el resto de máquinas, ...



Y Buscando el ajuste previsto:

```
192.168.10.10 cephadmin  
192.168.10.11 cephmon01  
192.168.10.12 cephmon02  
192.168.10.13 cephosd01  
192.168.10.14 cephosd02
```

hp00 ~ # virsh list --all | grep -i ceph

```
- cephadmin apagado  
- cephmon01 apagado  
- cephmon02 apagado  
- cephosd01 apagado  
- cephosd02 apagado
```

→ **Hora de snap's**

hp00 ~ # virsh snapshot-create-as --domain cephadmin --name "Pre-Inicial-OK-master" --atomic

Ha sido creada la captura instantánea Pre-Inicial-OK-master del dominio

hp00 ~ # virsh snapshot-create-as --domain cephmon01 --name "Pre-Inicial-OK-master" --atomic

Ha sido creada la captura instantánea Pre-Inicial-OK-master del dominio

hp00 ~ # virsh snapshot-create-as --domain cephmon02 --name "Pre-Inicial-OK-master" --atomic

Ha sido creada la captura instantánea Pre-Inicial-OK-master del dominio

hp00 ~ # virsh snapshot-create-as --domain cephosd01 --name "Pre-Inicial-OK-master" --atomic

Ha sido creada la captura instantánea Pre-Inicial-OK-master del dominio

hp00 ~ # virsh snapshot-create-as --domain cephosd02 --name "Pre-Inicial-OK-master" --atomic

Ha sido creada la captura instantánea Pre-Inicial-OK-master del dominio

→ **Ahora lanzamos todas las máquinas en paralelo:**

hp00 ~ # free -ht

	total	used	free	shared	buff/cache	available
Mem:	19Gi	2,3Gi	1,1Gi	171Mi	15Gi	16Gi
Swap:	9,8Gi	251Mi	9,6Gi			
Total:	29Gi	2,6Gi	10Gi			

hp00 ~ #virsh list --all | grep -i ceph

```
- cephadmin apagado  
- cephmon01 apagado  
- cephmon02 apagado  
- cephosd01 apagado  
- cephosd02 apagado
```



```
hp00 ~ # time for iniciarTodo in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do  
virsh start --domain $iniciarTodo; done
```

Se ha iniciado el dominio cephadmin
Se ha iniciado el dominio cephmon01
Se ha iniciado el dominio cephmon02
Se ha iniciado el dominio cephosd01
Se ha iniciado el dominio cephosd02

real 0m8,019s
user 0m0,089s
sys 0m0,050s

```
hp00 ~ #virsh list --all | grep -i ceph  
26 cephadmin ejecutando  
27 cephmon01 ejecutando  
28 cephmon02 ejecutando  
29 cephosd01 ejecutando  
30 cephosd02 ejecutando
```

```
hp00 ~ # for ping in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do ping -c1  
$pinging; done
```

PING cephadmin (192.168.10.10) 56(84) bytes of data.
64 bytes from cephadmin (192.168.10.10): icmp_seq=1 ttl=64 time=0.507 ms

--- cephadmin ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.507/0.507/0.507/0.000 ms

PING cephmon01 (192.168.10.11) 56(84) bytes of data.
64 bytes from cephmon01 (192.168.10.11): icmp_seq=1 ttl=64 time=0.410 ms

--- cephmon01 ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.410/0.410/0.410/0.000 ms

PING cephmon02 (192.168.10.12) 56(84) bytes of data.
64 bytes from cephmon02 (192.168.10.12): icmp_seq=1 ttl=64 time=0.439 ms

--- cephmon02 ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.439/0.439/0.439/0.000 ms

PING cephosd01 (192.168.10.13) 56(84) bytes of data.

64 bytes from cephosd01 (192.168.10.13): icmp_seq=1 ttl=64 time=0.426 ms

--- cephosd01 ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.426/0.426/0.426/0.000 ms

PING cephosd02 (192.168.10.14) 56(84) bytes of data.



64 bytes from cephosd02 (192.168.10.14): icmp_seq=1 ttl=64 time=0.455 ms

--- cephosd02 ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.455/0.455/0.455/0.000 ms

hp00 ~ # route -n

Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	192.168.100.100	0.0.0.0	UG	300	0	0	bond0
192.168.10.0	0.0.0.0	255.255.255.0	U	0	0	0	br10
192.168.100.0	0.0.0.0	255.255.255.0	U	300	0	0	bond0
192.168.122.0	0.0.0.0	255.255.255.0	U	0	0	0	virbr0

hp00 ~ # ssh cephadmin

root@cephadmin's password:

Last login: Thu Jun 25 12:46:39 2020 from 192.168.10.5

root@cephadmin ~]# dnf install cockpit-* -y

(*No es el objeto de este artículo, pero debe hacerse esta idéntica instalación para el resto de nodos/host's → Ansible es la forma, pero no queremos perturbar la exposición preliminar.*)

Suponemos que **cockpit** es **OK** ahora y 'para todos los nodos':

→ Copiamos identidades, ...

[root@cephadmin ~]# for host in cephmon01 cephmon02 cephosd01 cephosd02; do ssh-copy-id root@\$host; done

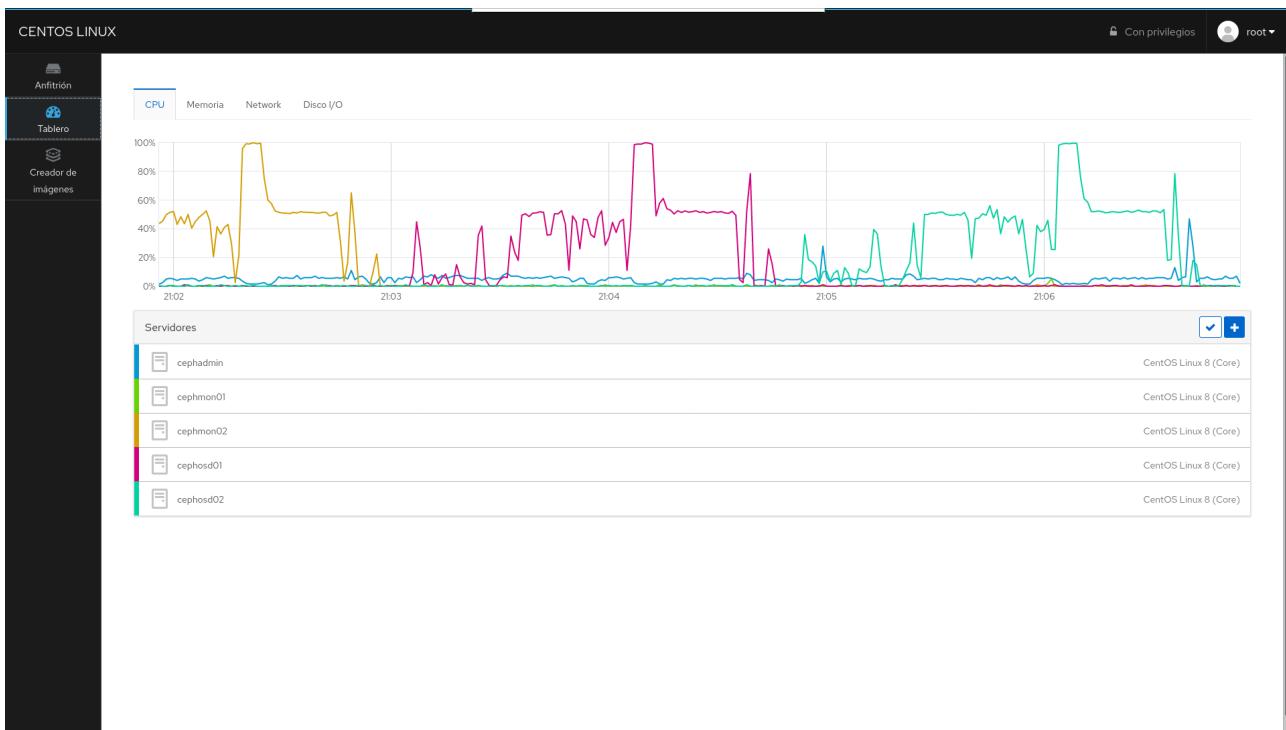
→ Verificamos y Habilitamos Servicios cockpit.socket , y para todos los nodos, ...

firewall-cmd --list-services

cockpit dhcpcv6-client ssh

systemctl enable --now cockpit.socket

Created symlink /etc/systemd/system/sockets.target.wants/cockpit.socket → /usr/lib/systemd/system/cockpit.socket.



→ Tiempo de snap's.

hp00 ~ # virsh list --all | grep -i ceph

26	cephadmin	ejecutando
27	cephmon01	ejecutando
28	cephmon02	ejecutando
29	cephosd01	ejecutando
30	cephosd02	ejecutando

hp00 ~ # for copiaHot in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do virsh snapshot-create-as --domain \$copiaHot --name "cockpit-OK" --atomic; done

Ha sido creada la captura instantánea cockpit-OK del dominio

Ha sido creada la captura instantánea cockpit-OK del dominio

Ha sido creada la captura instantánea cockpit-OK del dominio

Ha sido creada la captura instantánea cockpit-OK del dominio

Ha sido creada la captura instantánea cockpit-OK del dominio

hp00 ~ # for copiaLista in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do virsh snapshot-list --domain \$copiaLista; done

Nombre	Hora de creación	Estado
cockpit-OK	2020-06-25 21:25:06 -0400	running
Inicial-OK	2020-06-25 12:51:23 -0400	shutoff
Pre-Inicial-OK	2020-06-25 14:00:15 -0400	shutoff
Pre-Inicial-OK-master	2020-06-25 18:32:03 -0400	shutoff

Nombre	Hora de creación	Estado
--------	------------------	--------



```
cockpit-OK      2020-06-25 21:25:58 -0400 running
Pre-Inicial-OK-master 2020-06-25 18:32:34 -0400 shutoff
```

Nombre	Hora de creación	Estado
--------	------------------	--------

```
cockpit-OK      2020-06-25 21:27:02 -0400 running
Pre-Inicial-OK-master 2020-06-25 18:32:49 -0400 shutoff
```

Nombre	Hora de creación	Estado
--------	------------------	--------

```
cockpit-OK      2020-06-25 21:27:54 -0400 running
Pre-Inicial-OK-master 2020-06-25 18:33:19 -0400 shutoff
```

Nombre	Hora de creación	Estado
--------	------------------	--------

```
cockpit-OK      2020-06-25 21:28:46 -0400 running
Pre-Inicial-OK-master 2020-06-25 18:33:36 -0400 shutoff
```

hp00 ~ # for copiaLista in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do virsh snapshot-list --domain \$copiaLista | grep -i cock; done

```
cockpit-OK      2020-06-25 21:25:06 -0400 running
cockpit-OK      2020-06-25 21:25:58 -0400 running
cockpit-OK      2020-06-25 21:27:02 -0400 running
cockpit-OK      2020-06-25 21:27:54 -0400 running
cockpit-OK      2020-06-25 21:28:46 -0400 running
```

hp00 ~ # for apagadoFull in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do virsh shutdown --domain \$apagadoFull; done

```
El dominio cephadmin está siendo apagado
El dominio cephmon01 está siendo apagado
El dominio cephmon02 está siendo apagado
El dominio cephosd01 está siendo apagado
El dominio cephosd02 está siendo apagado
```

hp00 ~ # virsh list --all | grep -i cep

- cephadmin	apagado
- cephmon01	apagado
- cephmon02	apagado
- cephosd01	apagado
- cephosd02	apagado

hp00 ~ # for startFull in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do virsh start --domain \$startFull; done

[root@cephadmin ~]# for host in cephmon01 cephmon02 cephosd01 cephosd02; do ssh-copy-id root@\$host; done



```
# vim ~/.ssh/config
Host cephadmin
    Hostname 192.168.10.10
    User root
Host cephmon01
    Hostname 192.168.10.11
    User root
Host cephmon02
    Hostname 192.168.10.12
    User root
Host cephosd01
    Hostname 192.168.10.13
    User root
Host cephosd02
    Hostname 192.168.10.14
    User root

# echo -e 'Defaults:user !requiretty\nroot ALL = (root) NOPASSWD:ALL' | sudo tee
/etc/sudoers.d/ceph
Defaults:user !requiretty
root ALL = (root) NOPASSWD:ALL

# chmod 440 /etc/sudoers.d/ceph

[root@cephadmin ceph-ansible]# nmcli c s
NAME      UUID           TYPE      DEVICE
enp1s0    96a54d41-a391-43b4-bc0b-1d2bad956a0d  ethernet  enp1s0
[root@cephadmin opt]# cd /opt/ceph-ansible/
[root@cephadmin ceph-ansible]# cp group_vars/all.yml.sample group_vars/all.yml
[root@cephadmin ceph-ansible]# vim group_vars/all.yml
### Entornos:
ceph_release_num: 15
cluster: ceph

# Inventory host group variables
mons_group_name: mons
osds_group_name: osds
rgws_group_name: rgws
mdss_group_name: mdss
nfss_group_name: nfss
rbdmirrors_group_name: rbdmirrors
clients_group_name: clients
iscsi_gw_group_name: iscsigw
mgr_group_name: mgrs
rgwloadbalancers_group_name: rgwloadbalancers
grafana_server_group_name: grafana-server

# Firewalld / NTP
configure_firewall: True
ntp_service_enabled: true
```



```
ntp_daemon_type: chronyd

# Ceph packages
ceph_origin: repository
ceph_repository: community
ceph_repository_type: cdn
ceph_stable_release: octopus

# Interface options
monitor_interface: enp1s0
radosgw_interface: enp1s0

# DASHBOARD
dashboard_enabled: True
dashboard_protocol: http
dashboard_admin_user: admin
dashboard_admin_password: admin

grafana_admin_user: admin
grafana_admin_password: admin
```

```
[root@cephadmin ceph-ansible]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1 1024M  0 rom
vda       252:0    0   25G  0 disk
└─vda1     252:1    0   1G  0 part /boot
  └─vda2     252:2    0   24G  0 part
    ├─cl_cephadmin-root 253:0    0   22G  0 lvm /
    └─cl_cephadmin-swap 253:1    0   2,1G  0 lvm [SWAP]
vdb       252:16   0   20G  0 disk
vdc       252:32   0   20G  0 disk
```

```
[root@cephadmin ceph-ansible]# cp group_vars/osds.yml.sample group_vars/osds.yml
[root@cephadmin ceph-ansible]# vim group_vars/osds.yml
```

Configuración de discos:

```
copy_admin_key: true
devices:
  - /dev/vdb
  - /dev/vdc
```

```
[root@cephadmin ceph-ansible]# vim hosts
```

```
# Ceph admin user for SSH and Sudo
[all:vars]
ansible_ssh_user=root
ansible_become=true
ansible_become_method=sudo
ansible_become_user=root
```

```
# Ceph Monitor Nodes
[mons]
cephmon01
cephmon02
```



```
# MDS Nodes
[mdss]
cephmon01
cephmon02

# RGW
[rgws]
cephmon01
cephmon02

# Manager Daemon Nodes
[mgrs]
cephmon01
cephmon02

# set OSD (Object Storage Daemon) Node
[osds]
cephosd01
cephosd02

# Grafana server
[grafana-server]
cephosd01
```

```
[root@cephadmin ceph-ansible]# cp site.yml.sample site.yml
[root@cephadmin ceph-ansible]# ansible-playbook -i hosts site.yml
```

```
...
Thursday 25 June 2020 23:27:22 -0400 (0:00:00.045)    0:29:29.539 ****
=====
=====

ceph-common : install redhat ceph packages
-----
----- 702.28s
ceph-prometheus : start prometheus services
-----
----- 173.07s
ceph-grafana : start the grafana-server service
-----
----- 131.72s
ceph-grafana : enable and start grafana
-----
----- 130.98s
ceph-mgr : install ceph-mgr packages on RedHat or SUSE
-----
----- 105.88s
ceph-node-exporter : start the node_exporter service
-----
```



----- 57.69s
ceph-osd : use ceph-volume lvm batch to create bluestore osds

----- 33.69s
ceph-container-engine : install container packages

----- 21.76s
ceph-mon : waiting for the monitor(s) to form the quorum...

----- 21.19s
ceph-mgr : wait for all mgr to be up

----- 20.66s
ceph-infra : install chrony

----- 19.40s
ceph-mds : install ceph-mds package on redhat or SUSE/openSUSE

----- 16.75s
ceph-osd : wait for all osd to be up

----- 12.25s
ceph-mds : create filesystem pools

----- 10.60s
ceph-common : install centos dependencies

----- 8.77s
ceph-mgr : add modules to ceph-mgr

----- 7.81s
ceph-grafana : install ceph-grafana-dashboards package on RedHat or SUSE

----- 7.76s
ceph-mgr : disable ceph mgr enabled modules

----- 6.87s
ceph-osd : systemd start osd

----- 5.13s
ceph-common : configure red hat ceph community repository stable key

----- 4.33s

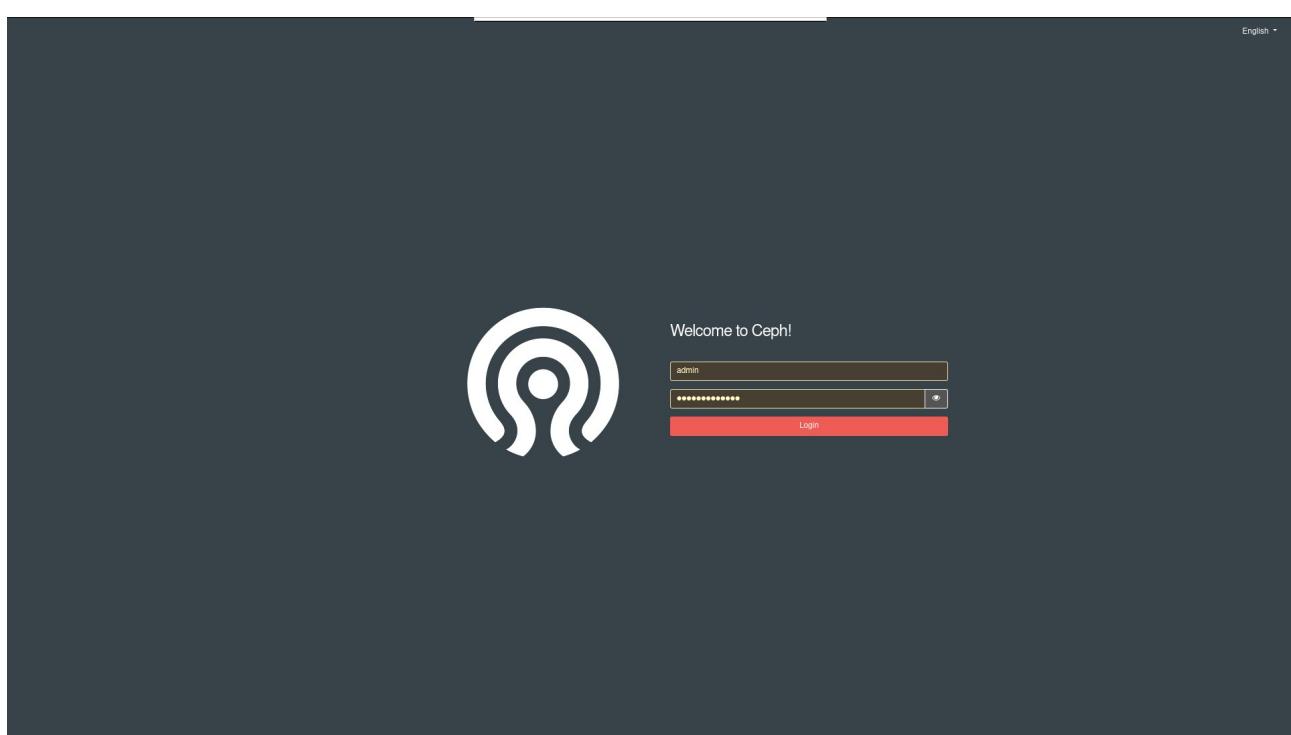


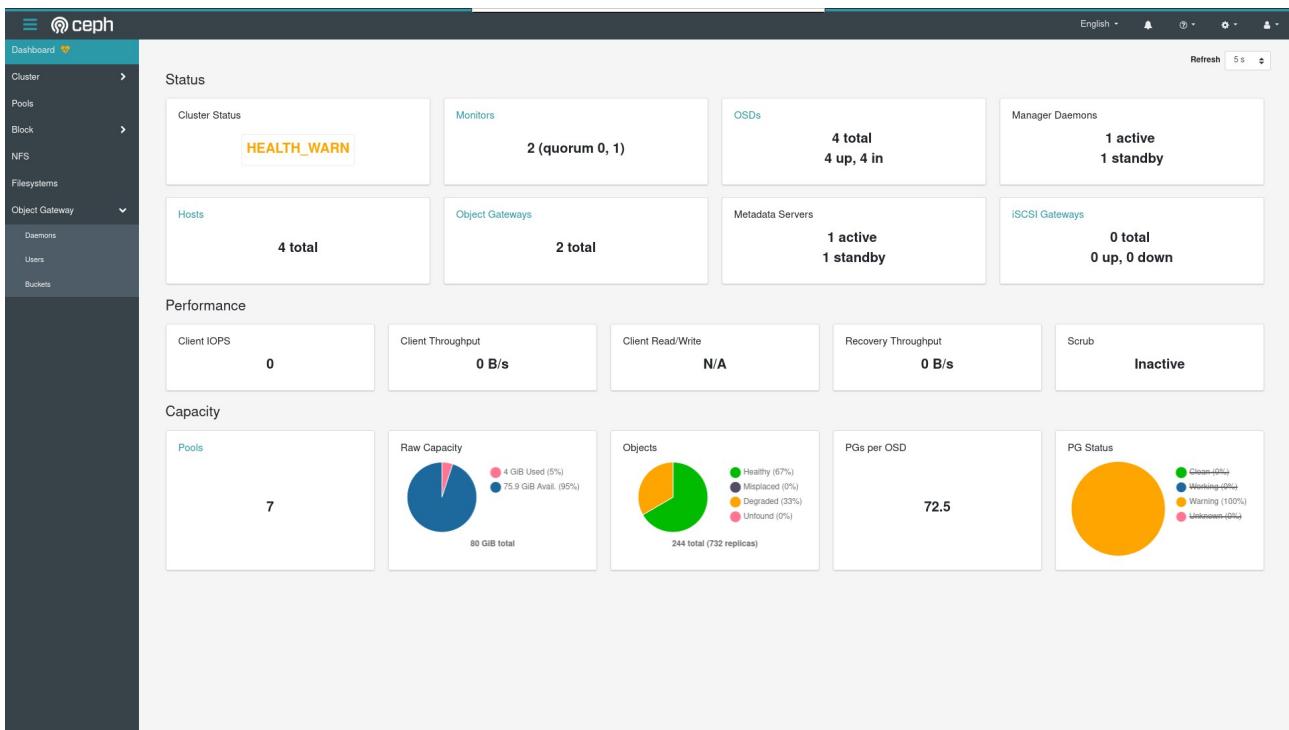
```
root@cephadmin:~#
Archivo Editar Ver Buscar Terminal Ayuda
[root@cephmon01 ~]# netstat -nltp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp      0      0 192.168.10.11:3300     0.0.0.0:*      LISTEN      1222/ceph-mon
tcp      0      0 192.168.10.11:6789     0.0.0.0:*      LISTEN      1222/ceph-mon
tcp      0      0 0.0.0.0:5355      0.0.0.0:*      LISTEN      1105/systemd-resolv
tcp      0      0 0.0.0.0:111     0.0.0.0:*      LISTEN      1/systemd
tcp      0      0 192.168.10.11:8080     0.0.0.0:*      LISTEN      1219/radosgw
tcp      0      0 192.168.10.11:6800     0.0.0.0:*      LISTEN      1221/ceph-mds
tcp      0      0 192.168.10.11:6801     0.0.0.0:*      LISTEN      1221/ceph-mds
tcp      0      0 0.0.0.0:22      0.0.0.0:*      LISTEN      969/sshd
tcp      0      0 192.168.10.11:8443     0.0.0.0:*      LISTEN      1220/ceph-mgr
tcp      0      0 0.0.0.0:5263      ::*          LISTEN      1220/ceph-mgr
tcp6     0      0 ::5355          ::*          LISTEN      1210/systemd-resolv
tcp6     0      0 ::19100         ::*          LISTEN      1556/node_exporter
tcp6     0      0 ::1111          ::*          LISTEN      1/systemd
tcp6     0      0 ::22            ::*          LISTEN      969/sshd
[root@cephmon01 ~]#


[root@cephmon02 ~]# netstat -nltp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp      0      0 0.0.0.0:5355      0.0.0.0:*      LISTEN      1105/systemd-resolv
tcp      0      0 0.0.0.0:111     0.0.0.0:*      LISTEN      1/systemd
tcp      0      0 192.168.10.12:8080     0.0.0.0:*      LISTEN      1234/radosgw
tcp      0      0 192.168.10.12:6800     0.0.0.0:*      LISTEN      1250/ceph-mds
tcp      0      0 0.0.0.0:12:6801     0.0.0.0:*      LISTEN      1250/ceph-mds
tcp      0      0 192.168.10.12:6802     0.0.0.0:*      LISTEN      1232/ceph-mgr
tcp      0      0 192.168.10.12:6803     0.0.0.0:*      LISTEN      995/sshd
tcp      0      0 0.0.0.0:22      0.0.0.0:*      LISTEN      1232/ceph-mgr
tcp      0      0 192.168.10.12:8443     0.0.0.0:*      LISTEN      1248/ceph-mon
tcp      0      0 192.168.10.12:3300     0.0.0.0:*      LISTEN      1248/ceph-mon
tcp      0      0 192.168.10.12:6789     0.0.0.0:*      LISTEN      1248/ceph-mon
tcp6     0      0 ::5355          ::*          LISTEN      1210/systemd-resolv
tcp6     0      0 ::19100         ::*          LISTEN      1626/node_exporter
tcp6     0      0 ::1111          ::*          LISTEN      1/systemd
tcp6     0      0 ::22            ::*          LISTEN      995/sshd
tcp6     0      0 ::19090        ::*          LISTEN      1/systemd
tcp6     0      0 ::22            ::*          LISTEN      1232/ceph-mgr
[root@cephmon02 ~]#

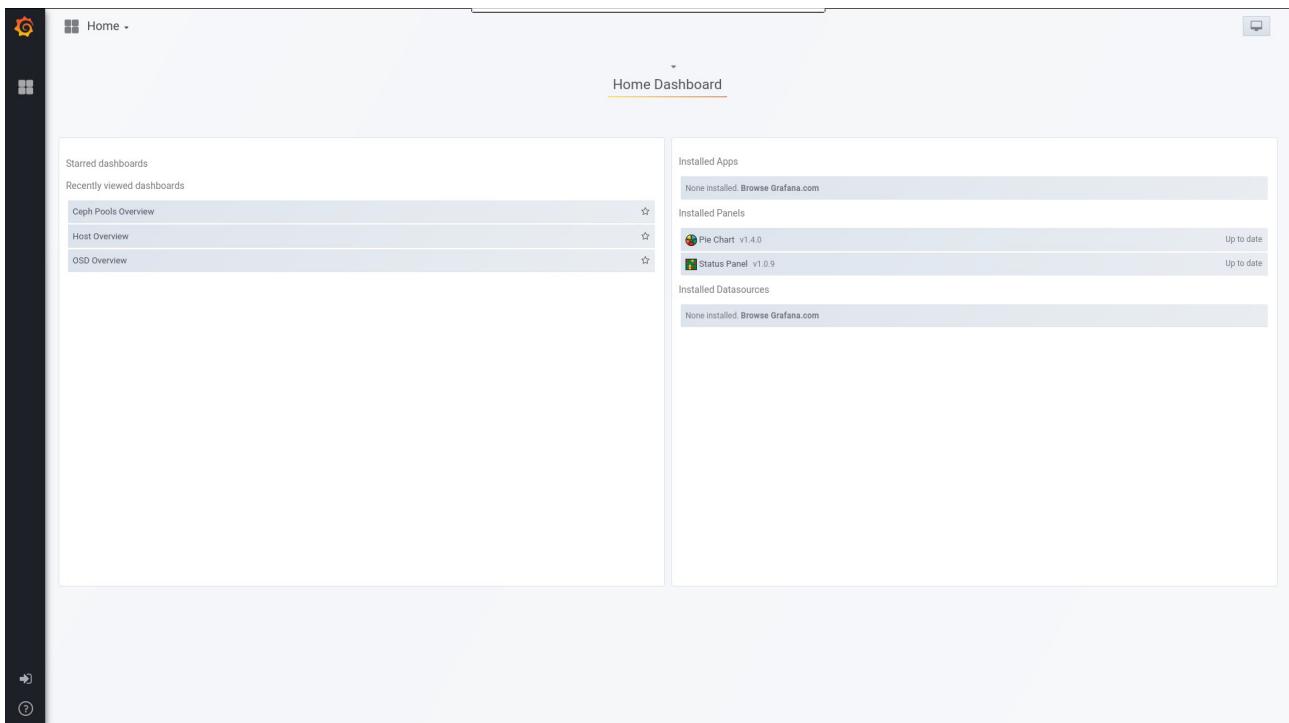

[0] 8199h -bash* 14:19:22 ~ [root@cephadmin ~]#
```

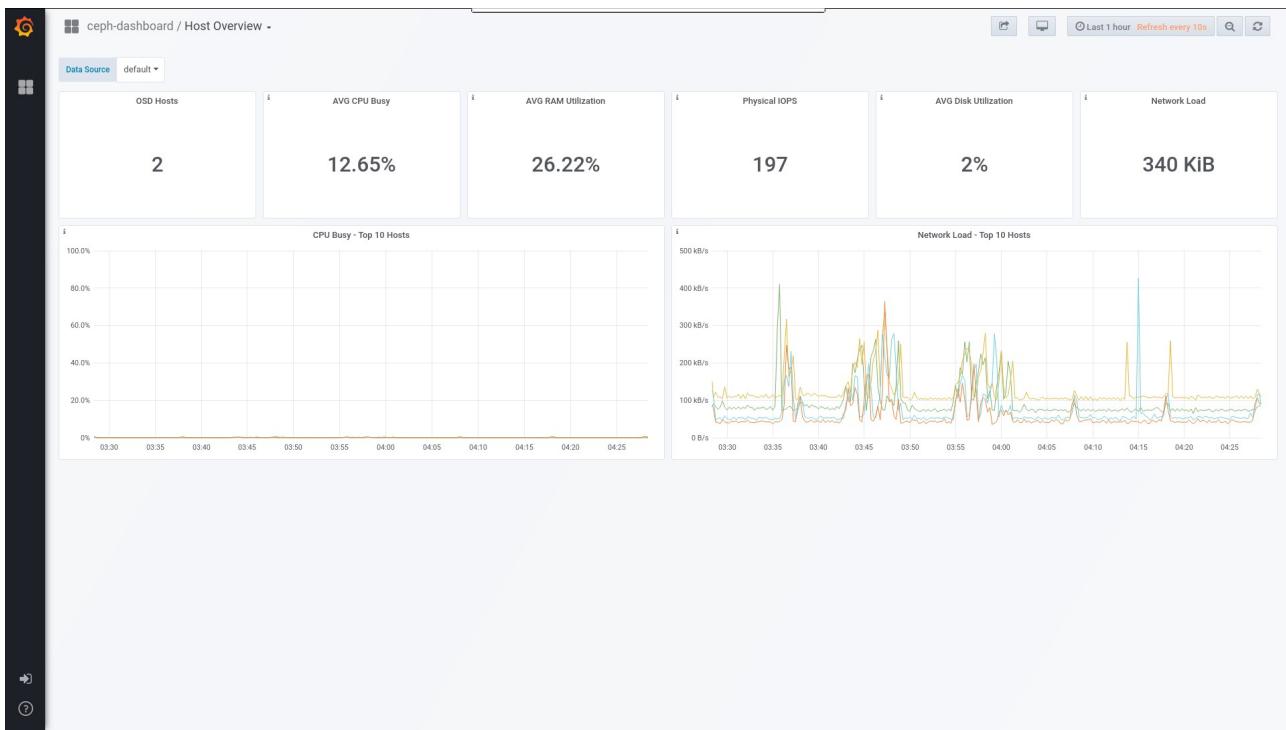
ceph → 192.168.10.11:8443



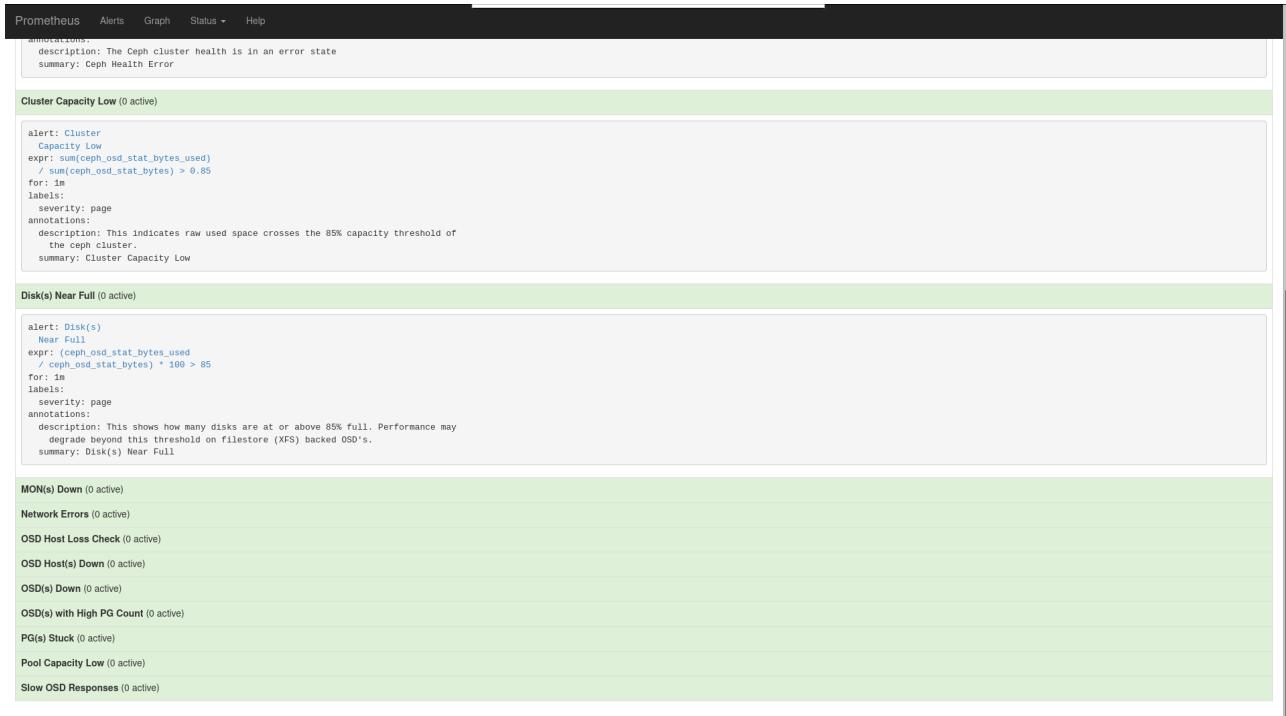


grafana → 192.168.10.13:3000





prometheus → 192.168.10.13:9092





→ Tiempo de snap's.

hp00 ~ # virsh list --all | grep -i ceph

26	cephadmin	ejecutando
27	cephmon01	ejecutando
28	cephmon02	ejecutando
29	cephosd01	ejecutando
30	cephosd02	ejecutando

hp00 ~ # for copiaHot in cephadmin cephmon01 cephmon02 cephosd01 cephosd02; do virsh snapshot-create-as --domain \$copiaHot --name "cephInicial-OK" --atomic; done

Ha sido creada la captura instantánea cephInicial-OK del dominio
Ha sido creada la captura instantánea cephInicial-OK del dominio
Ha sido creada la captura instantánea cephInicial-OK del dominio
Ha sido creada la captura instantánea cephInicial-OK del dominio
Ha sido creada la captura instantánea cephInicial-OK del dominio

RECURSOS:

<https://ceph.io/>

<https://computingforgeeks.com/install-and-configure-ceph-storage-cluster-on-centos-linux>
https://access.redhat.com/documentation/en-us/red_hat_ceph_storage/4/html/dashboard_guide/ceph-dashboard-installation-and-access

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