

Openstack | User guide

We'll show simple use of the CloudMIP platform within the **service** project



We previously created and shared both a public and a private network. These ones ought to be visible through the '**neutron net-list**' command



Roles along with granted capabilities come from
/etc/nova/policy.json
/etc/keystone/policy.json
/etc/<module>/policy.json

Pre-requisite

Before going on, you must have an account → apply for an account to François ;)

[one-time] environment setup

The followings are **one-time only** operations:

```
osSetCredential.sh  
→ will ask for your user account password
```

This will setup several files and environment variables that will get used by all of the Openstack's CLI.

[one-time] create SSH public key

```
ssh-keygen -t rsa
```

[one-time] add user's pubkey

```
nova keypair-add --pub-key ~/.ssh/id_rsa.pub mykey
```

```
nova keypair-list
```

Start instance

We'll now launch an instance of the previously installed FC24 image. Before that, there are some parameters required to launch an instance:

```
nova flavor-list
nova image-list
neutron net-list
nova secgroup-list
nova host-list
nova host-describe wn32.cloudmip.univ-tlse3.fr
nova hypervisor-list
nova hypervisor-show <ID>
```

Note: **only private network** is reachable from compute nodes so this is the one your instances ought to use.

```
nova boot --flavor m1.tiny --image cirros --nic net-id= <NETWORK_ID> \
--security-group default --key-name mykey name
```

```
nova boot --flavor m1.tiny --image cirros --nic
net-id=c1445469-4640-4c5a-ad86-9c0cb6650cca --security-group default
--key-name mykey private-instance
```

```
nova boot --flavor m1.small --image FC24 --nic net-id= <NETWORK_ID> \
--security-group default --key-name mykey name
```

```
nova boot --flavor m1.small --image FC24 --nic
net-id=c1445469-4640-4c5a-ad86-9c0cb6650cca --security-group default
--key-name mykey private-instance
```

VNC access to instance

Through a Web browser, you'll get access to the console of your VM :D

```
nova get-vnc-console <instance_ID|instance_name> novnc
```

```
nova get-vnc-console private-instance novnc
```

[root only] direct SSH access to an instance

This is a special case where you'll gain access to an instance without a public IP required

OpenStack command-line interface cheat sheet:

<http://docs.openstack.org/user-guide/cli-cheat-sheet.html>

```
neutron net-list
```

```
ip netns
ip netns exec NETNS_NAME ssh USER@SERVER
```

```
ip netns
sudo ip netns exec qdhcp-c1445469-4640-4c5a-ad86-9c0cb6650cca ssh -i
~/ssh/id_rsa fedora@192.168.0.128
```

Note: qdhcp-xxxxx is part of neutron net-list private network

Securitygroup rules

We'll add some permissions (needed for the 'service' project)

```
nova secgroup-list
nova secgroup-list-rules default
```

If needed ... add rules

```
nova secgroup-add-rule default icmp -1 -1 0.0.0.0/0
nova secgroup-add-rule default tcp 22 22 0.0.0.0/0
```

map public IP to instance

To enable instance to get reached from the internet, we grab a floating-ip

But before going-on with the floating public IP creation, is there any already created public IP available ?

```
nova floating-ip-list
```

Ok, if there are no Public IP available, let's create one

```
neutron floatingip-create public
Created a new floatingip:
+-----+-----+
| Field          | Value                                     |
+-----+-----+
| fixed_ip_address |                                           |
| floating_ip_address | 195.220.53.4                             |
| floating_network_id | c254d472-6cfd-425a-9960-e9d38ea4c391    |
| id              | b7015888-9dde-4273-a377-631fd4f235ac   |
| port_id         |                                           |
| router_id       |                                           |
| status          | DOWN                                     |
| tenant_id       | 6ac3b0c5fd5641928a412ed2b0ad65e5      |
+-----+-----+
```

```
nova floating-ip-associate private-instance 195.220.53.4
```

Connect to your fedora VM

```
ssh fedora@195.220.53.4
[fedora@private-instance ~]$ sudo su -
[root@private-instance ~]#
```

... well done player one ;)

Start instance to specific host

This is an **admin** only feature:

```
francois@frontal[~] nova availability-zone-list
+-----+-----+
| Name                                     | Status |
+-----+-----+
| internal                                 | available | | | |
| |- frontal.cloudmip.univ-tlse3.fr      |         |
| | |- nova-conductor                     | enabled :-| 2016-09-08T11:16:12.000000 |
| | |- nova-consoleauth                   | enabled :-| 2016-09-08T11:16:08.000000 |
| | |- nova-scheduler                     | enabled :-| 2016-09-08T11:16:13.000000 |
| | |- nova-cert                           | enabled :-| 2016-09-08T11:16:14.000000 |
| nova                                     | available |
| |- wn1.cloudmip.univ-tlse3.fr           |         |
| | |- nova-compute                       | enabled :-| 2016-09-08T11:16:13.000000 |
| |- wn10.cloudmip.univ-tlse3.fr         |         |
| | |- nova-compute                       | enabled :-| 2016-09-08T11:16:13.000000 |
| ..... |
```

```
nova boot --flavor m1.small --image FC24 --nic
net-id=c1445469-4640-4c5a-ad86-9c0cb6650cca --security-group default
--key-name mykey --availability-zone nova:wn1.cloudmip.univ-tlse3.fr
private-instance-wn1
```

Note: hostname as described in 'availability-zone-list' (fqdn here)

migration

Users can't decide where a VM ought to be migrated ...

```
nova migrate --poll private-instance

once finished
nova resize-confirm private-instance
```

Live-migration

TODO!

create image from instance | nova snapshot

Creating a snapshot from a running instance

```
nova image-create --poll <instance_name> <snapshot_name>

nova image-create --poll private-instance FC24snap
```

... boot a new instance from this snapshot

```
nova boot --flavor same_flavour --image <snapshot_name> --nic
net-id=c1445469-4640-4c5a-ad86-9c0cb6650cca --security-group default
--key-name mykey <snapshot instance name>
```

```
nova boot --flavor m1.small --image FC24snap --nic
net-id=c1445469-4640-4c5a-ad86-9c0cb6650cca --security-group default
--key-name mykey myFC24snap
```

Persistent storage | cinder volumes

We'll add a persistent storage (cinder, i.e block) to an instance

```
cinder create --name FT_lv 4
```

Note: size in GB

```
nova list
cinder list or nova volume-list
nova volume-attach INSTANCE_NAME VOLUME_ID
```

```
nova volume-attach public-instance 1372f518-f06d-4ff5-9c3d-b31325ff3e51
+-----+-----+
| Property | Value |
+-----+-----+
| device   | /dev/vdb |
| id       | 1372f518-f06d-4ff5-9c3d-b31325ff3e51 |
| serverId | 49f31828-7ea8-444c-b518-6d8a957944ee |
| volumeId | 1372f518-f06d-4ff5-9c3d-b31325ff3e51 |
+-----+-----+
```

log to VM [\[root only\] direct SSH access to an instance](#) and prepare newly attached storage

```
francois@fronta [~] sudo ip netns exec
qdhcp-c1445469-4640-4c5a-ad86-9c0cb6650cca ssh -i ~/.ssh/id_rsa
fedora@192.168.0.153
Warning: Permanently added '192.168.0.153' (ECDSA) to the list of known hosts.
Last login: Thu Sep  8 11:23:12 2016 from 192.168.0.1
[fedora@private-instance-wn1 ~]$ sudo su
[root@private-instance-wn1 fedora]# fdisk -l
Disk /dev/vda: 20 GiB, 21474836480 bytes, 41943040 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x06d4f68c

Device Boot Start End Sectors Size Id Type
/dev/vda1 * 2048 41943039 41940992 20G 83 Linux
```

Disk /dev/vdb: 1 TiB, 1099511627776 bytes, 2147483648 sectors

Units: sectors of 1 * 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

- *create a partition /dev/vdb1*
- *dnf -y install **xfsprogs***
- *mkfs.xfs /dev/vdb1*
- *mount newly created partition ... et voilà :)*

Contextualisation | cloud-init

TODO!