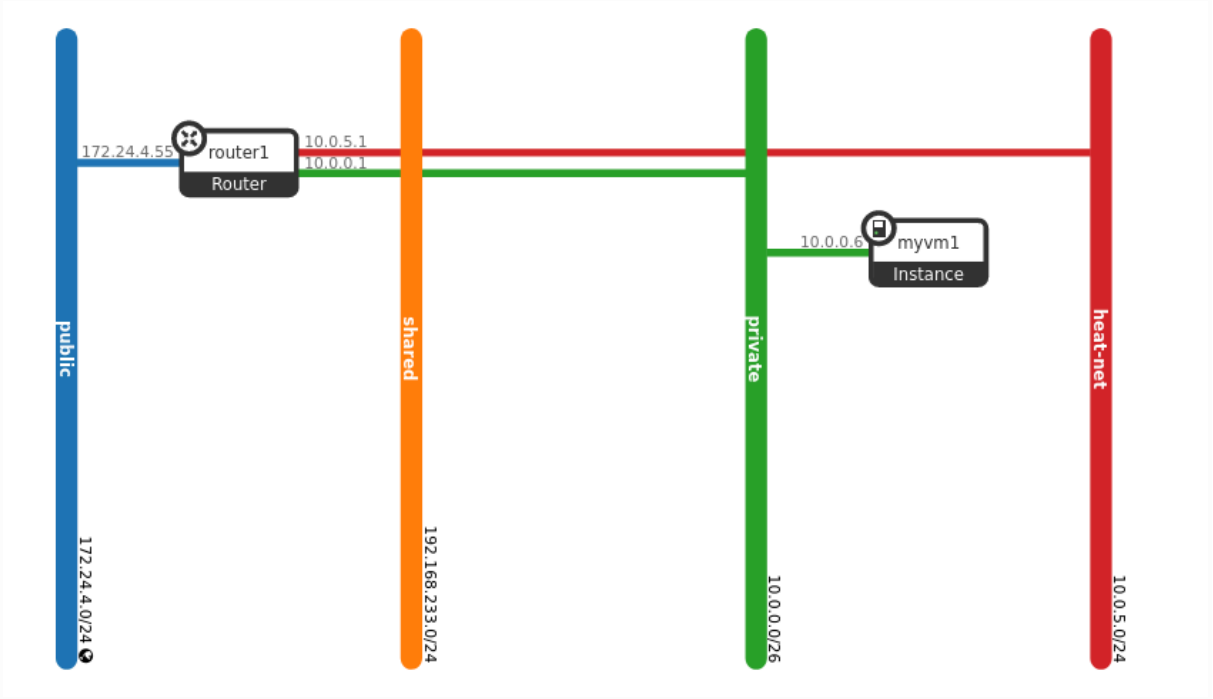
OpenstackPrivate Cloud Admin management

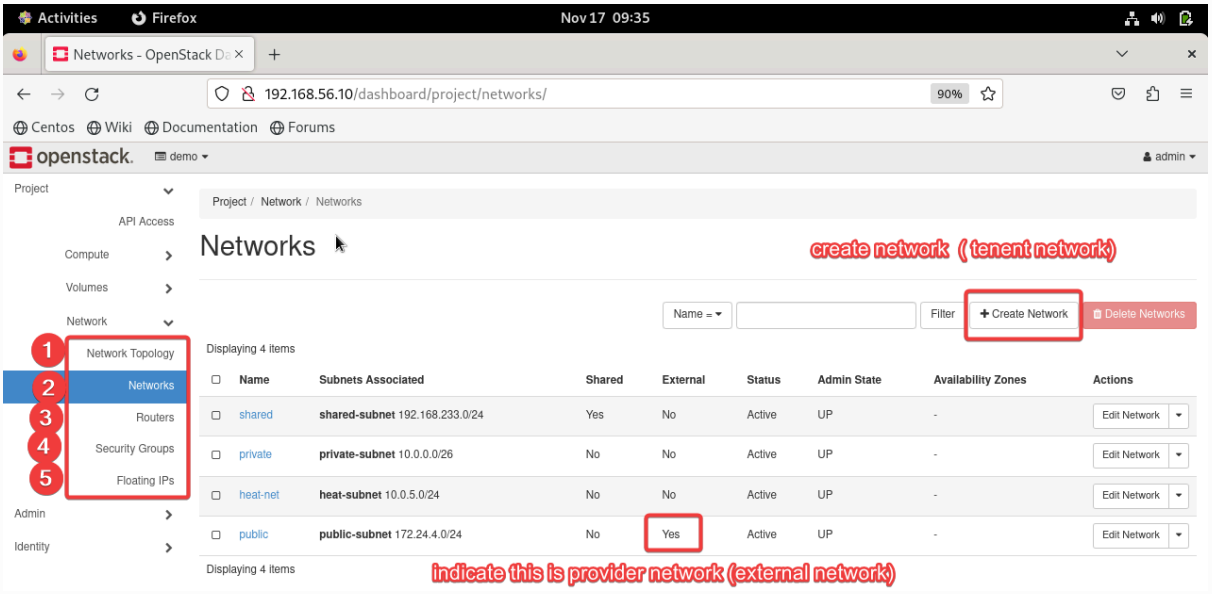
Openstack network Service (Neutron)

Neutron is an OpenStack project to provide “Network connectivity as a Service (NaaS)”. The OpenStack Networking service (neutron) provides an API that allows users to build rich networking topologies, set up and define network connectivity, configure advanced network policies and addressing in the cloud.



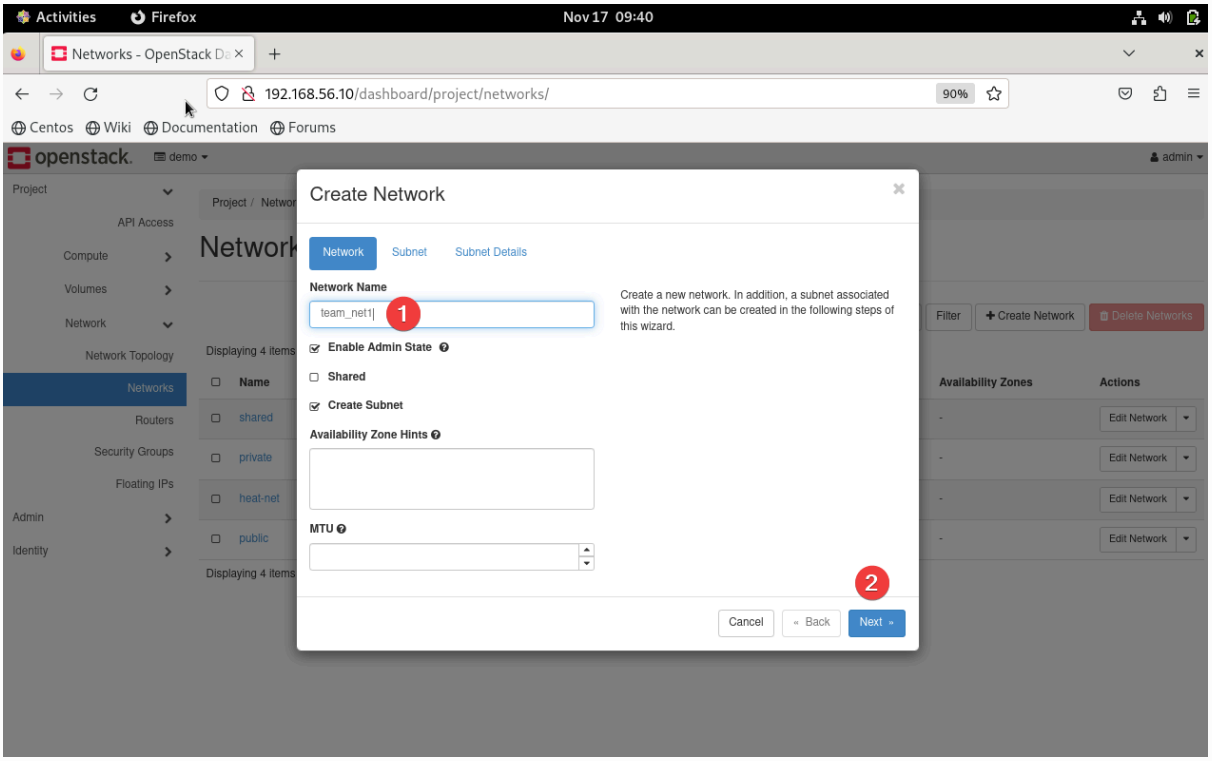
Public - or provider network this network provide external network access to openstack. Router has one gateway connect to provider network. Router use ip and subnet to manage access to machine.
When create VM process. If we want to give external access, we can **allocate** IP address from external ip pool and **associate** to vm

If we look into menu on the left side. Openstack have 5 main options

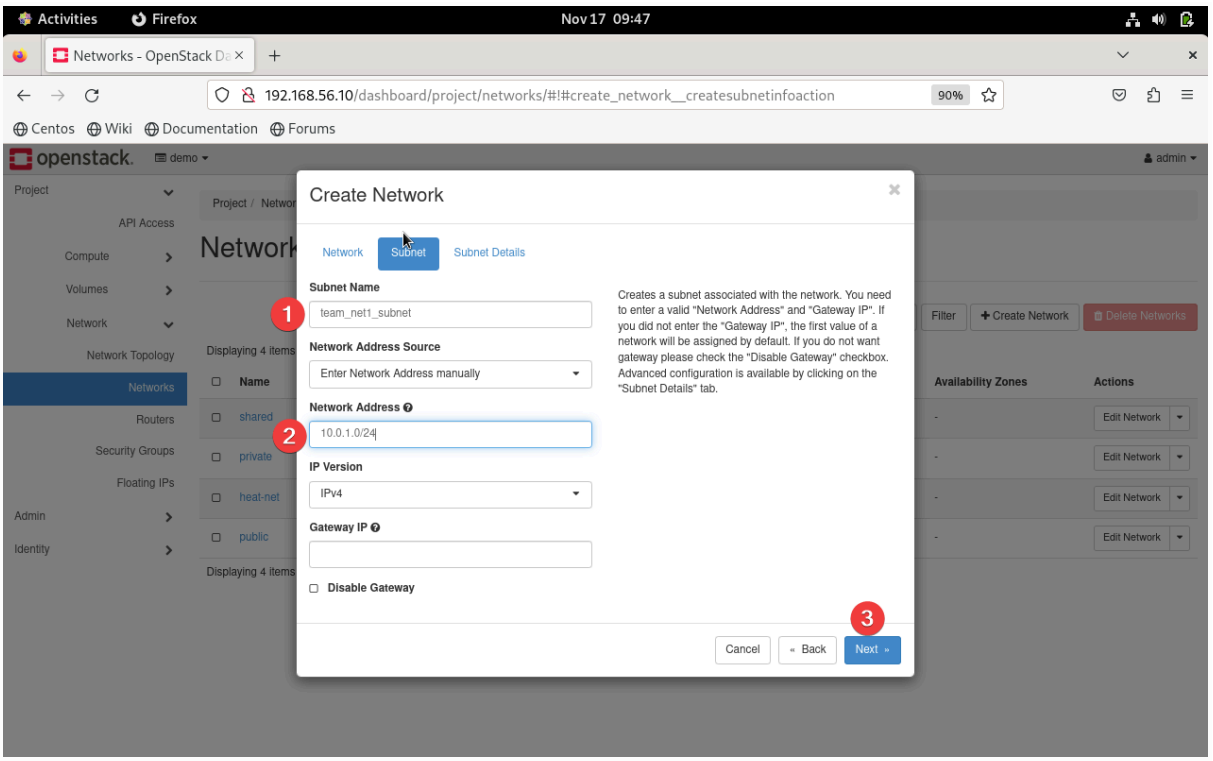


Create tenant network from GUI

Go to Project > Network > Networks menu and click add network.
Name: team_net1

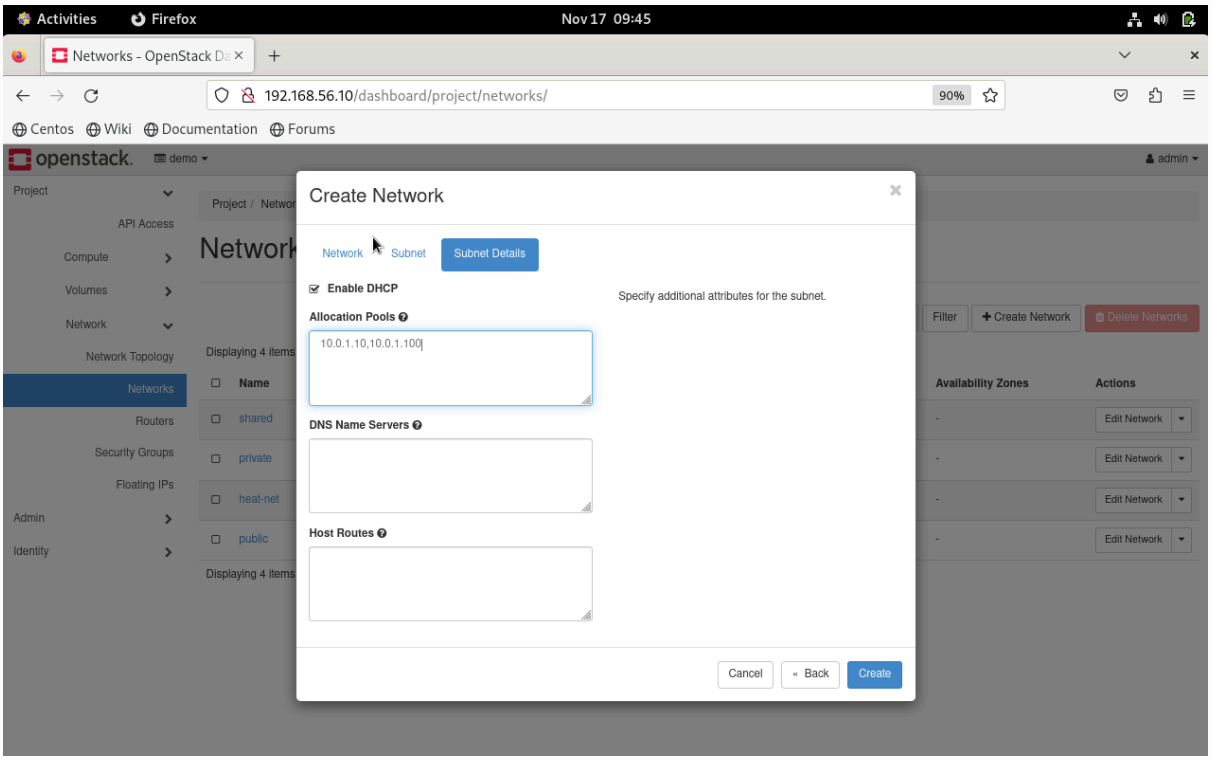


Subnet Name: team_net1_subnet
Network Address: 10.0.1.0/24

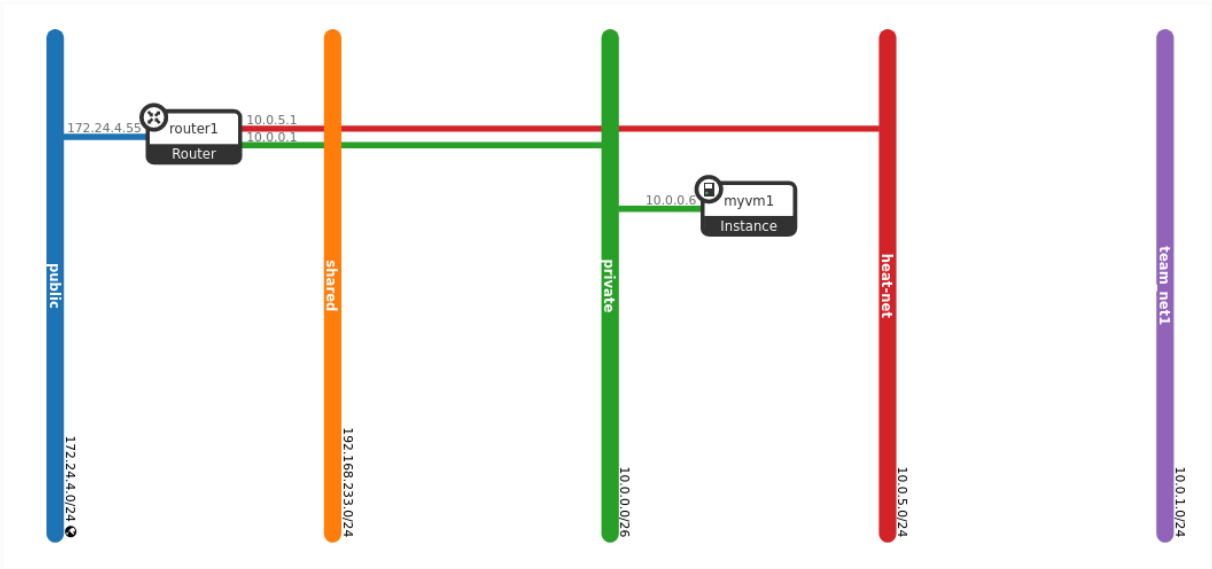


Enable dhcp

Allocation Pools: 10.0.1.10,10.0.1.100 (ip range with comma subperation)

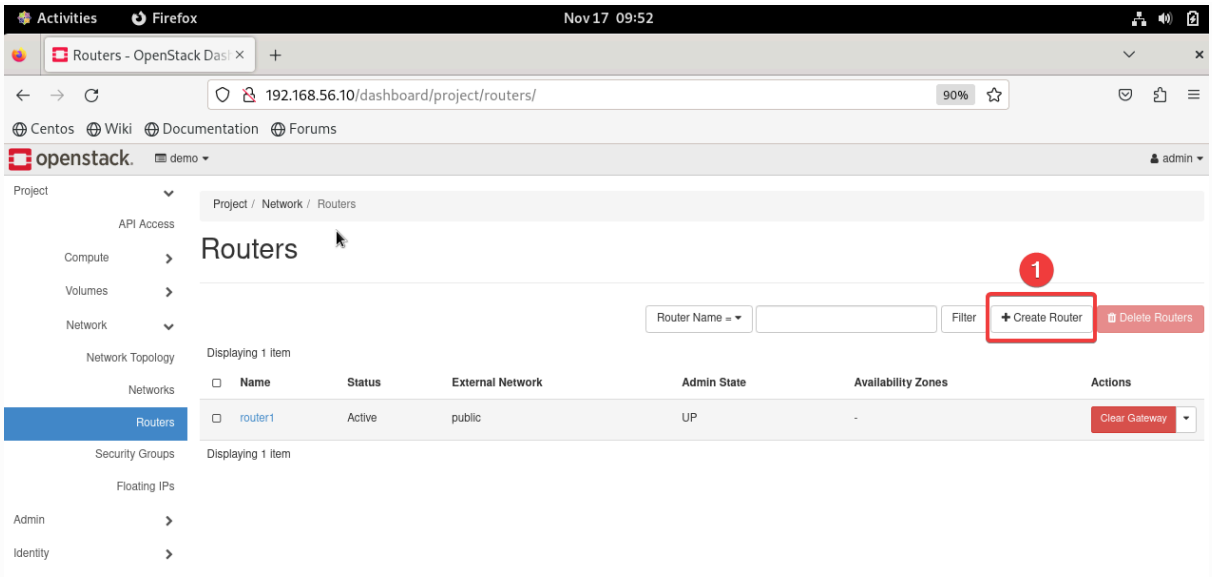


Check network topology

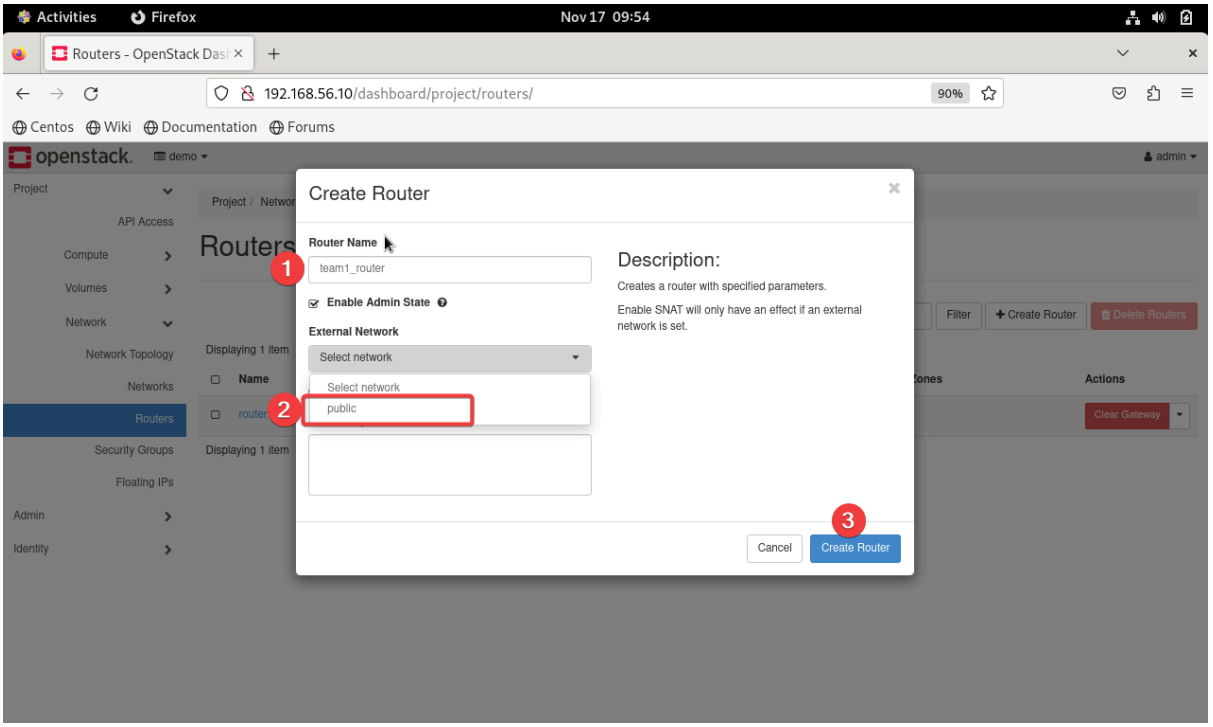


Create Router connect tenant network

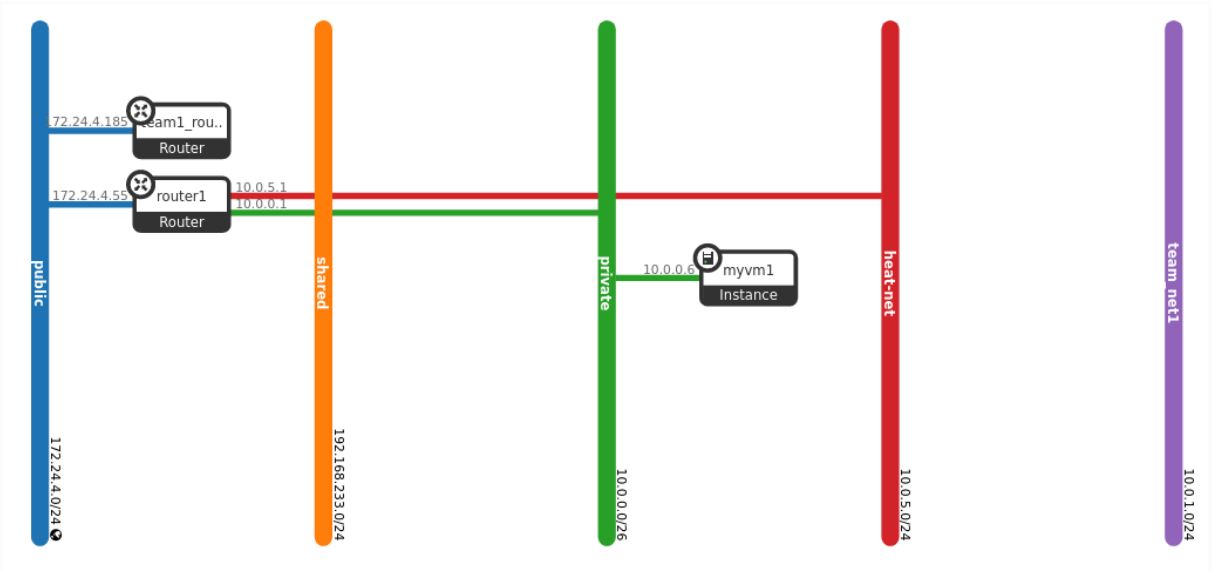
Next Create Router connect **private networ**k and **team_net1** network. And make router have external access to public network. Go to menu **Project > network > Routers** and create create router



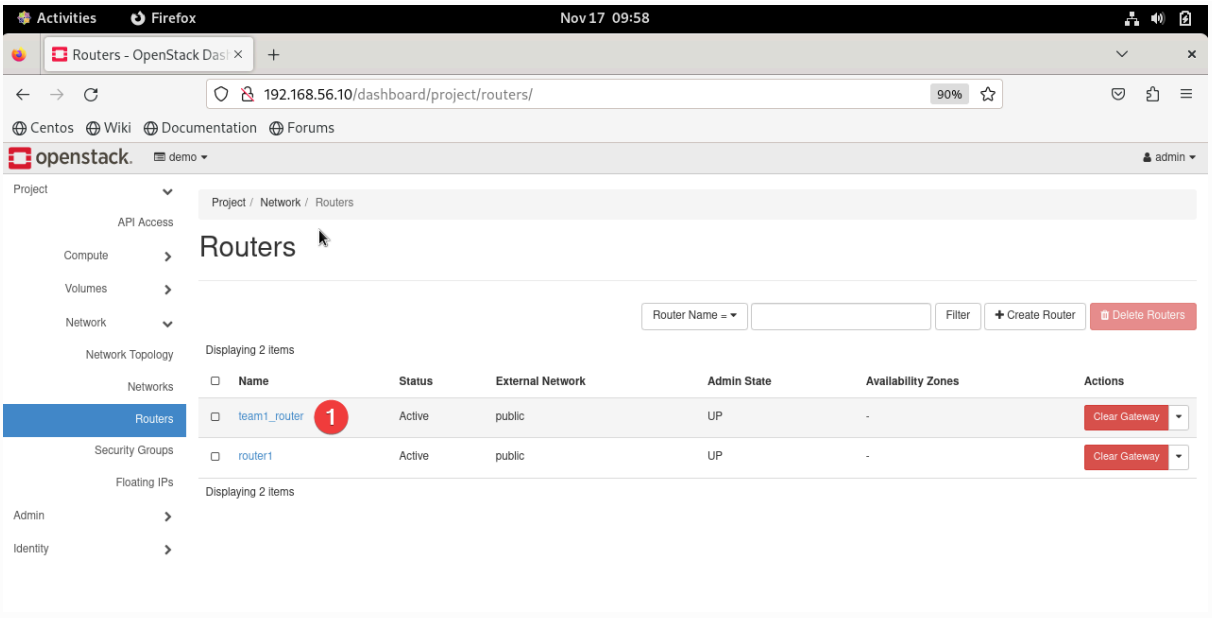
Name team1_router
External network public



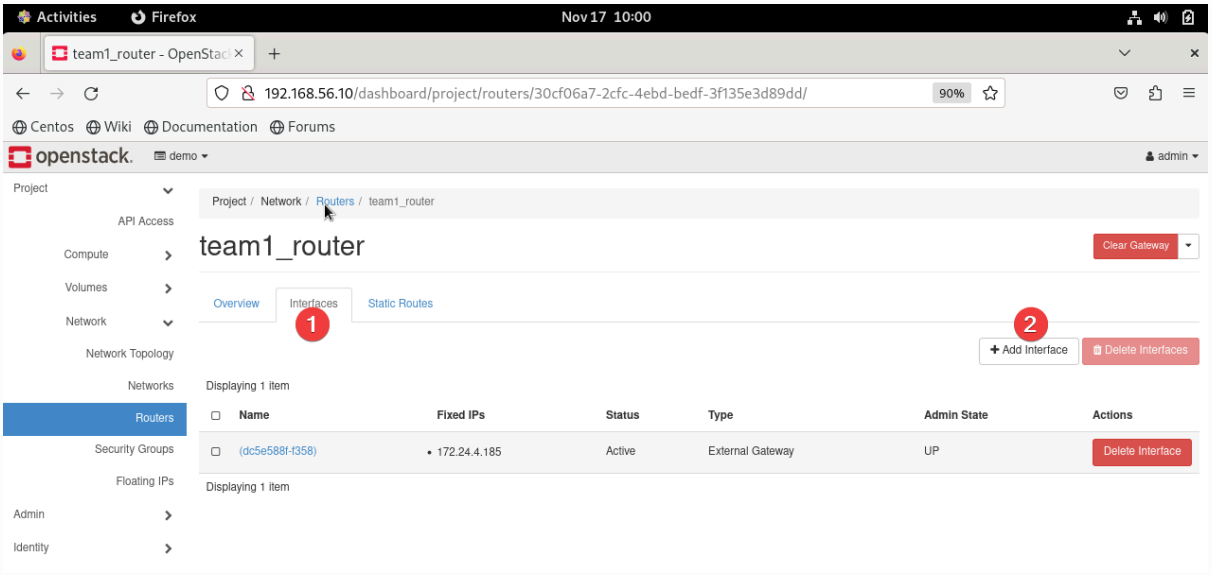
Check network topology



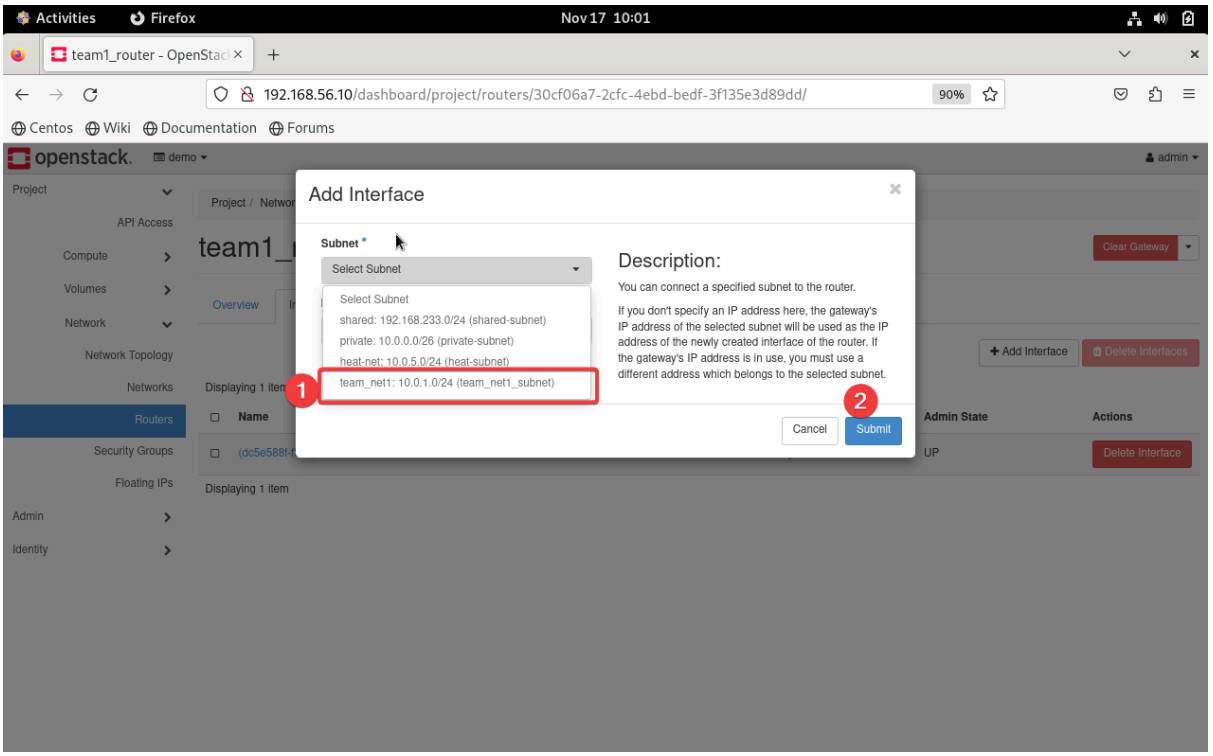
Click router name to add more network



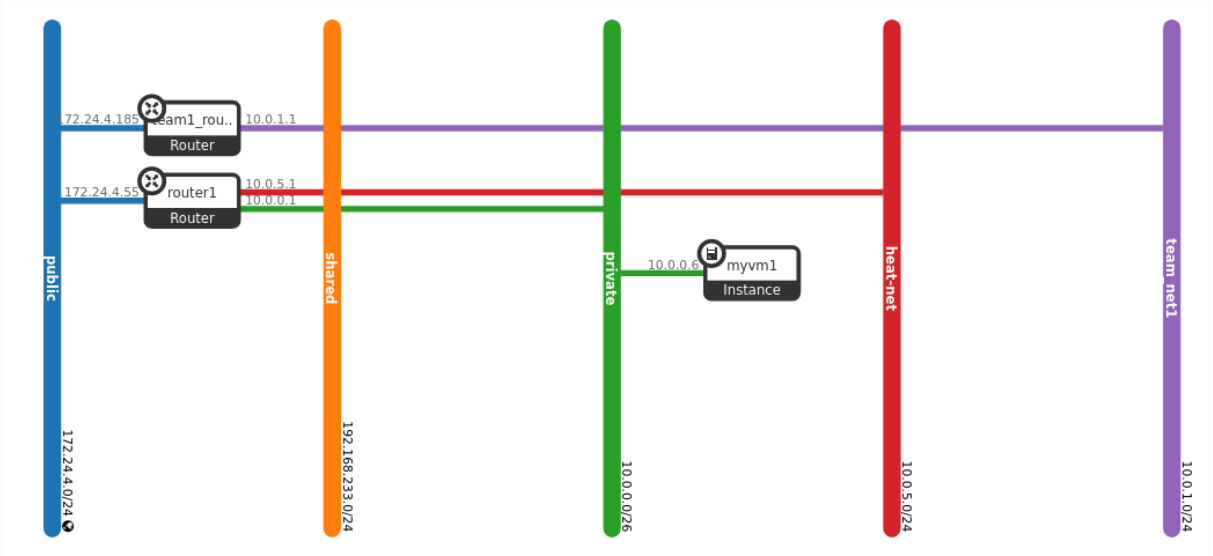
After click router name, you will see interface tab. This is how we connect to other network by add interface to router



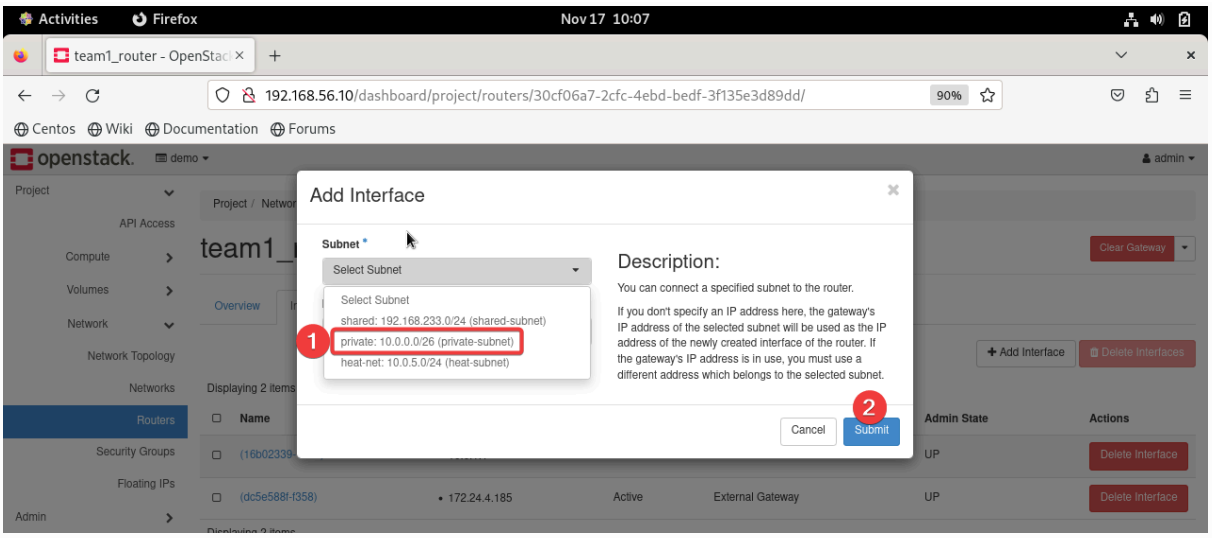
Select subnet



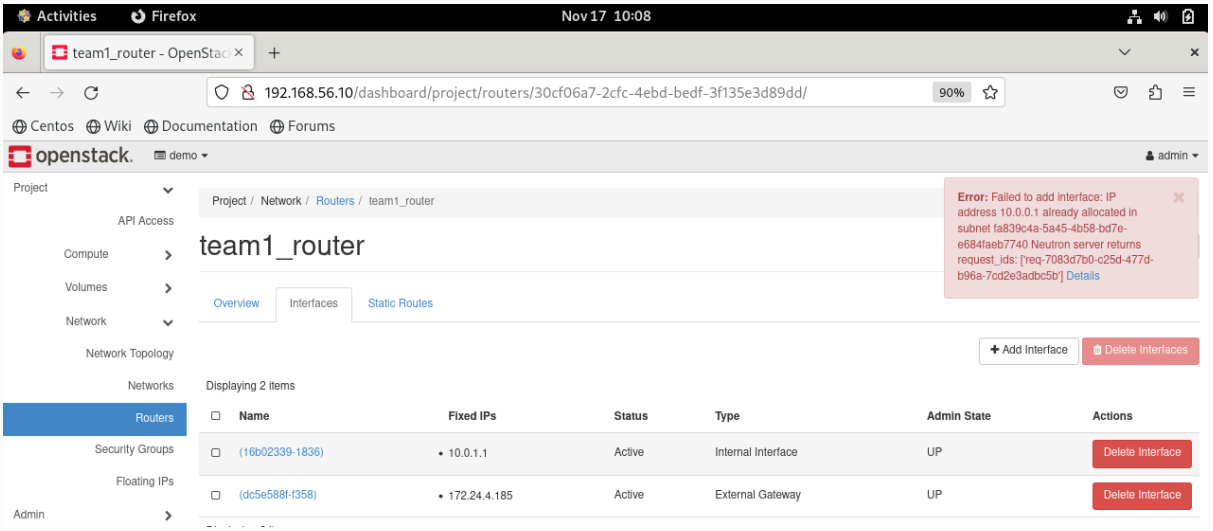
Router display additional interface to 10.0.1.1 (router alway take first ip address of subnet and also responsible for gateway of network



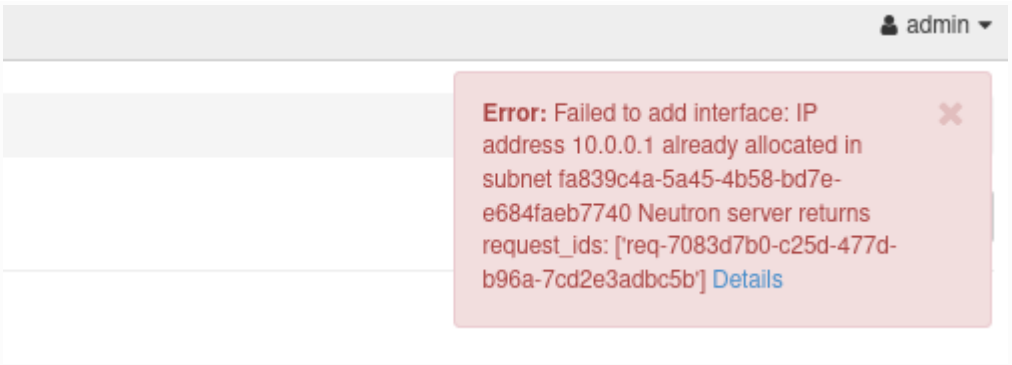
Last part is add private network to router. Reproduce this process but this time we will add private network



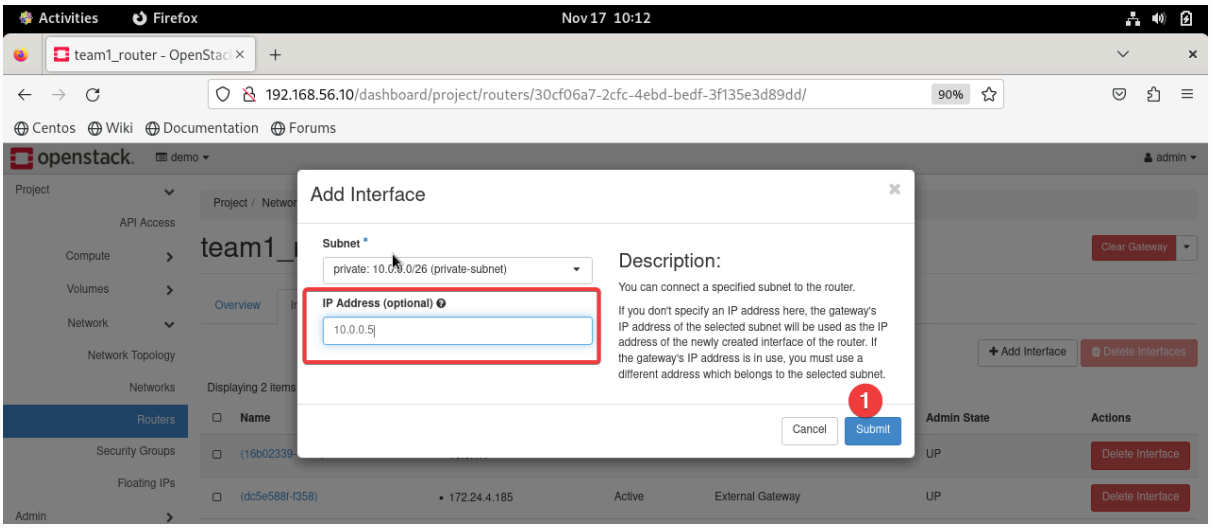
But this time got error



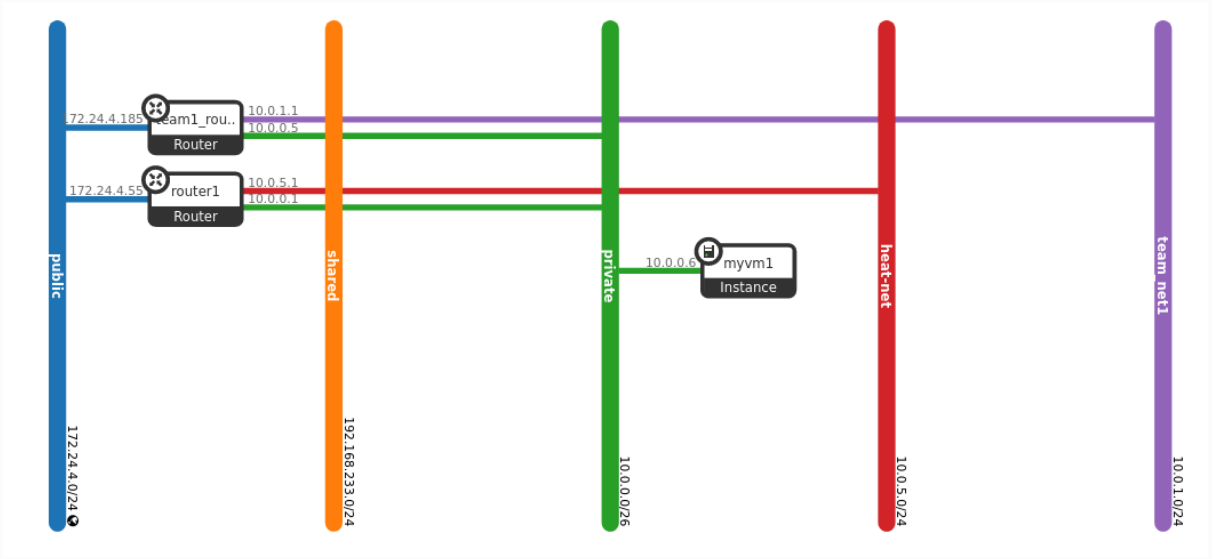
Check error



Let fix it by set ip of gateway



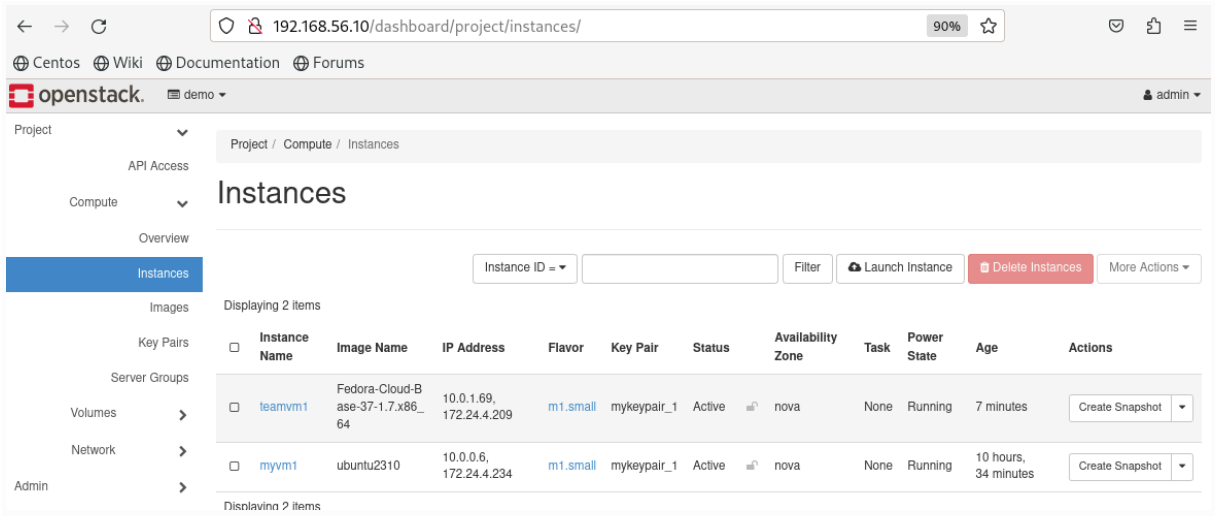
The final result in network topology



Workshop

1. Create teamvm1 on team_net1 use Fedora cloud image (don’t forget to add security group)
2. Associate Floating ip to teamvm1
3. Ssh into teamvm1

First Screen 1 show success result

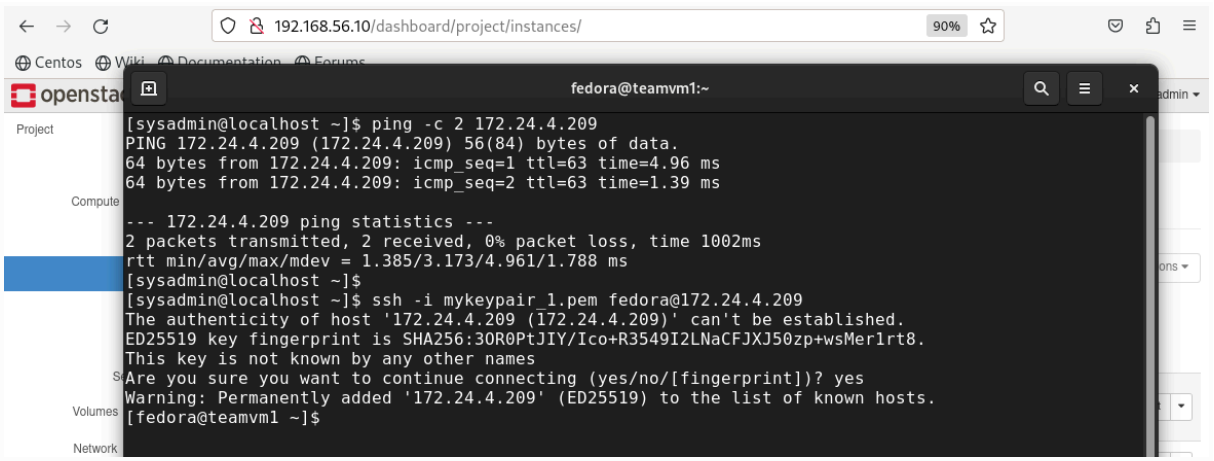


Screen 2

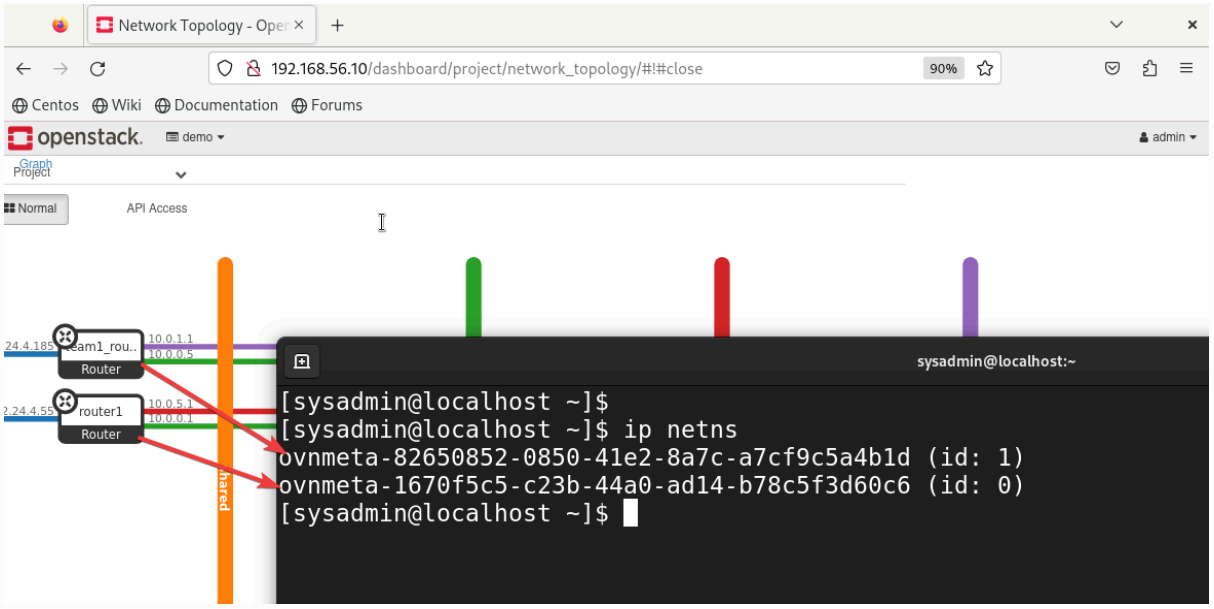
Check console log every time when you associate floating ip. To make sure you vm acknowledge

Screen3 Ssh in to vm

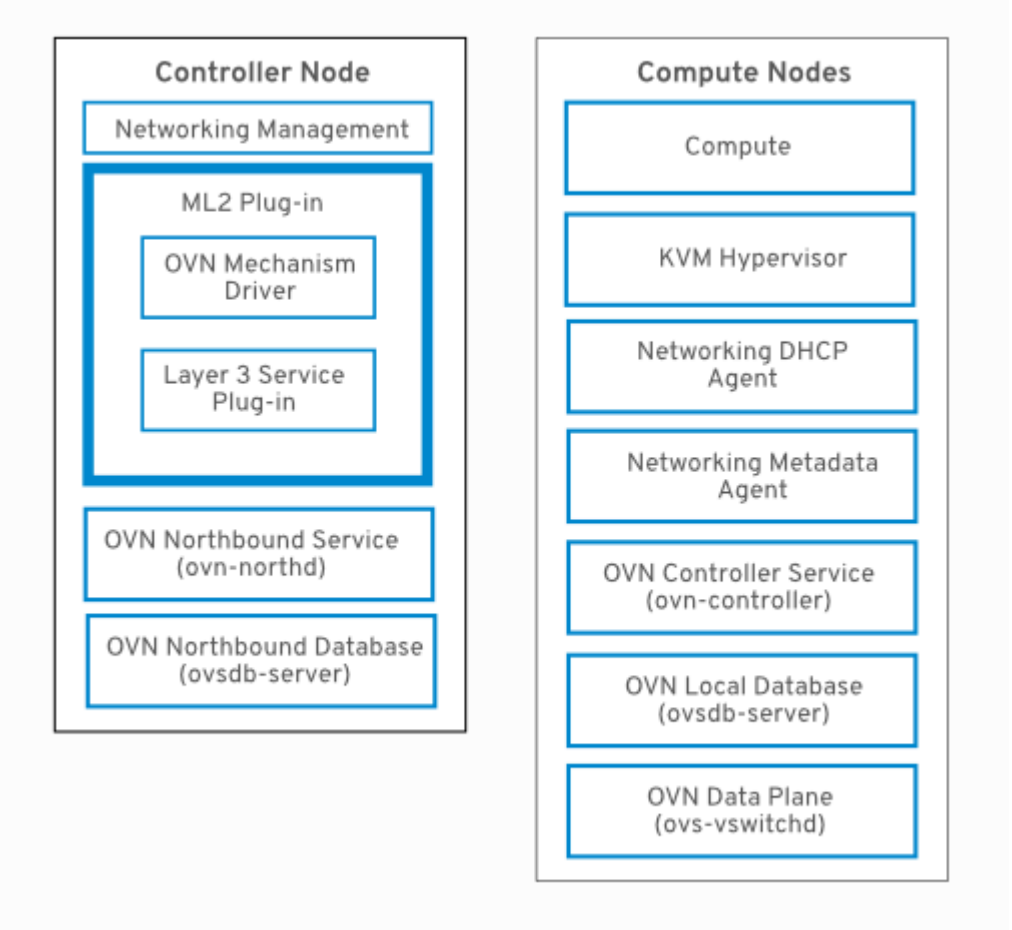
Default name of fedora is fedora



Underhood neutron network Archintecure (Extra topic)



Openstack use network namespace and Open Virtual Network (OVN) to manage network layer. What is Open Virtual Network is Open vSwitch-based software-defined networking (SDN) solution for supplying network service to instances.

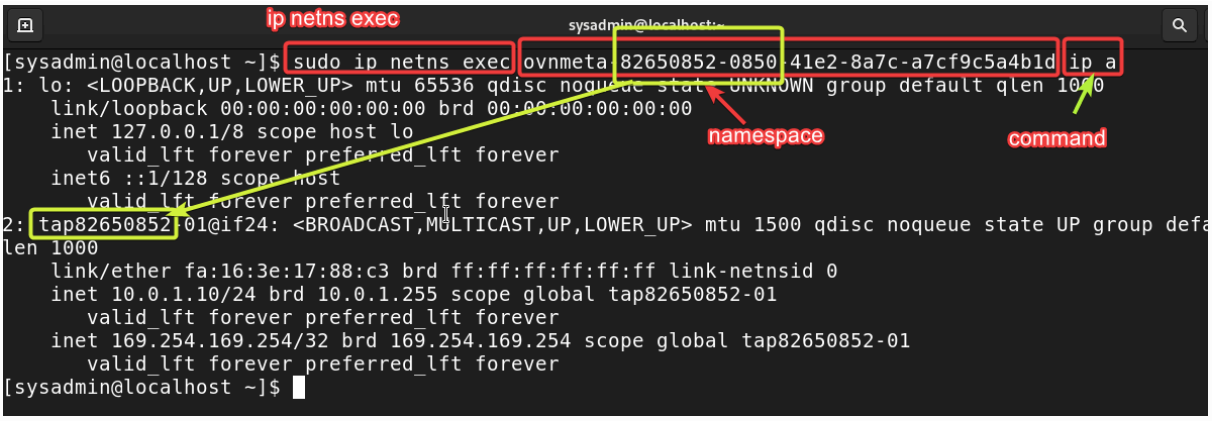


Test ip netns command

$ sudo ip netns exec <network-namespce> <command>
In example below run <command> in side name space is **ip a**

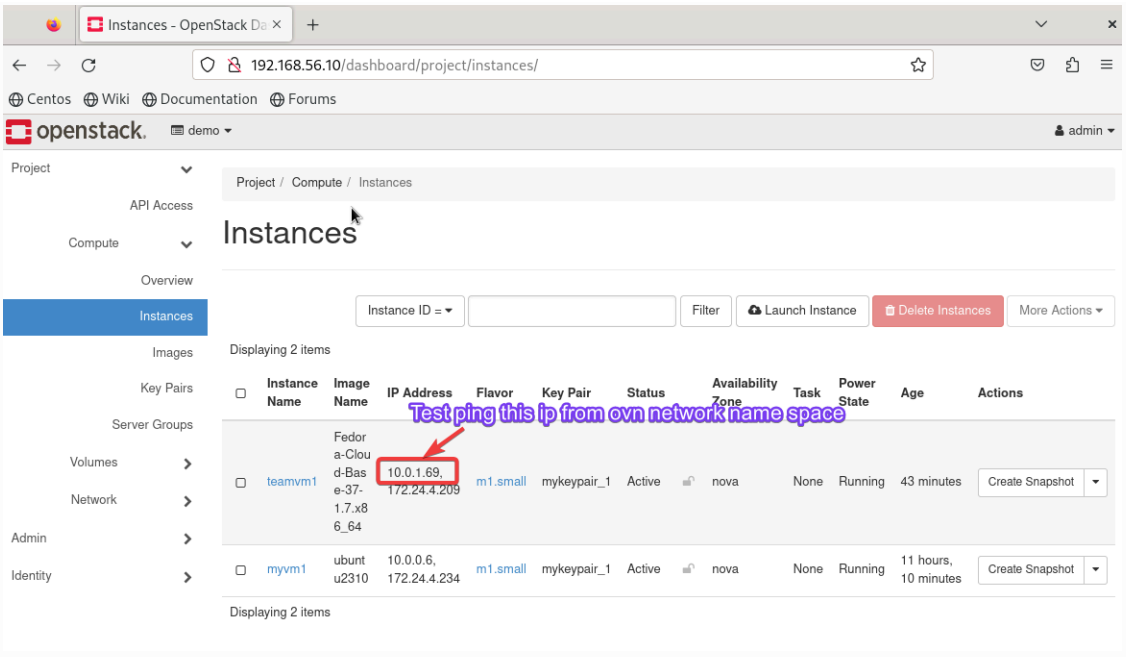
```
sysadmin@localhost:~
sysadmin@localhost ~]$
sysadmin@localhost ~]$ ip netns
vnmeta-82650852-0850-41e2-8a7c-a7cf9c5a4b1d (id: 1)
vnmeta-1670f5c5-c23b-44a0-ad14-b78c5f3d60c6 (id: 0)
sysadmin@localhost ~]$ sudo ip netns exec ovnmeta-1670f5c5-c23b-44a0-ad14-b78c5f3d60c6 ip a
sudo] password for sysadmin:
: 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
: tap1670f5c5-c1@if16: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
   link/ether fa:16:3e:ba:6e:97 brd ff:ff:ff:ff:ff:ff link-netnsid 0
   inet 169.254.169.254/32 brd 169.254.169.254 scope global tap1670f5c5-c1
      valid_lft forever preferred_lft forever
   inet 10.0.0.2/26 brd 10.0.0.63 scope global tap1670f5c5-c1
      valid_lft forever preferred_lft forever
sysadmin@localhost ~]$
sysadmin@localhost ~]$ sudo ip netns exec ovnmeta-82650852-0850-41e2-8a7c-a7cf9c5a4b1d ip a
: 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
: tap82650852-01@if24: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
   link/ether fa:16:3e:17:88:c3 brd ff:ff:ff:ff:ff:ff link-netnsid 0
   inet 10.0.1.10/24 brd 10.0.1.255 scope global tap82650852-01
      valid_lft forever preferred_lft forever
   inet 169.254.169.254/32 brd 169.254.169.254 scope global tap82650852-01
      valid_lft forever preferred_lft forever
sysadmin@localhost ~]$
```

Deep explore inside the output

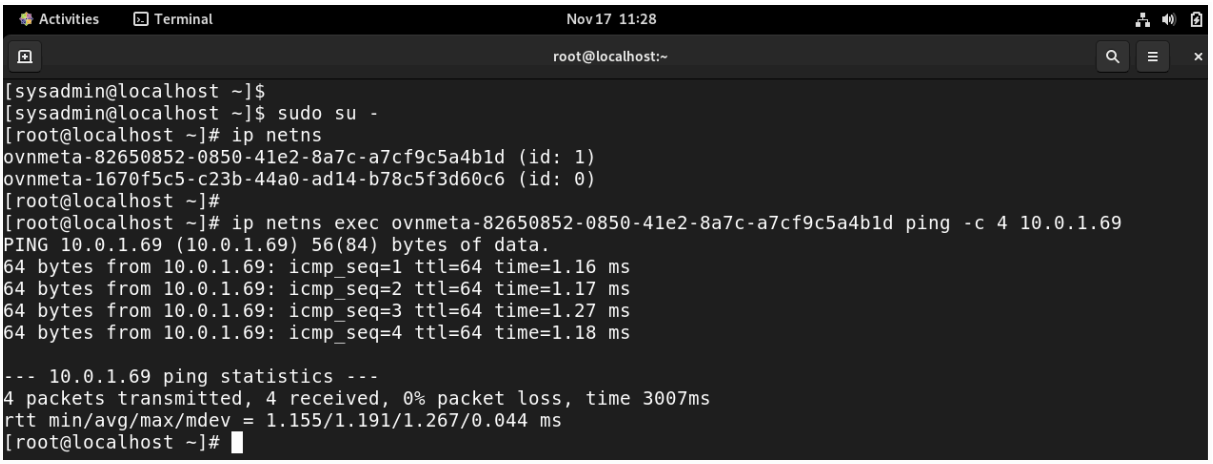


Test access to vm from underhood cloud in frastruture

Network namespace is underhood cloud (internal environment). Next step we test connectivity through ovn (my teamvm1 is 10.0.1.69 may be not same to yours)



Can you test this?



Test ssh connectivity with internal IP (not floating).