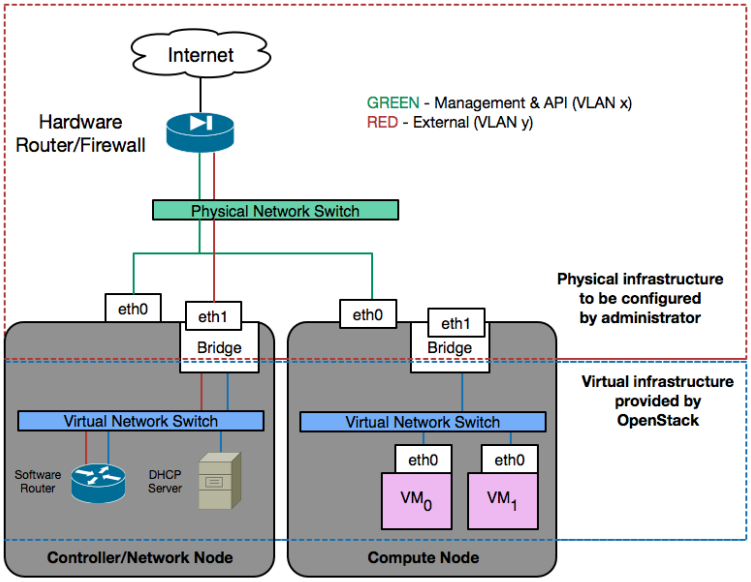
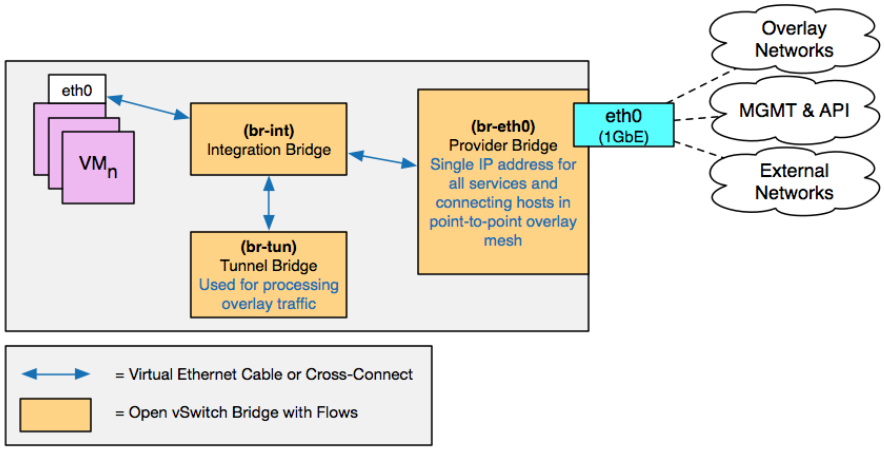
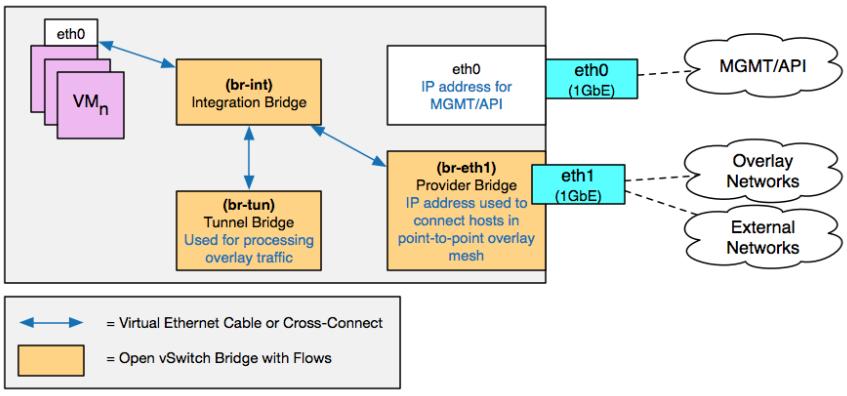
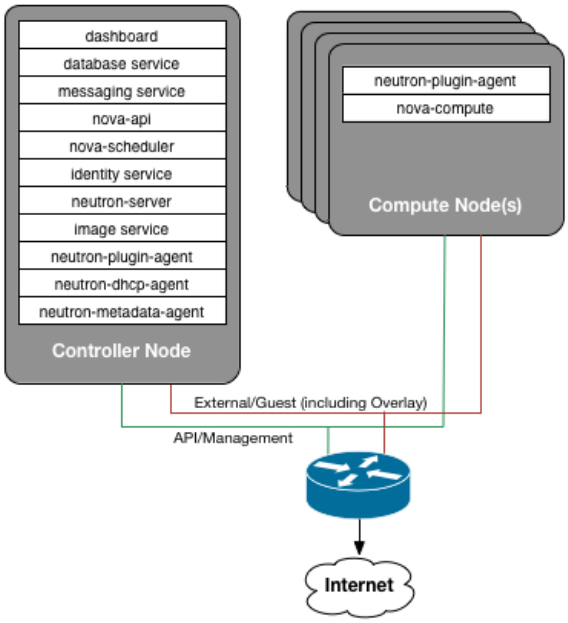
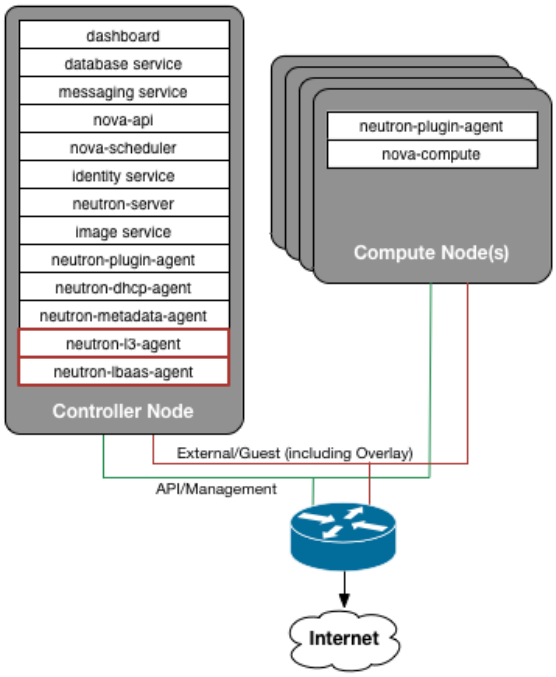
# Chapter 1 – Preparing the Network for OpenStack

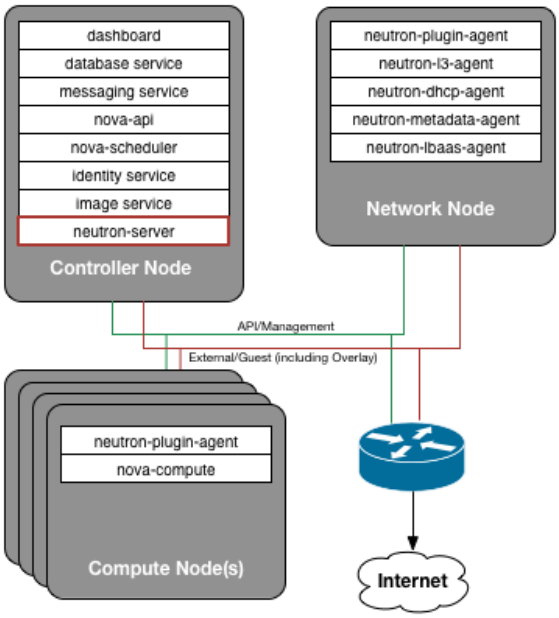


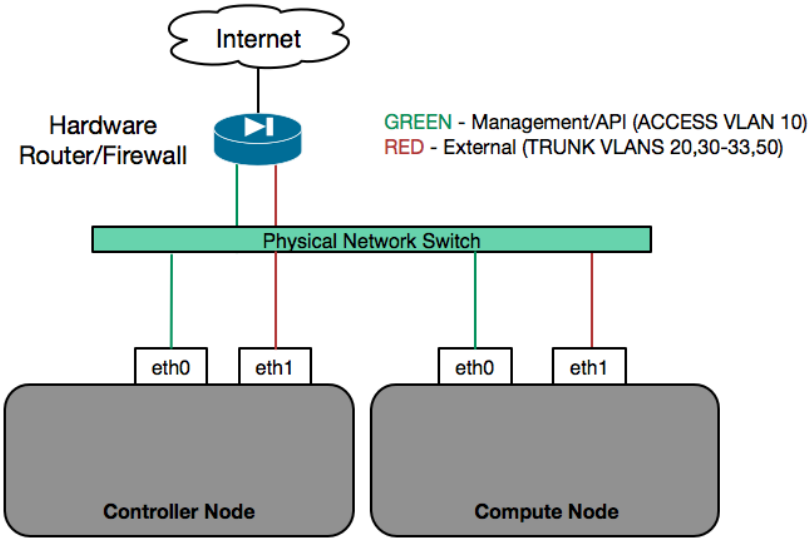




dashboard
database service
messaging service
nova-api
nova-scheduler
identity service
neutron-server
image service
neutron-plugin-agent
neutron-dhcp-agent
neutron-metadata-agent
Controller Node
neutron-plugin-agent
nova-compute
Compute Node(s)
External/Guest (including Overlay)
API/Management
Internet


dashboard
database service
messaging service
nova-api
nova-scheduler
identity service
neutron-server
image service
neutron-plugin-agent
neutron-dhcp-agent
neutron-metadata-agent
neutron-l3-agent
neutron-lbaas-agent
Controller Node
neutron-plugin-agent
nova-compute
Compute Node(s)
External/Guest (including Overlay)
API/Management
Internet




## Chapter 2 – Installing OpenStack

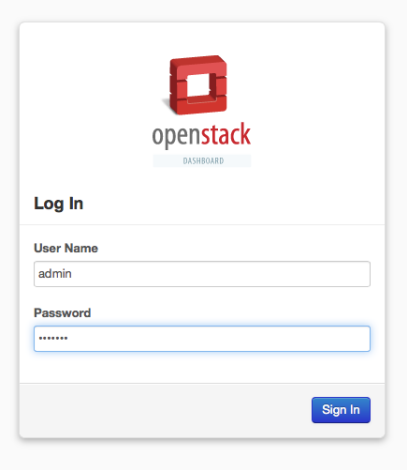


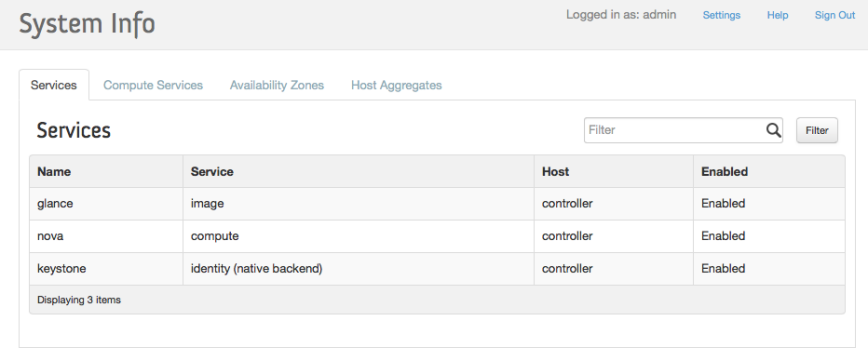

```
[root@controller ~]# keystone user-list
+----------------------------------+-------+---------+----------------------------+
|                id                |  name | enabled |           email            |
+----------------------------------+-------+---------+----------------------------+
| 6d8b854881ff4568a22342fae7cc4df6 | admin |   True  | admin@learningneutron.com |
+----------------------------------+-------+---------+----------------------------+
```

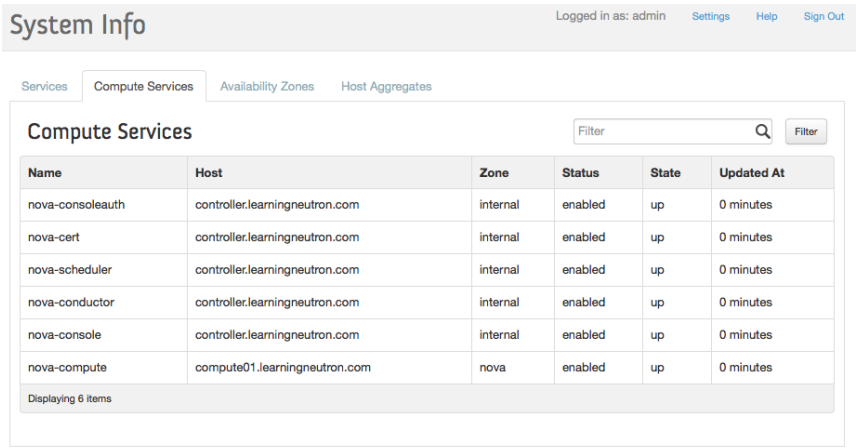
```
[root@controller openstack-dashboard]# glance image-list
+--------------------------------------+-------------+------------+-----------------+----------+--------+
| ID                                   | Name        | Disk Format | Container Format | Size     | Status |
+--------------------------------------+-------------+------------+-----------------+----------+--------+
| ed78e8ef-0884-4d2d-bc02-c1df09a4cd6e | CirrOS-0.3.1 | qcow2       | bare             | 13147648 | active |
+--------------------------------------+-------------+------------+-----------------+----------+--------+
```

```
[root@controller openstack-dashboard]# glance image-list
+--------------------------------------+-------------+-------------+------------------+-----------+--------+
| ID                                   | Name        | Disk Format | Container Format | Size      | Status |
+--------------------------------------+-------------+-------------+------------------+-----------+--------+
| 1a8afdd0-4d23-4c31-873c-72abbd947501 | CentOS-6.5  | qcow2       | bare             | 344457216 | active |
| ed78e8ef-0884-4d2d-bc02-c1df09a4cd6e | CirrOS-0.3.1| qcow2       | bare             | 13147648  | active |
| f496e19d-e074-4308-a9f2-548b4880a119 | Ubuntu-14.04| qcow2       | bare             | 254870016 | active |
+--------------------------------------+-------------+-------------+------------------+-----------+--------+
```

```
[root@controller images]# nova service-list
+----------------+------------------------------+----------+---------+-------+----------------------------+-----------------+
| Binary         | Host                         | Zone     | Status  | State | Updated_at                 | Disabled Reason |
+----------------+------------------------------+----------+---------+-------+----------------------------+-----------------+
| nova-consoleauth | controller.learningneutron.com | internal | enabled | up    | 2014-07-24T01:40:37.000000 | -               |
| nova-cert      | controller.learningneutron.com | internal | enabled | up    | 2014-07-24T01:40:37.000000 | -               |
| nova-scheduler | controller.learningneutron.com | internal | enabled | up    | 2014-07-24T01:40:37.000000 | -               |
| nova-conductor | controller.learningneutron.com | internal | enabled | up    | 2014-07-24T01:40:37.000000 | -               |
| nova-console   | controller.learningneutron.com | internal | enabled | up    | 2014-07-24T01:40:37.000000 | -               |
| nova-compute   | compute01.learningneutron.com  | nova     | enabled | up    | 2014-07-24T01:40:34.000000 | -               |
+----------------+------------------------------+----------+---------+-------+----------------------------+-----------------+
```



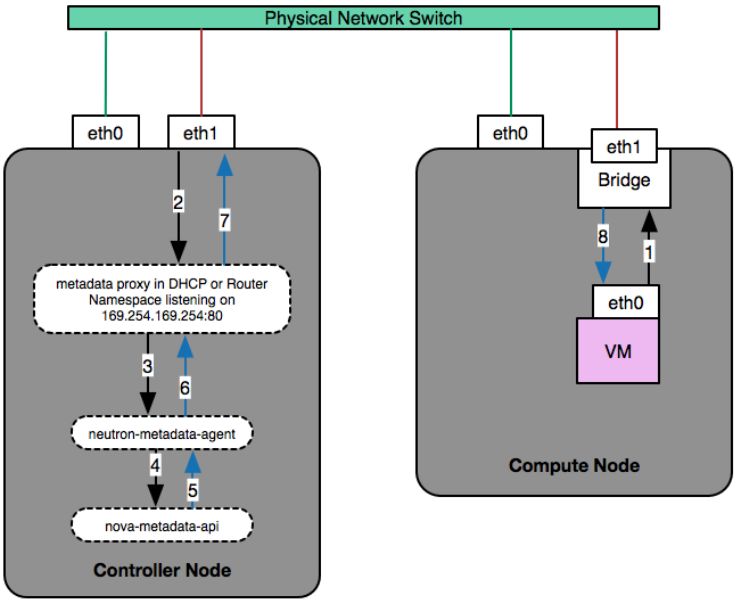



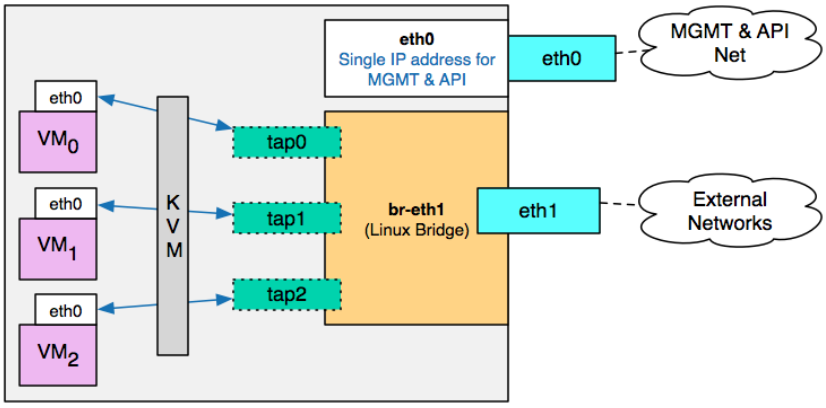
## Chapter 3 – Installing Neutron

```
[root@controller ~]# sysctl net.ipv4.ip_forward
net.ipv4.ip_forward = 0
```

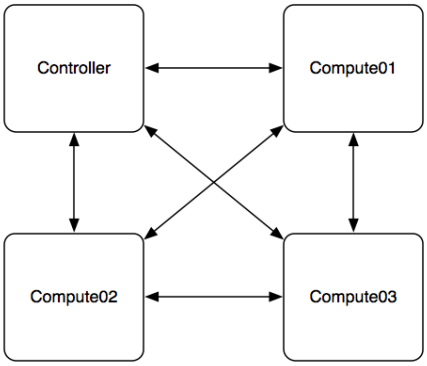
```
[root@controller ~]# service neutron-dhcp-agent status
neutron-dhcp-agent (pid  7380) is running...
```

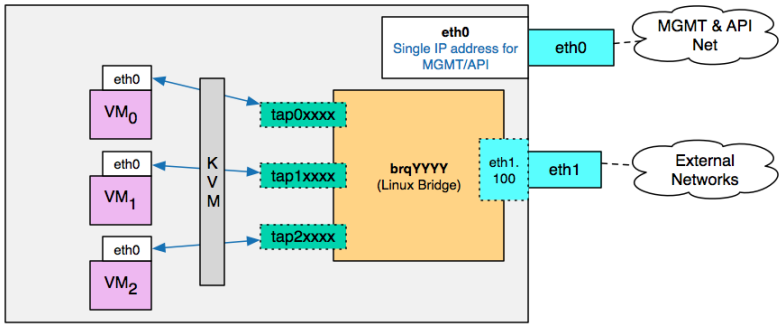



## Chapter 4 – Building a Virtual Switching Infrastructure

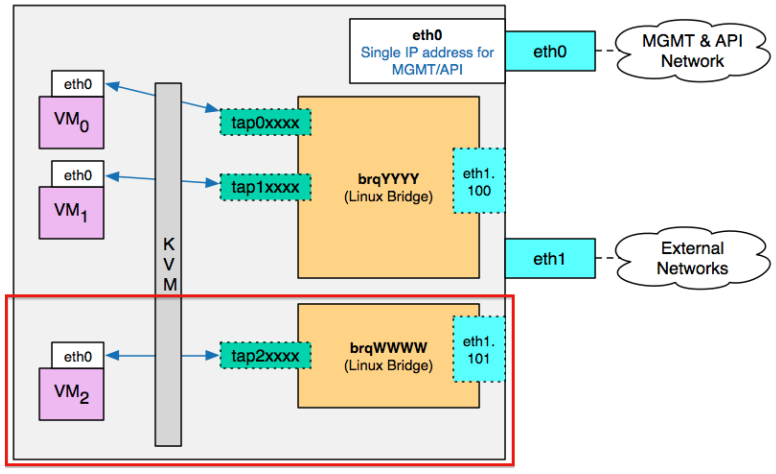



```
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP qlen 1000
    link/ether 00:1d:09:66:54:b9 brd ff:ff:ff:ff:ff:ff
    inet6 fe80::21d:9ff:fe66:54b9/64 scope link
       valid_lft forever preferred_lft forever
```

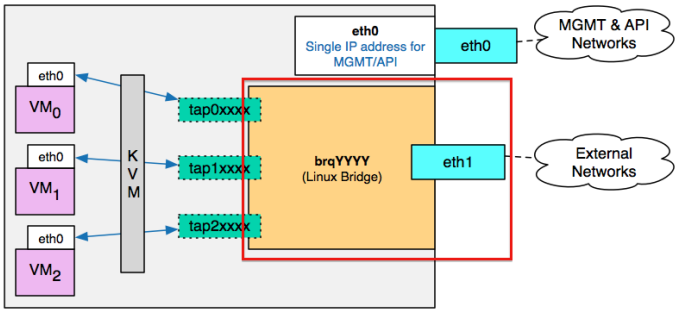


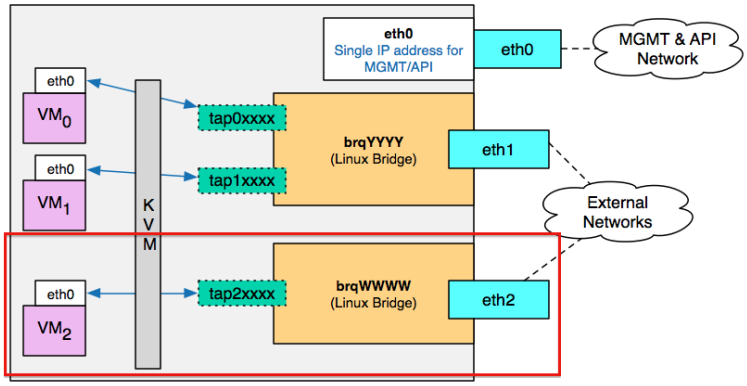

```
# brctl show

bridge name     bridge id               STP enabled     interfaces
brqYYYY         <based on NIC>              no          eth1.100
                                                        tap0XXXX
                                                        tap1XXXX
                                                        tap2XXXX
```



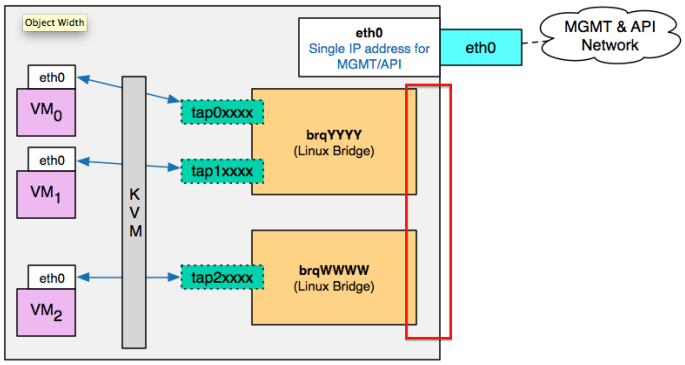

```
# brctl show

bridge name     bridge id               STP enabled     interfaces
brqYYYY         <based on NIC>              no          eth1.100
                                                        tap0XXXX
                                                        tap1XXXX
brqWWWW         <based on NIC>              no          eth1.101
                                                        tap2XXXX
```

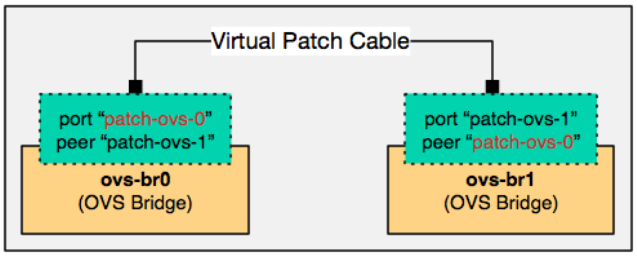


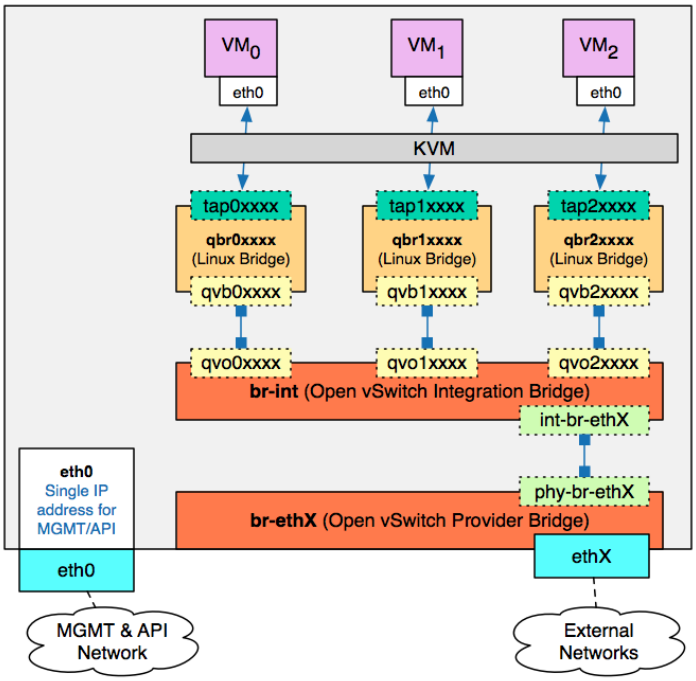

```
# brctl show

bridge name     bridge id               STP enabled     interfaces
brqYYYY         <based on NIC>              no          eth1
                                                        tap0XXXX
                                                        tap1XXXX
                                                        tap2XXXX
```



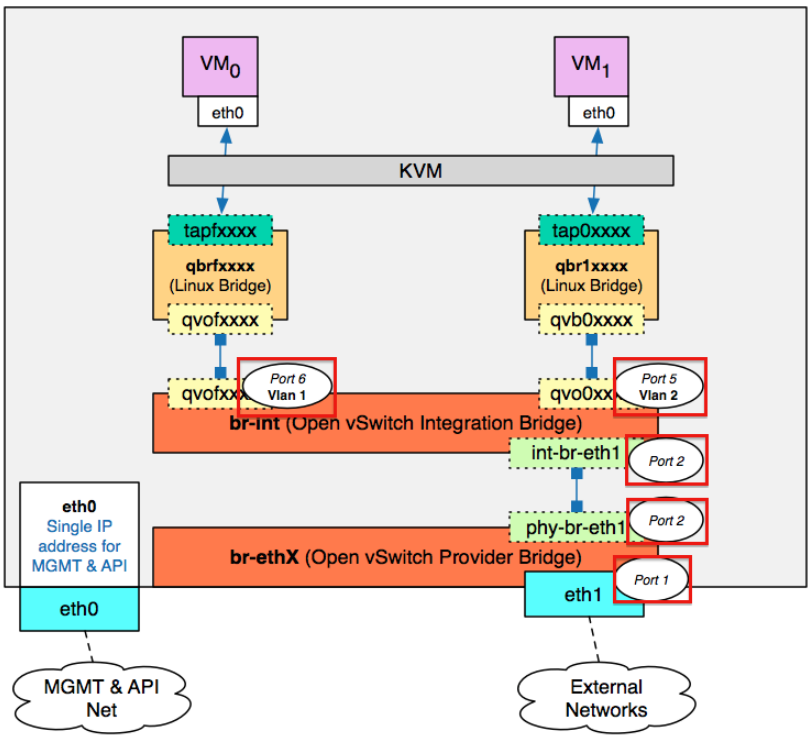

```
# brctl show

bridge name     bridge id               STP enabled     interfaces
brqYYYY         <based on NIC>              no          eth1
                                                        tap0XXXX
                                                        tap1XXXX
brqWWWW         <based on NIC>              no          eth2
                                                        tap2XXXX
```






```
[root@compute01 ~]# ovs-ofctl show br-int
OFPT_FEATURES_REPLY (xid=0x2): dpid:0000f6606ec02545
n_tables:254, n_buffers:256
capabilities: FLOW_STATS TABLE_STATS PORT_STATS QUEUE_STATS ARP_MATCH_IP
actions: OUTPUT SET_VLAN_VID SET_VLAN_PCP STRIP_VLAN SET_DL_SRC SET_DL_DST SET_NW_SRC SET_NW_DST SET_NW_TOS SET_TP_SRC SET_TP_DST ENQUEUE
 1(patch-tun): addr:aa:93:5d:8b:bc:68
     config:     0
     state:      0
     speed: 0 Mbps now, 0 Mbps max
 2(int-br-eth1): addr:02:7e:02:f9:9b:5e
     config:     0
     state:      0
     current:    10GB-FD COPPER
     speed: 10000 Mbps now, 0 Mbps max
 5(qvo04c49e4a-a6): addr:3a:39:e2:e2:df:ca
     config:     0
     state:      0
     current:    10GB-FD COPPER
     speed: 10000 Mbps now, 0 Mbps max
 6(qvofe2d048e-bc): addr:e6:98:c5:04:c7:85
     config:     0
     state:      0
     current:    10GB-FD COPPER
     speed: 10000 Mbps now, 0 Mbps max
 LOCAL(br-int): addr:f6:60:6e:c0:25:45
     config:     0
     state:      0
     speed: 0 Mbps now, 0 Mbps max
OFPT_GET_CONFIG_REPLY (xid=0x4): frags=normal miss_send_len=0
```




```
[root@compute01 ~]# ovs-vsctl show
f3b5fa36-6459-40a0-b823-468e7d6fed7f
    Bridge "br-eth1"
        Port "br-eth1"
            Interface "br-eth1"
                type: internal
        Port "eth1"
            Interface "eth1"
        Port "phy-br-eth1"
            Interface "phy-br-eth1"
    Bridge br-tun
        Port "gre-1"
            Interface "gre-1"
                type: gre
                options: {in_key=flow, local_ip="172.18.0.101", out_key=flow, remote_ip="172.18.0.100"}
        Port patch-int
            Interface patch-int
                type: patch
                options: {peer=patch-tun}
        Port br-tun
            Interface br-tun
                type: internal
    Bridge br-int
        Port "int-br-eth1"
            Interface "int-br-eth1"
        Port patch-tun
            Interface patch-tun
                type: patch
                options: {peer=patch-int}
        Port "qvofe2d048e-bc"
            tag: 1
            Interface "qvofe2d048e-bc"
        Port br-int
            Interface br-int
                type: internal
        Port "qvo04c49e4a-a6"
            tag: 2
            Interface "qvo04c49e4a-a6"
    ovs_version: "1.11.0"
```

```
[root@compute01 ~]# ovs-ofctl dump-flows br-eth1
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=6114.377s, table=0, n_packets=101, n_bytes=5984, idle_age=723, priority=4,in_port=2,dl_vlan=1 actions=mod_vlan_vid:30,NORMAL
 cookie=0x0, duration=6120.067s, table=0, n_packets=31, n_bytes=2300, idle_age=830, priority=2,in_port=2 actions=drop
 cookie=0x0, duration=6121.345s, table=0, n_packets=27866, n_bytes=1816978, idle_age=1, priority=1 actions=NORMAL
```

```
[root@compute01 ~]# ovs-ofctl dump-flows br-int
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=6100.376s, table=0, n_packets=15, n_bytes=1904, idle_age=709, priority=3,in_port=2,dl_vlan=30 actions=mod_vlan_vid:1,NORMAL
 cookie=0x0, duration=6106.342s, table=0, n_packets=7, n_bytes=532, idle_age=6079, priority=2,in_port=2 actions=drop
 cookie=0x0, duration=6107.76s, table=0, n_packets=126, n_bytes=7680, idle_age=709, priority=1 actions=NORMAL
```

```
[root@compute01 ~]# ovs-ofctl dump-flows br-eth1
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=6114.377s, table=0, n_packets=101, n_bytes=5984, idle_age=723, priority=4,in_port=2,dl_vlan=1 actions=mod_vlan_vid:30,NORMAL
 cookie=0x0, duration=6120.067s, table=0, n_packets=31, n_bytes=2300, idle_age=830, priority=2,in_port=2 actions=drop
 cookie=0x0, duration=6121.345s, table=0, n_packets=27866, n_bytes=1816978, idle_age=1, priority=1 actions=NORMAL
```

```
Created a new network:
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | 0eec5d14-4d67-448d-abbd-01d7e9931217 |
| name                      | FLAT1                                |
| provider:network_type     | flat                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  |                                      |
| shared                    | False                                |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```

```
Bridge br-int
    Port "int-br-eth1"
        Interface "int-br-eth1"
    Port "qvofe2d048e-bc"
        tag: 1
        Interface "qvofe2d048e-bc"
    Port br-int
        Interface br-int
            type: internal
    Port "qvo04c49e4a-a6"
        tag: 3
        Interface "qvo04c49e4a-a6"
    Port patch-tun
        Interface patch-tun
            type: patch
            options: {peer=patch-int}
    Port "qvob7f563c0-c0"
        tag: 2
        Interface "qvob7f563c0-c0"
```

```
[root@compute01 ~]# ovs-ofctl dump-flows br-int
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=558.978s, table=0, n_packets=1, n_bytes=70, idle_age=555, priority=3,in_port=2,vlan_tci=0x0000 actions=mod_vlan_vid:2,NORMAL
 cookie=0x0, duration=559.677s, table=0, n_packets=0, n_bytes=0, idle_age=559, priority=3,in_port=2,dl_vlan=30 actions=mod_vlan_vid:1,NORMAL
 cookie=0x0, duration=565.53s, table=0, n_packets=5, n_bytes=398, idle_age=559, priority=2,in_port=2 actions=drop
 cookie=0x0, duration=566.935s, table=0, n_packets=31, n_bytes=2252, idle_age=342, priority=1 actions=NORMAL
```

```
[root@compute01 ~]# ovs-ofctl dump-flows br-eth1
NXST_FLOW reply (xid=0x4):
 cookie=0x0, duration=647.829s, table=0, n_packets=4, n_bytes=288, idle_age=641, priority=4,in_port=2,dl_vlan=1 actions=mod_vlan_vid:30,NORMAL
 cookie=0x0, duration=647.129s, table=0, n_packets=10, n_bytes=686, idle_age=430, priority=4,in_port=2,dl_vlan=2 actions=strip_vlan,NORMAL
 cookie=0x0, duration=653.42s, table=0, n_packets=20, n_bytes=1564, idle_age=643, priority=2,in_port=2 actions=drop
 cookie=0x0, duration=654.687s, table=0, n_packets=2983, n_bytes=196849, idle_age=1, priority=1 actions=NORMAL
```

```
[root@controller ~]# ovs-vsctl -V
ovs-vsctl (Open vSwitch) 1.11.0
Compiled Jul 30 2013 18:14:53
```

```
[root@controller ~]# ping 172.18.0.101
PING 172.18.0.101 (172.18.0.101) 56(84) bytes of data.
64 bytes from 172.18.0.101: icmp_seq=1 ttl=64 time=1.13 ms
64 bytes from 172.18.0.101: icmp_seq=2 ttl=64 time=0.168 ms
^C
--- 172.18.0.101 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1408ms
rtt min/avg/max/mdev = 0.168/0.650/1.133/0.483 ms
```

```
(neutron) net-create -h

usage: net-create [-h] [-f {shell,table}] [-c COLUMN]
        [--variable VARIABLE] [--prefix PREFIX]
        [--request-format {json,xml}]
        [--tenant-id TENANT_ID]
        [--admin-state-down] [--shared]
        NAME
```

```
Syntax: net-create --provider:network_type=flat
        --provider:physical_network=<provider_bridge_label>
        [--router:external=true] [--tenant-id TENANT_ID]
        [--admin-state-down] [--shared]
        NAME
```

```
(neutron) net-create --provider:network_type=flat --provider:physical_network=physnet1 --shared MyFlatNetwork
Created a new network:
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | 3b56346d-9f9a-4447-98f1-4eb470cdad6d |
| name                      | MyFlatNetwork                        |
| provider:network_type     | flat                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  |                                      |
| shared                    | True                                 |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```

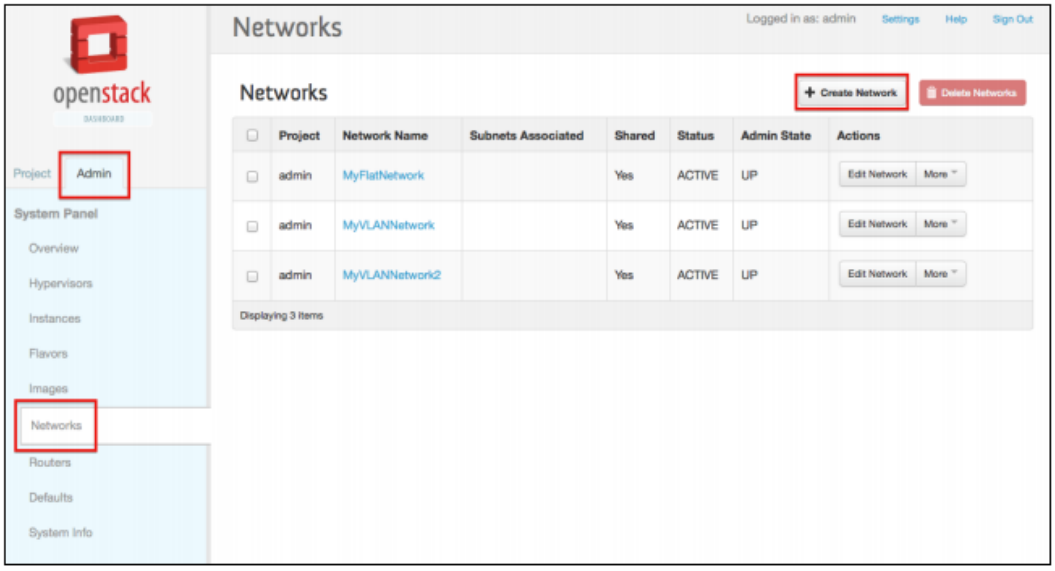
```
Syntax: net-create --provider:network_type=vlan
        --provider:physical_network=<provider_bridge_label>
        --provider:segmentation_id=<vlan_id>
        [--router:external=true] [--tenant-id TENANT_ID]
        [--admin-state-down] [--shared]
        NAME
```

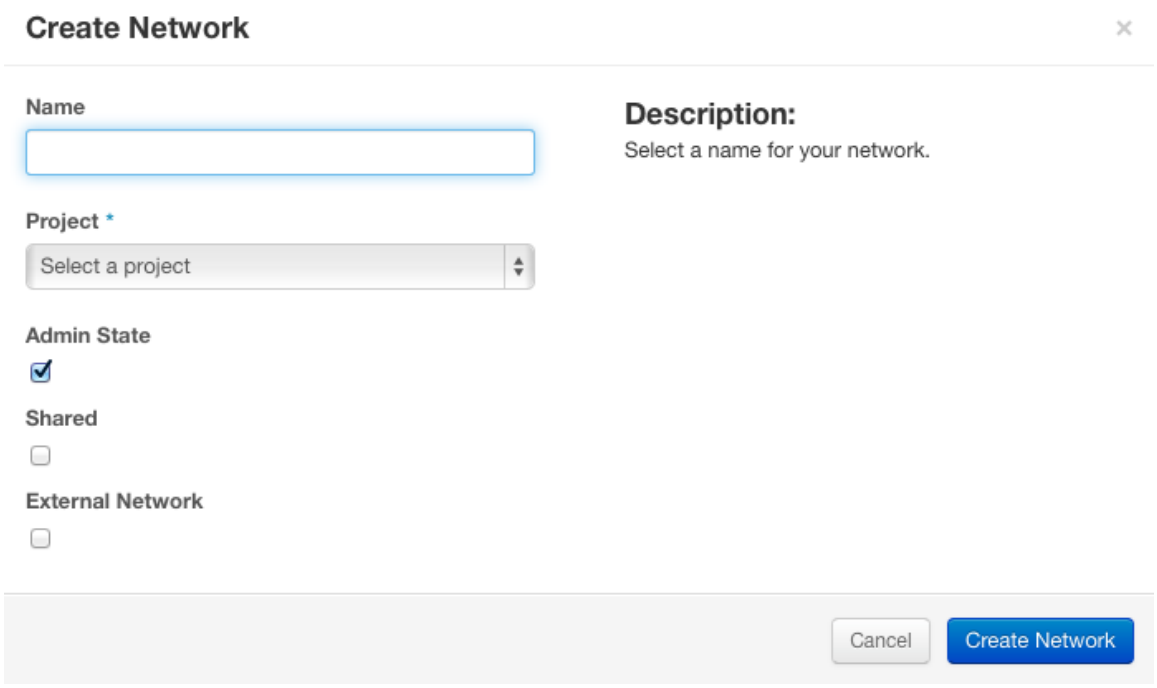
```
(neutron) net-create --provider:network_type=vlan --provider:physical_network=physnet1 --provider:segmentation_id=200 --shared MyVLANNetwork
Created a new network:
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | c4272c0b-4430-427a-a537-81bd733c2266 |
| name                      | MyVLANNetwork                        |
| provider:network_type     | vlan                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  | 200                                  |
| shared                    | True                                 |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```

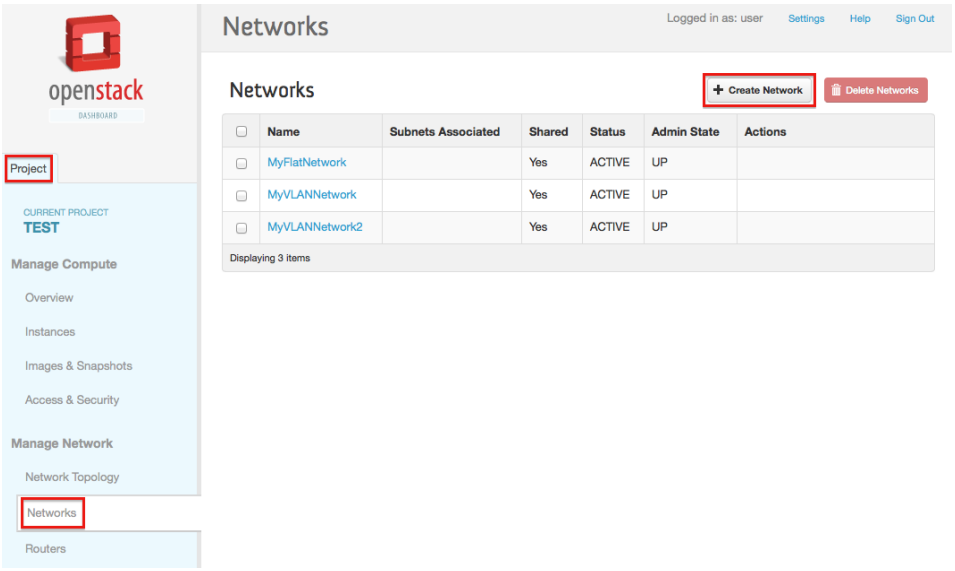
```
(neutron) net-create --provider:network_type=vlan --provider:physical_network=physnet1 --provider:segmentation_id=201 --shared MyVLANNetwork2
Created a new network:
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | cb88384c-ebd1-4277-b01e-6f707170004f |
| name                      | MyVLANNetwork2                       |
| provider:network_type     | vlan                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  | 201                                  |
| shared                    | True                                 |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```

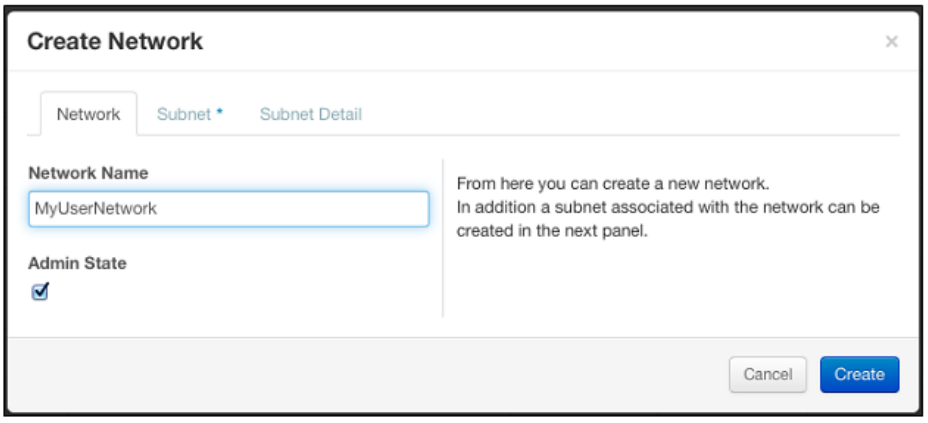
```
(neutron) net-list
+--------------------------------------+----------------+---------+
| id                                   | name           | subnets |
+--------------------------------------+----------------+---------+
| 3b56346d-9f9a-4447-98f1-4eb470cdad6d | MyFlatNetwork  |         |
| c4272c0b-4430-427a-a537-81bd733c2266 | MyVLANNetwork  |         |
| cb88384c-ebd1-4277-b01e-6f707170004f | MyVLANNetwork2 |         |
+--------------------------------------+----------------+---------+
```

```
(neutron) net-show c4272c0b-4430-427a-a537-81bd733c2266
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | c4272c0b-4430-427a-a537-81bd733c2266 |
| name                      | MyVLANNetwork                        |
| provider:network_type     | vlan                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  | 200                                  |
| router:external           | False                                |
| shared                    | True                                 |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```




Create Network
Name
Description:
Select a name for your network.
Project *
Select a project
Admin State
Shared
External Network
Cancel
Create Network


openstack
DASHBOARD
Project
CURRENT PROJECT
TEST
Manage Compute
Overview
Instances
Images & Snapshots
Access & Security
Manage Network
Network Topology
Networks
Routers
Networks
Logged in as: user
Settings
Help
Sign Out
Networks
+ Create Network
Delete Networks
Name
Subnets Associated
Shared
Status
Admin State
Actions
MyFlatNetwork
Yes
ACTIVE
UP
MyVLANNetwork
Yes
ACTIVE
UP
MyVLANNetwork2
Yes
ACTIVE
UP
Displaying 3 items

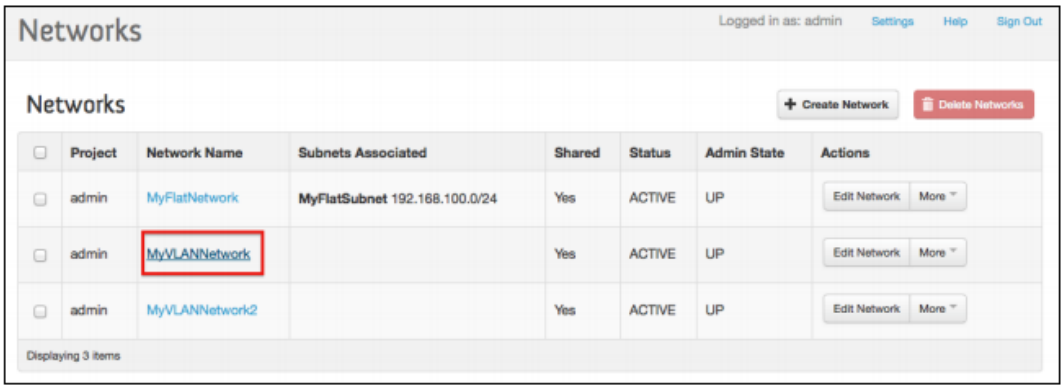

Create Network
Network
Subnet *
Subnet Detail
Network Name
MyUserNetwork
Admin State
From here you can create a new network.
In addition a subnet associated with the network can be created in the next panel.
Cancel
Create

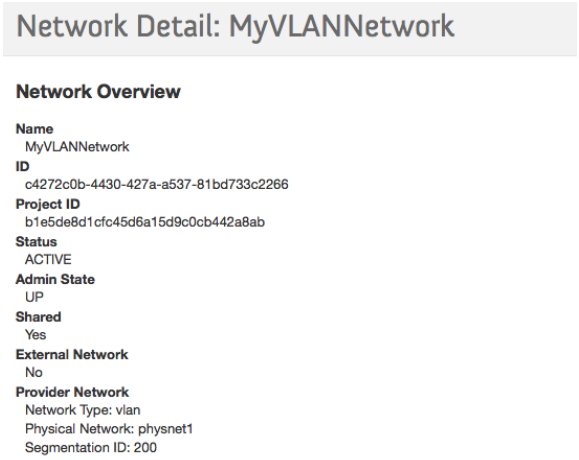
```
(neutron) subnet-create -h

usage: subnet-create [-h] [-f {shell,table}] [-c COLUMN]
        [--variable VARIABLE][--prefix PREFIX]
        [--request-format {json,xml}][--tenant-id TENANT_ID]
        [--name NAME][--ip-version {4,6}] [--gateway GATEWAY_IP]
        [--no-gateway][--allocation-pool start=IP_ADDR,end=IP_ADDR]
        [--host-route destination=CIDR,nexthop=IP_ADDR]
        [--dns-nameserver DNS_NAMESERVER] [--disable-dhcp]
        NETWORK CIDR
```

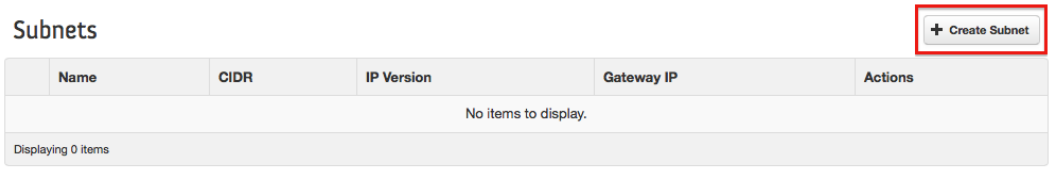
```
(neutron) subnet-create MyFlatNetwork 192.168.100.0/24 --name MyFlatSubnet --ip-version=4 --gateway=192.168.100.1
--allocation-pool start=192.168.100.2,end=192.168.100.254 --dns-nameservers 8.8.8.8 8.8.4.4
Created a new subnet:
+-----------------+-----------------------------------------------------+
| Field           | Value                                               |
+-----------------+-----------------------------------------------------+
| allocation_pools | {"start": "192.168.100.2", "end": "192.168.100.254"} |
| cidr            | 192.168.100.0/24                                    |
| dns_nameservers | 8.8.4.4                                             |
|                 | 8.8.8.8                                             |
| enable_dhcp     | True                                                |
| gateway_ip      | 192.168.100.1                                       |
| host_routes     |                                                     |
| id              | 739b5bfd-d224-45bc-89b3-b29147be075d                |
| ip_version      | 4                                                   |
| name            | MyFlatSubnet                                        |
| network_id      | 3b56346d-9f9a-4447-98f1-4eb470cdad6d                |
| tenant_id       | b1e5de8d1cfc45d6a15d9c0cb442a8ab                    |
+-----------------+-----------------------------------------------------+
```

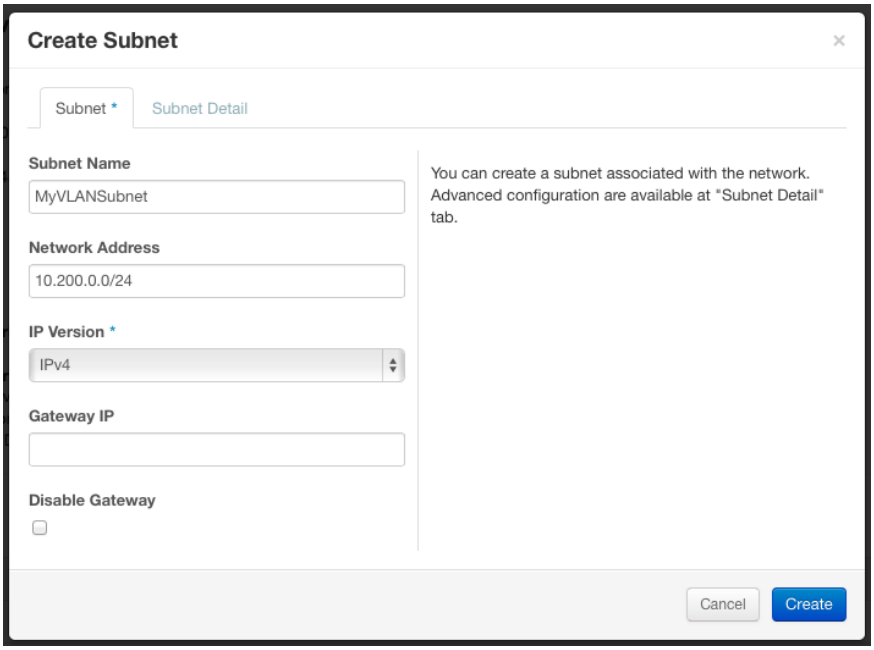
```
(neutron) subnet-list
+--------------------------------------+-------------+----------------+-----------------------------------------------------+
| id                                   | name        | cidr           | allocation_pools                                    |
+--------------------------------------+-------------+----------------+-----------------------------------------------------+
| 739b5bfd-d224-45bc-89b3-b29147be075d | MyFlatSubnet | 192.168.100.0/24 | {"start": "192.168.100.2", "end": "192.168.100.254"} |
+--------------------------------------+-------------+----------------+-----------------------------------------------------+
```

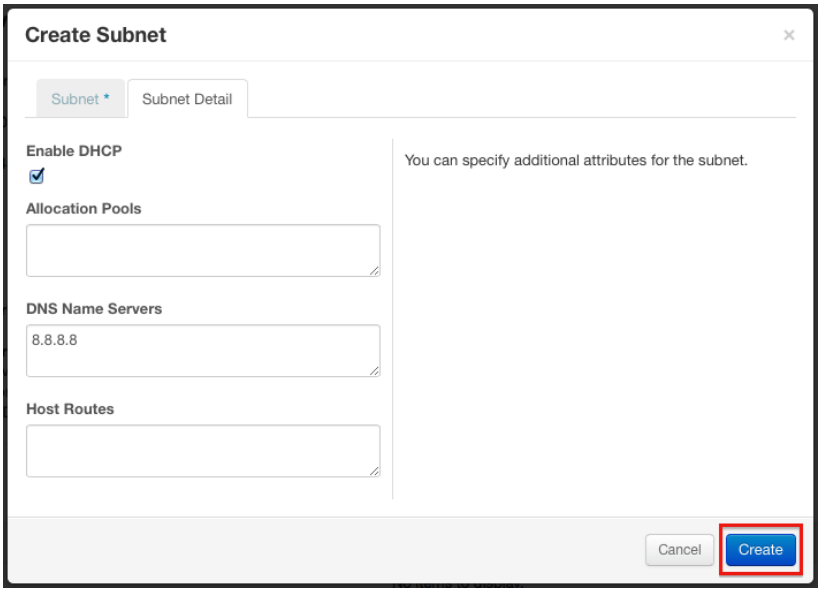
```
(neutron) subnet-show 739b5bfd-d224-45bc-89b3-b29147be075d
+-----------------+-----------------------------------------------------+
| Field           | Value                                               |
+-----------------+-----------------------------------------------------+
| allocation_pools | {"start": "192.168.100.2", "end": "192.168.100.254"} |
| cidr            | 192.168.100.0/24                                    |
| dns_nameservers | 8.8.4.4                                             |
|                 | 8.8.8.8                                             |
| enable_dhcp     | True                                                |
| gateway_ip      | 192.168.100.1                                       |
| host_routes     |                                                     |
| id              | 739b5bfd-d224-45bc-89b3-b29147be075d                |
| ip_version      | 4                                                   |
| name            | MyFlatSubnet                                        |
| network_id      | 3b56346d-9f9a-4447-98f1-4eb470cdad6d                |
| tenant_id       | b1e5de8d1cfc45d6a15d9c0cb442a8ab                    |
+-----------------+-----------------------------------------------------+
```

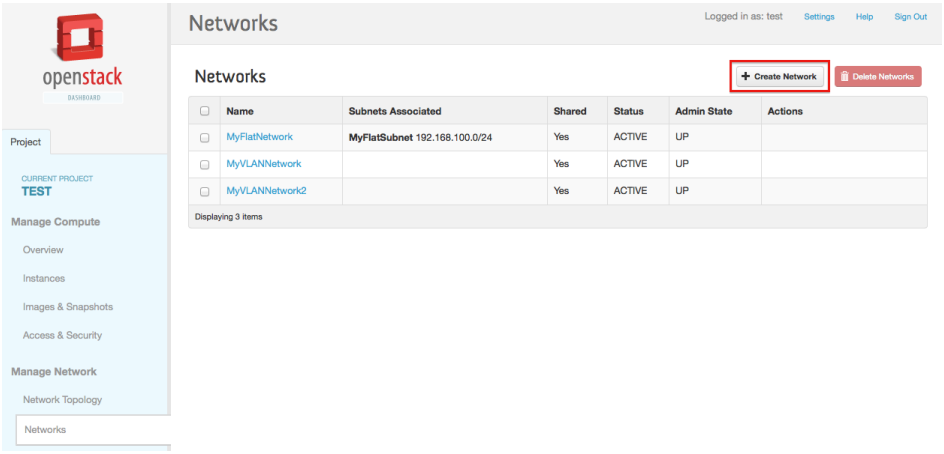

Networks
Logged in as: admin
Settings
Help
Sign Out
Networks
+ Create Network
Delete Networks
Project
Network Name
Subnets Associated
Shared
Status
Admin State
Actions
admin
MyFlatNetwork
MyFlatSubnet 192.168.100.0/24
Yes
ACTIVE
UP
Edit Network
More
admin
MyVLANNetwork
Yes
ACTIVE
UP
Edit Network
More
admin
MyVLANNetwork2
Yes
ACTIVE
UP
Edit Network
More
Displaying 3 items

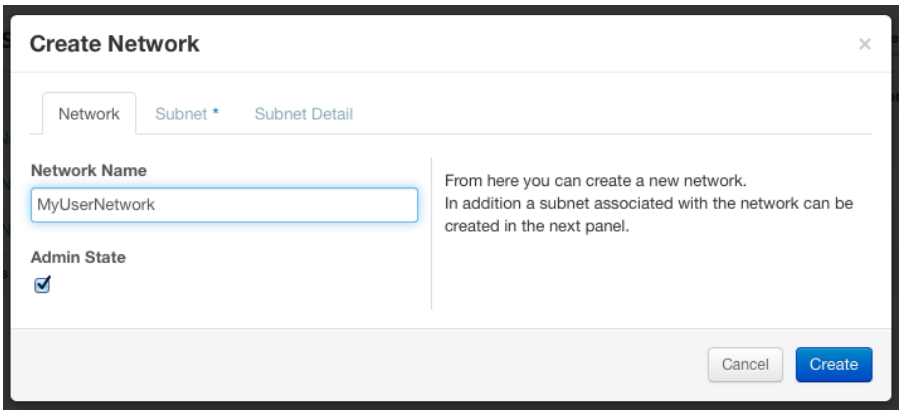

Network Detail: MyVLANNetwork
Network Overview
Name
MyVLANNetwork
ID
c4272c0b-4430-427a-a537-81bd733c2266
Project ID
b1e5de8d1cfc45d6a15d9c0cb442a8ab
Status
ACTIVE
Admin State
UP
Shared
Yes
External Network
No
Provider Network
Network Type: vlan
Physical Network: physnet1
Segmentation ID: 200

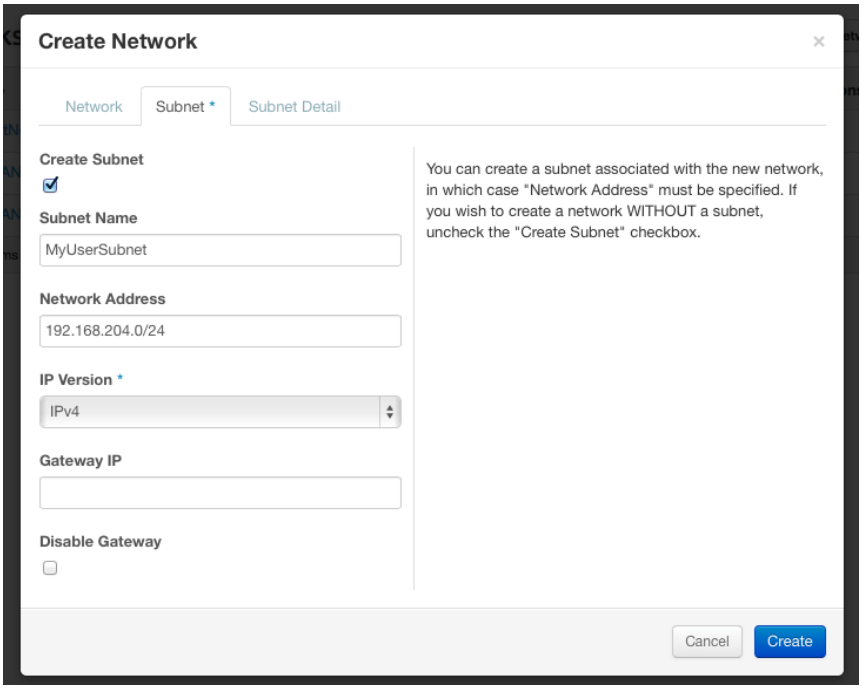

Subnets
+ Create Subnet
Name
CIDR
IP Version
Gateway IP
Actions
No items to display.
Displaying 0 items

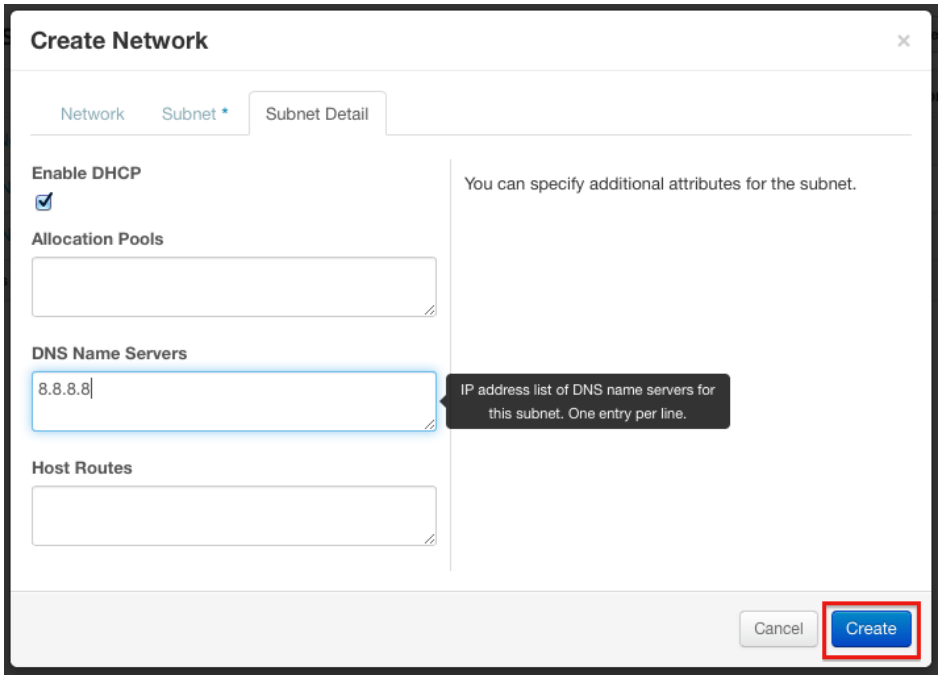

Create Subnet
Subnet *
Subnet Detail
Subnet Name
MyVLANSubnet
Network Address
10.200.0.0/24
IP Version *
IPv4
Gateway IP
Disable Gateway
You can create a subnet associated with the network. Advanced configuration are available at "Subnet Detail" tab.
Cancel
Create

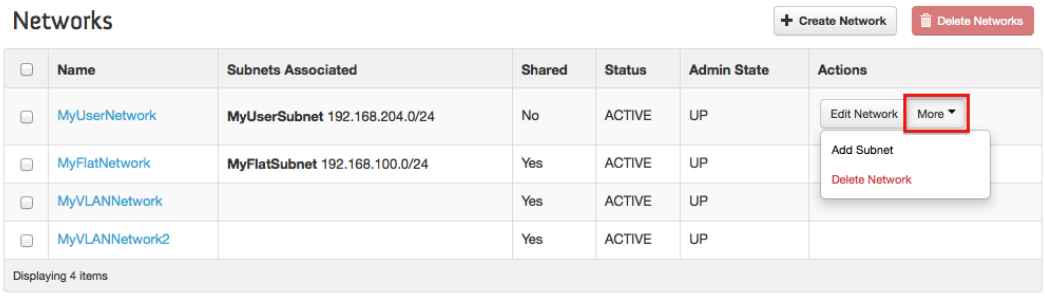

Create Subnet
Subnet *
Subnet Detail
Enable DHCP
Allocation Pools
DNS Name Servers
8.8.8.8
Host Routes
You can specify additional attributes for the subnet.
Cancel
Create


openstack
Project
CURRENT PROJECT
TEST
Manage Compute
Overview
Instances
Images & Snapshots
Access & Security
Manage Network
Network Topology
Networks
Networks
Logged in as: test
Settings
Help
Sign Out
Networks
+ Create Network
Delete Networks
Name
Subnets Associated
Shared
Status
Admin State
Actions
MyFlatNetwork
MyFlatSubnet 192.168.100.0/24
Yes
ACTIVE
UP
MyVLANNetwork
Yes
ACTIVE
UP
MyVLANNetwork2
Yes
ACTIVE
UP
Displaying 3 items


Create Network
Network
Subnet *
Subnet Detail
Network Name
MyUserNetwork
Admin State
From here you can create a new network.
In addition a subnet associated with the network can be created in the next panel.
Cancel
Create


Create Network
Network
Subnet *
Subnet Detail
Create Subnet
Subnet Name
MyUserSubnet
Network Address
192.168.204.0/24
IP Version *
IPv4
Gateway IP
Disable Gateway
You can create a subnet associated with the new network, in which case "Network Address" must be specified. If you wish to create a network WITHOUT a subnet, uncheck the "Create Subnet" checkbox.
Cancel
Create




```
(neutron) port-list
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------+
| id                                   | name | mac_address       | fixed_ips                                                                           |
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------+
| 8e955573-bda2-4ed5-99f2-3aaa699fc804 |      | fa:16:3e:ea:69:72 | {"subnet_id": "739b5bfd-d224-45bc-89b3-b29147be075d", "ip_address": "192.168.100.2"} |
| dc5145c1-0ca3-4354-94b2-908495899708 |      | fa:16:3e:98:45:05 | {"subnet_id": "ceac2b42-942b-41d6-9e47-d11fcad8512e", "ip_address": "192.168.204.2"} |
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------+
```

```
(neutron) port-show 8e955573-bda2-4ed5-99f2-3aaa699fc804
+-----------------------+-------------------------------------------------------------------------------------+
| Field                 | Value                                                                               |
+-----------------------+-------------------------------------------------------------------------------------+
| admin_state_up        | True                                                                                |
| allowed_address_pairs |                                                                                     |
| binding:capabilities  | {"port_filter": true}                                                               |
| binding:host_id       | controller.learningneutron.com                                                      |
| binding:vif_type      | ovs                                                                                 |
| device_id             | dhcp158b3bbb-2cad-50ba-a72c-55cec869ff7f-3b56346d-9f9a-4447-98f1-4eb470cdad6d       |
| device_owner          | network:dhcp                                                                        |
| extra_dhcp_opts       |                                                                                     |
| fixed_ips             | {"subnet_id": "739b5bfd-d224-45bc-89b3-b29147be075d", "ip_address": "192.168.100.2"} |
| id                    | 8e955573-bda2-4ed5-99f2-3aaa699fc804                                                |
| mac_address           | fa:16:3e:ea:69:72                                                                   |
| name                  |                                                                                     |
| network_id            | 3b56346d-9f9a-4447-98f1-4eb470cdad6d                                                |
| security_groups       |                                                                                     |
| status                | DOWN                                                                                |
| tenant_id             | b1e5de8d1cfc45d6a15d9c0cb442a8ab                                                    |
+-----------------------+-------------------------------------------------------------------------------------+
```

```
[root@controller ~]# ip netns exec qdhcp-3b56346d-9f9a-4447-98f1-4eb470cdad6d ip a
15: tap8e955573-bd: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN
    link/ether fa:16:3e:ea:69:72 brd ff:ff:ff:ff:ff:ff
    inet 192.168.100.2/24 brd 192.168.100.255 scope global tap8e955573-bd
    inet 169.254.169.254/16 brd 169.254.255.255 scope global tap8e955573-bd
    inet6 fe80::f816:3eff:feea:6972/64 scope link
       valid_lft forever preferred_lft forever
17: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# neutron port-update 9369da6e-bbea-4317-9ffb-587a10f6eddb \
> --allowed-address-pairs type=dict list=true ip_address=192.168.100.253/32
Updated port: 9369da6e-bbea-4317-9ffb-587a10f6eddb
```

```
-A neutron-openvswi-s9369da6e-b -s 192.168.100.253/32 -m mac --mac-source FA:16:3E:70:95:FB -j RETURN
-A neutron-openvswi-s9369da6e-b -s 192.168.100.3/32 -m mac --mac-source FA:16:3E:70:95:FB -j RETURN
-A neutron-openvswi-s9369da6e-b -j DROP
```

```
[root@controller ~]# ip netns
qdhcp-3b56346d-9f9a-4447-98f1-4eb470cdad6d
qdhcp-e123e990-88af-4267-8c9b-4a37f5dd4a9c
```

```
[root@controller ~]# neutron net-list
+--------------------------------------+--------------+-----------------------------------------------------+
| id                                   | name         | subnets                                             |
+--------------------------------------+--------------+-----------------------------------------------------+
| 3b56346d-9f9a-4447-98f1-4eb470cdad6d | MyFlatNetwork  | 739b5bfd-d224-45bc-89b3-b29147be075d 192.168.100.0/24 |
| c4272c0b-4430-427a-a537-81bd733c2266 | MyVLANNetwork  |                                                     |
| cb88384c-ebd1-4277-b01e-6f707170004f | MyVLANNetwork2 |                                                     |
| e123e990-88af-4267-8c9b-4a37f5dd4a9c | MyUserNetwork  | ceac2b42-942b-41d6-9e47-d11fcad8512e 192.168.204.0/24 |
+--------------------------------------+--------------+-----------------------------------------------------+
```

```
[root@controller ~]# ip netns exec qdhcp-3b56346d-9f9a-4447-98f1-4eb470cdad6d ip a
15: tap8e955573-bd: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN
    link/ether fa:16:3e:ea:69:72 brd ff:ff:ff:ff:ff:ff
    inet 192.168.100.2/24 brd 192.168.100.255 scope global tap8e955573-bd
    inet 169.254.169.254/16 brd 169.254.255.255 scope global tap8e955573-bd
    inet6 fe80::f816:3eff:feea:6972/64 scope link
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# ovs-vsctl show
6f2f8f4e-86ec-4e7f-ac4c-9128fca23b4a
    Bridge br-int
        Port "int-br-eth1"
            Interface "int-br-eth1"
        Port "tap8e955573-bd"
            tag: 2
            Interface "tap8e955573-bd"
                type: internal
```

```
[root@controller ~]# ip netns exec qrouter-c2b8c093-0f9b-43b9-b993-72d04b886738 \
> iptables-save | grep 169.254.169.254
-A neutron-l3-agent-PREROUTING -d 169.254.169.254/32 -p tcp -m tcp --dport 80 -j REDIRECT --to-ports 9697
```

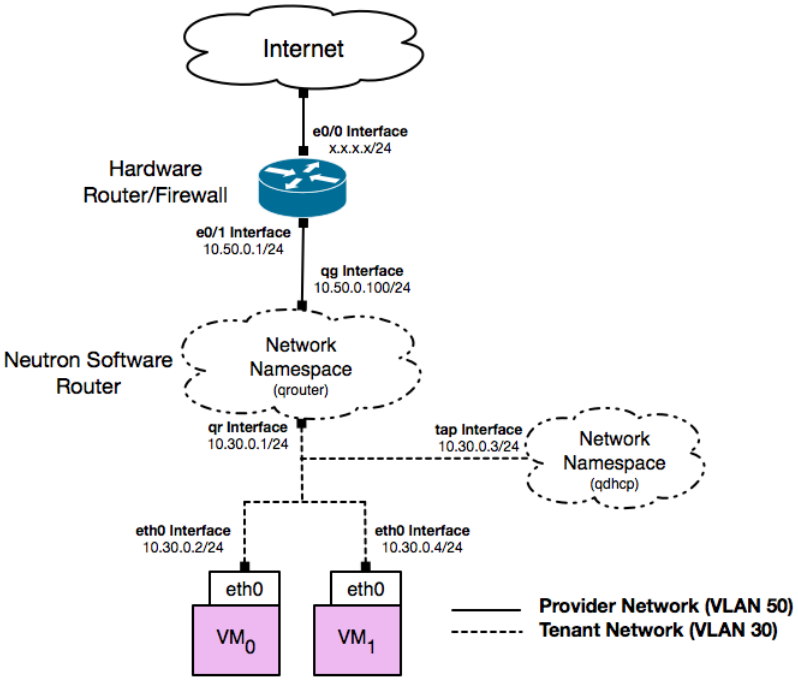
```
[root@controller ~]# ip netns exec qrouter-c2b8c093-0f9b-43b9-b993-72d04b886738 \
> netstat -tlp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 *:9697                  *:*                     LISTEN      17550/python
```

```
[root@controller ~]# ip netns exec qrouter-c2b8c093-0f9b-43b9-b993-72d04b886738 ps 17550
  PID TTY      STAT   TIME COMMAND
17550 ?        S      0:00 /usr/bin/python /usr/bin/neutron-ns-metadata-proxy --pid_file=/var/lib/neutron/external/pids/c2b8c093-0f9b-43b9-b993-72d04b886738.pid --metada
ta_proxy_socket=/var/lib/neutron/metadata_proxy --router_id=c2b8c093-0f9b-43b9-b993-72d04b886738 --state_path=/var/lib/neutron --metadata_port=9697 --verbose --log-file=
neutron-ns-metadata-proxy-c2b8c093-0f9b-43b9-b993-72d04b886738.log --log-dir=/var/log/neutron
```

```
[root@controller ~]# ip netns exec qdhcp-e123e990-88af-4267-8c9b-4a37f5dd4a9c \
> netstat -tlnp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 192.168.204.2:53        0.0.0.0:*               LISTEN      11425/dnsmasq
tcp        0      0 169.254.169.254:53      0.0.0.0:*               LISTEN      11425/dnsmasq
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN      9335/python
tcp        0      0 fe80::f816:3eff:fe98:450:53 :::*                LISTEN      11425/dnsmasq
```

```
[root@controller ~]# ip netns exec qdhcp-e123e990-88af-4267-8c9b-4a37f5dd4a9c ps 9335
  PID TTY      STAT   TIME COMMAND
 9335 ?        S      0:00 /usr/bin/python /usr/bin/neutron-ns-metadata-proxy --pid_file=/var/lib/neutron/external/pids/e123e990-88af-4267-8c9b-4a37f5dd4a9c.pid
--metadata_proxy_socket=/var/lib/neutron/metadata_proxy --network_id=e123e990-88af-4267-8c9b-4a37f5dd4a9c --state_path=/var/lib/neutron --metadata_port=80 --verb
ose --log-file=neutron-ns-metadata-proxy-e123e990-88af-4267-8c9b-4a37f5dd4a9c.log --log-dir=/var/log/neutron
```

```
[root@controller ~]# ip netns exec qdhcp-e123e990-88af-4267-8c9b-4a37f5dd4a9c ip a
16: tapdc5145c1-0c: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN
    link/ether fa:16:3e:98:45:05 brd ff:ff:ff:ff:ff:ff
    inet 192.168.204.2/24 brd 192.168.204.255 scope global tapdc5145c1-0c
    inet 169.254.169.254/16 brd 169.254.255.255 scope global tapdc5145c1-0c
    inet6 fe80::f816:3eff:fe98:4505/64 scope link
       valid_lft forever preferred_lft forever
18: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
```




```
[root@controller ~]# neutron net-create --provider:network_type=vlan --provider:segmentation_id=50 \
> --provider:physical_network=physnet1 --router:external=true --shared GATEWAY_NET
Created a new network:
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | b116a938-9876-4048-99ad-0ce78aabd0a9 |
| name                      | GATEWAY_NET                          |
| provider:network_type     | vlan                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  | 50                                   |
| router:external           | True                                 |
| shared                    | True                                 |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```

```
[root@controller ~]# neutron subnet-create GATEWAY_NET 10.50.0.0/24 --name GATEWAY_SUBNET \
> --allocation-pool start=10.50.0.100,end=10.50.0.254 --gateway 10.50.0.1
Created a new subnet:
+-------------------+----------------------------------------------------+
| Field             | Value                                              |
+-------------------+----------------------------------------------------+
| allocation_pools  | {"start": "10.50.0.100", "end": "10.50.0.254"}     |
| cidr              | 10.50.0.0/24                                       |
| dns_nameservers   |                                                    |
| enable_dhcp       | True                                               |
| gateway_ip        | 10.50.0.1                                          |
| host_routes       |                                                    |
| id                | 436ecec3-32b3-4629-97a6-82a3c9fb33d2               |
| ip_version        | 4                                                  |
| name              | GATEWAY_SUBNET                                     |
| network_id        | b116a938-9876-4048-99ad-0ce78aabd0a9               |
| tenant_id         | b1e5de8d1cfc45d6a15d9c0cb442a8ab                   |
+-------------------+----------------------------------------------------+
```

```
[root@controller ~]# neutron router-create MyRouter
Created a new router:
+-----------------------+--------------------------------------+
| Field                 | Value                                |
+-----------------------+--------------------------------------+
| admin_state_up        | True                                 |
| external_gateway_info |                                      |
| id                    | 1267aae4-6568-48cf-acef-5dbcf7ecb5db |
| name                  | MyRouter                             |
| status                | ACTIVE                               |
| tenant_id             | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+-----------------------+--------------------------------------+
```

```
[root@controller ~]# neutron router-gateway-set MyRouter GATEWAY_NET
Set gateway for router MyRouter
```

```
[root@controller ~]# neutron router-port-list MyRouter
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------+
| id                                   | name | mac_address       | fixed_ips                                                                           |
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------+
| 9ee818ab-1c94-4ffe-9db8-20f7dcf1db68 |      | fa:16:3e:b3:c5:aa | {"subnet_id": "436ecec3-32b3-4629-97a6-82a3c9fb33d2", "ip_address": "10.50.0.100"} |
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------+
```

```
[root@controller ~]# neutron l3-agent-list-hosting-router MyRouter
+--------------------------------------+-------------------------------+----------------+-------+
| id                                   | host                          | admin_state_up | alive |
+--------------------------------------+-------------------------------+----------------+-------+
| 9c5b9bd5-03f4-4506-ac6c-f69435a03541 | controller.learningneutron.com | True           | :-)   |
+--------------------------------------+-------------------------------+----------------+-------+
```

```
[root@controller ~]# ip netns
qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ip a
8: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
9: qg-9ee818ab-1c: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:b3:c5:aa brd ff:ff:ff:ff:ff:ff
    inet 10.50.0.100/24 brd 10.50.0.255 scope global qg-9ee818ab-1c
    inet6 fe80::f816:3eff:feb3:c5aa/64 scope link
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# brctl show
bridge name     bridge id               STP enabled     interfaces
brqb116a938-98          8000.001d096654b9       no              eth1.50
    Network UUID                                            tap9ee818ab-1c Veth End (Port UUID)
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ip r
10.50.0.0/24 dev qg-9ee818ab-1c  proto kernel  scope link  src 10.50.0.100
default via 10.50.0.1 dev qg-9ee818ab-1c
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ping 10.50.0.1
PING 10.50.0.1 (10.50.0.1) 56(84) bytes of data.
64 bytes from 10.50.0.1: icmp_seq=1 ttl=255 time=0.683 ms
64 bytes from 10.50.0.1: icmp_seq=2 ttl=255 time=0.619 ms
64 bytes from 10.50.0.1: icmp_seq=3 ttl=255 time=0.614 ms
64 bytes from 10.50.0.1: icmp_seq=4 ttl=255 time=0.589 ms
^C
--- 10.50.0.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3397ms
rtt min/avg/max/mdev = 0.589/0.626/0.683/0.038 ms
```

```
[root@controller ~]# neutron net-create TENANT_NET1
Created a new network:
+---------------------------+--------------------------------------+
| Field                     | Value                                |
+---------------------------+--------------------------------------+
| admin_state_up            | True                                 |
| id                        | 21b04852-d4c1-48f4-a83a-b46ad7f7b07e |
| name                      | TENANT_NET1                          |
| provider:network_type     | vlan                                 |
| provider:physical_network | physnet1                             |
| provider:segmentation_id  | 30                                   |
| shared                    | False                                |
| status                    | ACTIVE                               |
| subnets                   |                                      |
| tenant_id                 | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------------+--------------------------------------+
```

```
[root@controller ~]# neutron subnet-create TENANT_NET1 10.30.0.0/24 \
> --name TENANT_SUBNET1 --dns-nameserver 8.8.8.8
Created a new subnet:
+-------------------+--------------------------------------------------+
| Field             | Value                                            |
+-------------------+--------------------------------------------------+
| allocation_pools  | {"start": "10.30.0.2", "end": "10.30.0.254"}     |
| cidr              | 10.30.0.0/24                                     |
| dns_nameservers   | 8.8.8.8                                          |
| enable_dhcp       | True                                             |
| gateway_ip        | 10.30.0.1                                        |
| host_routes       |                                                  |
| id                | e47dece9-a9e4-4486-9443-509e76e30f9d             |
| ip_version        | 4                                                |
| name              | TENANT_SUBNET1                                   |
| network_id        | 21b04852-d4c1-48f4-a83a-b46ad7f7b07e             |
| tenant_id         | b1e5de8d1cfc45d6a15d9c0cb442a8ab                 |
+-------------------+--------------------------------------------------+
```

```
[root@controller ~]# neutron router-interface-add MyRouter TENANT_SUBNET1
Added interface 5ea2d15f-8a5b-46f5-9c6b-f89179bd9f8a to router MyRouter.
```

```
[root@controller ~]# neutron router-port-list MyRouter
+--------------------------------------+------+-------------------+-----------------------------------------------------------------------------------------------------+
| id                                   | name | mac_address       | fixed_ips                                                                                           |
+--------------------------------------+------+-------------------+-----------------------------------------------------------------------------------------------------+
| 5ea2d15f-8a5b-46f5-9c6b-f89179bd9f8a |      | fa:16:3e:fd:d8:90 | {"subnet_id": "e47dece9-a9e4-4486-9443-509e76e30f9d", "ip_address": "10.30.0.1"}                    |
| 9ee818ab-1c94-4ffe-9db8-20f7dcf1db68 |      | fa:16:3e:b3:c5:aa | {"subnet_id": "436ecec3-32b3-4629-97a6-82a3c9fb33d2", "ip_address": "10.50.0.100"}                  |
+--------------------------------------+------+-------------------+-----------------------------------------------------------------------------------------------------+
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ip a
8: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
9: qg-9ee818ab-1c: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:b3:c5:aa brd ff:ff:ff:ff:ff:ff
    inet 10.50.0.100/24 brd 10.50.0.255 scope global qg-9ee818ab-1c
    inet6 fe80::f816:3eff:feb3:c5aa/64 scope link
       valid_lft forever preferred_lft forever
13: qr-5ea2d15f-8a: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:fd:d8:90 brd ff:ff:ff:ff:ff:ff
    inet 10.30.0.1/24 brd 10.30.0.255 scope global qr-5ea2d15f-8a
    inet6 fe80::f816:3eff:fefd:d890/64 scope link
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# brctl show
bridge name     bridge id               STP enabled     interfaces
brq21b04852-d4          8000.001d096654b9       no              eth1.30
    Internal Network UUID                                       tap5ea2d15f-8a  Veth End (Port UUID)
brqb116a938-98          8000.001d096654b9       no              eth1.50
                                                                tap9ee818ab-1c
```

```
[root@controller ~]# nova image-list
+--------------------------------------+--------------+--------+--------+
| ID                                   | Name         | Status | Server |
+--------------------------------------+--------------+--------+--------+
| 1a8afdd0-4d23-4c31-873c-72abbd947501 | CentOS-6.5   | ACTIVE |        |
| ed78e8ef-0884-4d2d-bc02-c1df09a4cd6e | CirrOS-0.3.1 | ACTIVE |        |
| f496e19d-e074-4308-a9f2-548b4880a119 | Ubuntu-14.04 | ACTIVE |        |
+--------------------------------------+--------------+--------+--------+
```

```
[root@controller ~]# for i in {1..2}; do nova boot --flavor m1.tiny --image ed78e8ef-0884-4d2d-bc02-c1df09a4cd6e \
> --nic net-id=21b04852-d4c1-48f4-a83a-b46ad7f7b07e MyInstance$i; done
```

```
[root@controller ~]# nova list
+--------------------------------------+-------------+--------+------------+-------------+----------------------+
| ID                                   | Name        | Status | Task State | Power State | Networks             |
+--------------------------------------+-------------+--------+------------+-------------+----------------------+
| 9e8ee6c5-3656-4514-aa90-da9ba55552d1 | MyInstance1 | ACTIVE | -          | Running     | TENANT_NET1=10.30.0.2 |
| 1aadd30f-2851-4355-af0e-cd424fc38158 | MyInstance2 | ACTIVE | -          | Running     | TENANT_NET1=10.30.0.4 |
+--------------------------------------+-------------+--------+------------+-------------+----------------------+
```

```
[root@compute01 init.d]# brctl show
bridge name     bridge id               STP enabled     interfaces
brq21b04852-d4          8000.001d0929c89c       no              eth1.30
                                                                tap0337299a-38
                                                                tap3547dbf0-58
```

```
[root@controller ~]# ip netns
qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db
qdhcp-21b04852-d4c1-48f4-a83a-b46ad7f7b07e
```

```
[root@controller ~]# ip netns exec qdhcp-21b04852-d4c1-48f4-a83a-b46ad7f7b07e ip a
17: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
18: ns-4dd99827-91: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:c7:ec:81 brd ff:ff:ff:ff:ff:ff
    inet 10.30.0.3/24 brd 10.30.0.255 scope global ns-4dd99827-91
    inet 169.254.169.254/16 brd 169.254.255.255 scope global ns-4dd99827-91
    inet6 fe80::f816:3eff:fec7:ec81/64 scope link
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# brctl show
bridge name     bridge id               STP enabled     interfaces
brq21b04852-d4          8000.001d096654b9       no              eth1.30
   TENANT_NET1 UUID                                             tap4dd99827-91 Veth End
                                                                tap5ea2d15f-8a
brqb116a938-98          8000.001d096654b9       no              eth1.50
                                                                tap9ee818ab-1c
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db arp -an
? (10.30.0.2) at fa:16:3e:d7:6d:9e [ether] on qr-5ea2d15f-8a   <- MyInstance1
? (10.30.0.4) at fa:16:3e:de:fb:3d [ether] on qr-5ea2d15f-8a   <- MyInstance2
? (10.50.0.1) at 00:18:b9:08:bc:f1 [ether] on qg-9ee818ab-1c
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ssh cirros@10.30.0.2
The authenticity of host '10.30.0.2 (10.30.0.2)' can't be established.
RSA key fingerprint is de:4b:62:58:f0:d7:73:41:8a:65:70:5a:48:e5:89:11.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.30.0.2' (RSA) to the list of known hosts.
cirros@10.30.0.2's password:
$ ip r
default via 10.30.0.1 dev eth0
10.30.0.0/24 dev eth0  src 10.30.0.2
$ exit
Connection to 10.30.0.2 closed.
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ssh cirros@10.30.0.4
The authenticity of host '10.30.0.4 (10.30.0.4)' can't be established.
RSA key fingerprint is 2a:83:06:34:6c:9d:87:dc:7c:dc:9d:a4:3f:6a:5d:7d.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.30.0.4' (RSA) to the list of known hosts.
cirros@10.30.0.4's password:
$ ip r
default via 10.30.0.1 dev eth0
10.30.0.0/24 dev eth0  src 10.30.0.4
$ exit
Connection to 10.30.0.4 closed.
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ssh cirros@10.30.0.2
cirros@10.30.0.2's password:
$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: seq=0 ttl=46 time=38.457 ms
64 bytes from 8.8.8.8: seq=1 ttl=46 time=39.243 ms
64 bytes from 8.8.8.8: seq=2 ttl=46 time=38.735 ms
^C
--- 8.8.8.8 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 38.457/38.811/39.243 ms
```

```
pixfirewall# debug icmp trace
debug icmp trace enabled at level 1
pixfirewall# ICMP echo request from GATEWAY_NET:10.50.0.100 to outside:8.8.8.8 ID=38429 seq=10 len=56
ICMP echo request from GATEWAY_NET:10.50.0.100 to outside:8.8.8.8 ID=38429 seq=11 len=56
ICMP echo request from GATEWAY_NET:10.50.0.100 to outside:8.8.8.8 ID=38429 seq=12 len=56
ICMP echo request from GATEWAY_NET:10.50.0.100 to outside:8.8.8.8 ID=38429 seq=13 len=56
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db iptables-save
# Generated by iptables-save v1.4.7 on Wed Aug 13 23:36:21 2014
*nat
:PREROUTING ACCEPT [19:2630]
:POSTROUTING ACCEPT [31:2252]
:OUTPUT ACCEPT [44:3152]
:neutron-l3-agent-OUTPUT - [0:0]
:neutron-l3-agent-POSTROUTING - [0:0]
:neutron-l3-agent-PREROUTING - [0:0]
:neutron-l3-agent-float-snat - [0:0]
:neutron-l3-agent-snat - [0:0]
:neutron-postrouting-bottom - [0:0]
-A PREROUTING -j neutron-l3-agent-PREROUTING
-A POSTROUTING -j neutron-l3-agent-POSTROUTING
-A POSTROUTING -j neutron-postrouting-bottom
-A OUTPUT -j neutron-l3-agent-OUTPUT
-A neutron-l3-agent-POSTROUTING ! -i qg-9ee818ab-1c ! -o qg-9ee818ab-1c -m conntrack ! --ctstate DNAT -j ACCEPT
-A neutron-l3-agent-PREROUTING -d 169.254.169.254/32 -p tcp -m tcp --dport 80 -j REDIRECT --to-ports 9697
-A neutron-l3-agent-snat -j neutron-l3-agent-float-snat
-A neutron-l3-agent-snat -s 10.30.0.0/24 -j SNAT --to-source 10.50.0.100
-A neutron-postrouting-bottom -j neutron-l3-agent-snat
COMMIT
# Completed on Wed Aug 13 23:36:21 2014
# Generated by iptables-save v1.4.7 on Wed Aug 13 23:36:21 2014
```

```
[root@controller ~]# neutron port-list
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------------------------+
| id                                   | name | mac_address       | fixed_ips                                                                                             |
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------------------------+
| 0337299a-3827-4b18-8e2d-32081681f080 |      | fa:16:3e:de:fb:3d | {"subnet_id": "e47dece9-a9e4-4486-9443-509e76e30f9d", "ip_address": "10.30.0.4"}                      |
| 3547dbf0-58e8-4645-b0ed-6f61747b77ba |      | fa:16:3e:d7:6d:9e | {"subnet_id": "e47dece9-a9e4-4486-9443-509e76e30f9d", "ip_address": "10.30.0.2"}                      |
| 4dd99827-9179-43f6-b10e-9b4f96f90f81 |      | fa:16:3e:c7:ec:81 | {"subnet_id": "e47dece9-a9e4-4486-9443-509e76e30f9d", "ip_address": "10.30.0.3"}                      |
| 5ea2d15f-8a5b-46f5-9c6b-f89179bd9f8a |      | fa:16:3e:fd:d8:90 | {"subnet_id": "e47dece9-a9e4-4486-9443-509e76e30f9d", "ip_address": "10.30.0.1"}                      |
| 9ee818ab-1c94-4ffe-9db8-20f7dcf1db68 |      | fa:16:3e:b3:c5:aa | {"subnet_id": "436ecec3-32b3-4629-97a6-82a3c9fb33d2", "ip_address": "10.50.0.100"}                    |
+--------------------------------------+------+-------------------+-------------------------------------------------------------------------------------------------------+
```

```
[root@controller ~]# neutron floatingip-create --port-id=3547dbf0-58e8-4645-b0ed-6f61747b77ba GATEWAY_NET
Created a new floatingip:
+---------------------+--------------------------------------+
| Field               | Value                                |
+---------------------+--------------------------------------+
| fixed_ip_address    | 10.30.0.2                            |
| floating_ip_address | 10.50.0.101                          |
| floating_network_id | b116a938-9876-4048-99ad-0ce78aabd0a9 |
| id                  | ab0d44fd-ddcf-4804-a24f-c59bd94d5c20 |
| port_id             | 3547dbf0-58e8-4645-b0ed-6f61747b77ba |
| router_id           | 1267aae4-6568-48cf-acef-5dbcf7ecb5db |
| tenant_id           | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------+--------------------------------------+
```

```
$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: seq=0 ttl=46 time=41.843 ms
64 bytes from 8.8.8.8: seq=1 ttl=46 time=39.590 ms
64 bytes from 8.8.8.8: seq=2 ttl=46 time=38.306 ms
```

```
pixfirewall# debug icmp trace
debug icmp trace enabled at level 1
pixfirewall# ICMP echo request from GATEWAY_NET:10.50.0.101 to outside:8.8.8.8 ID=16641 seq=0 len=56
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db ip a
8: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
9: qg-9ee818ab-1c: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:b3:c5:aa brd ff:ff:ff:ff:ff:ff
    inet 10.50.0.100/24 brd 10.50.0.255 scope global qg-9ee818ab-1c
    inet 10.50.0.101/32 brd 10.50.0.101 scope global qg-9ee818ab-1c Floating IP as secondary address
    inet6 fe80::f816:3eff:feb3:c5aa/64 scope link
       valid_lft forever preferred_lft forever
13: qr-5ea2d15f-8a: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:fd:d8:90 brd ff:ff:ff:ff:ff:ff
    inet 10.30.0.1/24 brd 10.30.0.255 scope global qr-5ea2d15f-8a
    inet6 fe80::f816:3eff:fefd:d890/64 scope link
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db iptables-save
# Generated by iptables-save v1.4.7 on Wed Aug 13 23:49:32 2014
*nat
:PREROUTING ACCEPT [20:2714]
:POSTROUTING ACCEPT [31:2252]
:OUTPUT ACCEPT [45:3212]
:neutron-l3-agent-OUTPUT - [0:0]
:neutron-l3-agent-POSTROUTING - [0:0]
:neutron-l3-agent-PREROUTING - [0:0]
:neutron-l3-agent-float-snat - [0:0]
:neutron-l3-agent-snat - [0:0]
:neutron-postrouting-bottom - [0:0]
-A PREROUTING -j neutron-l3-agent-PREROUTING
-A POSTROUTING -j neutron-l3-agent-POSTROUTING
-A POSTROUTING -j neutron-postrouting-bottom
-A OUTPUT -j neutron-l3-agent-OUTPUT
-A neutron-l3-agent-OUTPUT -d 10.50.0.101/32 -j DNAT --to-destination 10.30.0.2
-A neutron-l3-agent-POSTROUTING ! -i qg-9ee818ab-1c ! -o qg-9ee818ab-1c -m conntrack ! --ctstate DNAT -j ACCEPT
-A neutron-l3-agent-PREROUTING -d 169.254.169.254/32 -p tcp -m tcp --dport 80 -j REDIRECT --to-ports 9697
-A neutron-l3-agent-PREROUTING -d 10.50.0.101/32 -j DNAT --to-destination 10.30.0.2
-A neutron-l3-agent-float-snat -s 10.30.0.2/32 -j SNAT --to-source 10.50.0.101
-A neutron-l3-agent-snat -j neutron-l3-agent-float-snat
-A neutron-l3-agent-snat -s 10.30.0.0/24 -j SNAT --to-source 10.50.0.100
-A neutron-postrouting-bottom -j neutron-l3-agent-snat
COMMIT
# Completed on Wed Aug 13 23:49:32 2014
# Generated by iptables-save v1.4.7 on Wed Aug 13 23:49:32 2014
```

```
jamess-mbp:~ jdenton$ ssh cirros@10.50.0.101
The authenticity of host '10.50.0.101 (10.50.0.101)' can't be established.
RSA key fingerprint is de:4b:62:58:f0:d7:73:41:8a:65:70:5a:48:e5:89:11.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.50.0.101' (RSA) to the list of known hosts.
cirros@10.50.0.101's password:
$
```

```
[root@controller ~]# neutron floatingip-list
+--------------------------------------+------------------+---------------------+--------------------------------------+
| id                                   | fixed_ip_address | floating_ip_address | port_id                              |
+--------------------------------------+------------------+---------------------+--------------------------------------+
| ab0d44fd-ddcf-4804-a24f-c59bd94d5c20 | 10.30.0.2        | 10.50.0.101         | 3547dbf0-58e8-4645-b0ed-6f61747b77ba |
+--------------------------------------+------------------+---------------------+--------------------------------------+
```

```
[root@controller ~]# neutron floatingip-disassociate ab0d44fd-ddcf-4804-a24f-c59bd94d5c20
Disassociated floatingip ab0d44fd-ddcf-4804-a24f-c59bd94d5c20
```

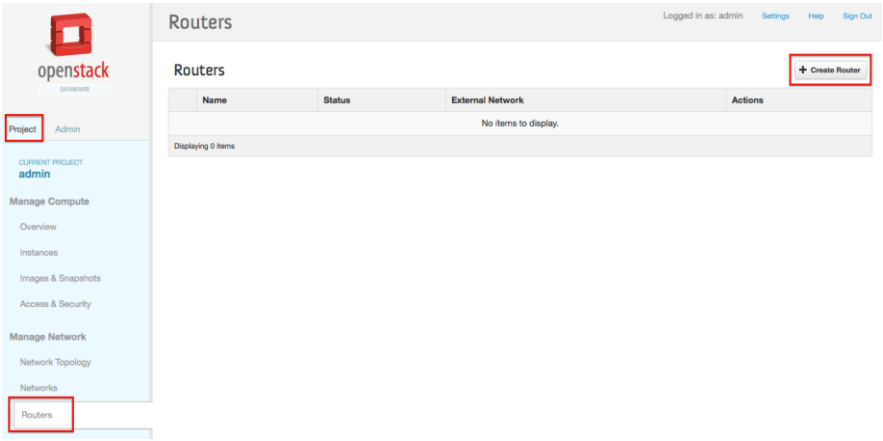
```
[root@controller ~]# neutron floatingip-list
+--------------------------------------+------------------+---------------------+---------+
| id                                   | fixed_ip_address | floating_ip_address | port_id |
+--------------------------------------+------------------+---------------------+---------+
| ab0d44fd-ddcf-4804-a24f-c59bd94d5c20 |                  | 10.50.0.101         |         |
+--------------------------------------+------------------+---------------------+---------+
```

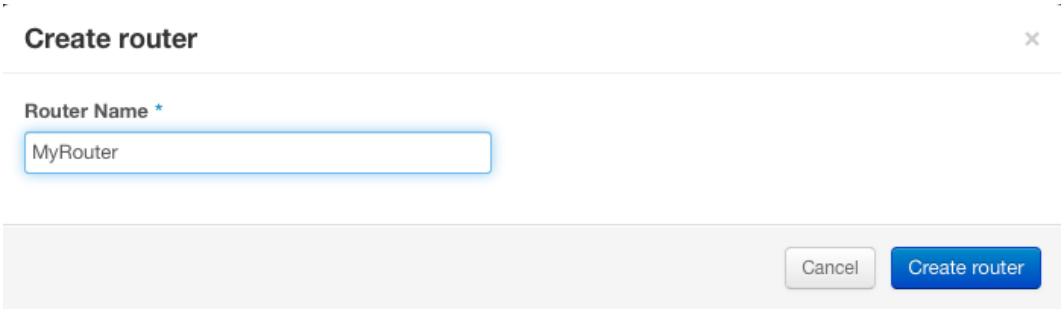
```
[root@controller ~]# neutron floatingip-associate ab0d44fd-ddcf-4804-a24f-c59bd94d5c20 \
> $(neutron port-list | grep 10.30.0.4 | awk '{print $2}')
Associated floatingip ab0d44fd-ddcf-4804-a24f-c59bd94d5c20
```

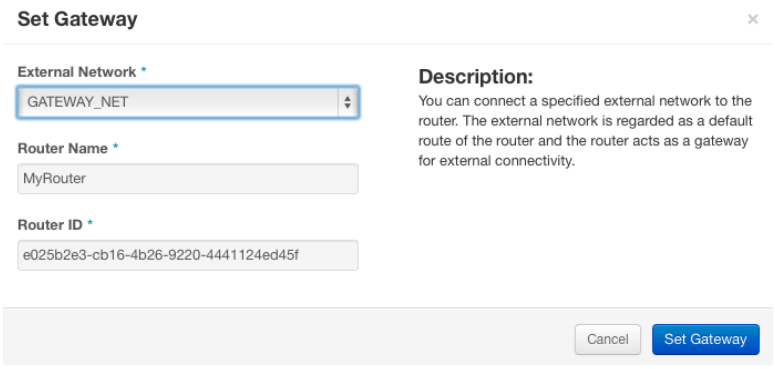
```
[root@controller ~]# ip netns exec qrouter-1267aae4-6568-48cf-acef-5dbcf7ecb5db iptables-save
# Generated by iptables-save v1.4.7 on Thu Aug 14 00:04:00 2014
*nat
:PREROUTING ACCEPT [21:2798]
:POSTROUTING ACCEPT [33:2380]
:OUTPUT ACCEPT [45:3212]
:neutron-l3-agent-OUTPUT - [0:0]
:neutron-l3-agent-POSTROUTING - [0:0]
:neutron-l3-agent-PREROUTING - [0:0]
:neutron-l3-agent-float-snat - [0:0]
:neutron-l3-agent-snat - [0:0]
:neutron-postrouting-bottom - [0:0]
-A PREROUTING -j neutron-l3-agent-PREROUTING
-A POSTROUTING -j neutron-l3-agent-POSTROUTING
-A POSTROUTING -j neutron-postrouting-bottom
-A OUTPUT -j neutron-l3-agent-OUTPUT
-A neutron-l3-agent-OUTPUT -d 10.50.0.101/32 -j DNAT --to-destination 10.30.0.4   The destination IP has changed from .2 to .4
-A neutron-l3-agent-POSTROUTING ! -i qg-9ee818ab-1c ! -o qg-9ee818ab-1c -m conntrack ! --ctstate DNAT -j ACCEPT
-A neutron-l3-agent-PREROUTING -d 169.254.169.254/32 -p tcp -m tcp --dport 80 -j REDIRECT --to-ports 9697
-A neutron-l3-agent-PREROUTING -d 10.50.0.101/32 -j DNAT --to-destination 10.30.0.4
-A neutron-l3-agent-float-snat -s 10.30.0.4/32 -j SNAT --to-source 10.50.0.101   The source IP has changed from .2 to .4
-A neutron-l3-agent-snat -j neutron-l3-agent-float-snat
-A neutron-l3-agent-snat -s 10.30.0.0/24 -j SNAT --to-source 10.50.0.100
-A neutron-postrouting-bottom -j neutron-l3-agent-snat
COMMIT
# Completed on Thu Aug 14 00:04:00 2014
# Generated by iptables-save v1.4.7 on Thu Aug 14 00:04:00 2014
```

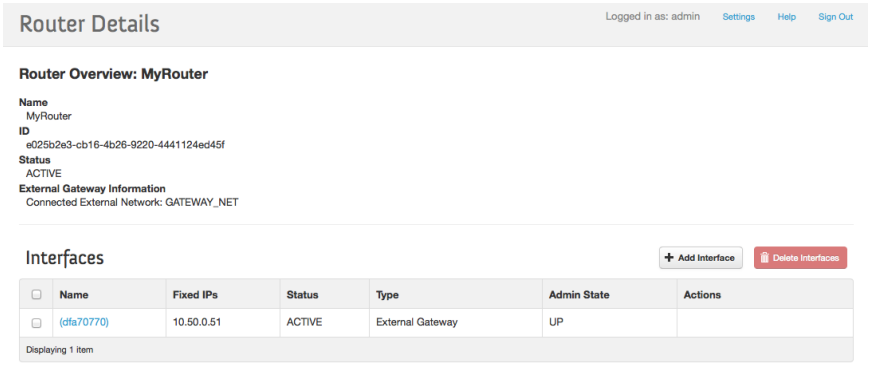
```
jamess-mbp:~ jdenton$ ssh cirros@10.50.0.101
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@    WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!     @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!
Someone could be eavesdropping on you right now (man-in-the-middle attack)!
It is also possible that a host key has just been changed.
The fingerprint for the RSA key sent by the remote host is
2a:83:06:34:6c:9d:87:dc:7c:dc:9d:a4:3f:6a:5d:7d.
Please contact your system administrator.
```

```
$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast qlen 1000
    link/ether fa:16:3e:de:fb:3d brd ff:ff:ff:ff:ff:ff
    inet 10.30.0.4/24 brd 10.30.0.255 scope global eth0
    inet6 fe80::f816:3eff:fede:fb3d/64 scope link
       valid_lft forever preferred_lft forever
```


openstack
Routers
Logged in as: admin Settings Help Sign Out
Routers
+ Create Router
Name
Status
External Network
Actions
No items to display.
Displaying 0 items
Project
Admin
CURRENT PROJECT
admin
Manage Compute
Overview
Instances
Images & Snapshots
Access & Security
Manage Network
Network Topology
Networks
Routers


Create router
Router Name *
MyRouter
Cancel
Create router


Set Gateway
External Network *
GATEWAY_NET
Router Name *
MyRouter
Router ID *
e025b2e3-cb16-4b26-9220-4441124ed45f
Description:
You can connect a specified external network to the router. The external network is regarded as a default route of the router and the router acts as a gateway for external connectivity.
Cancel
Set Gateway


Router Details
Logged in as: admin Settings Help Sign Out
Router Overview: MyRouter
Name
MyRouter
ID
e025b2e3-cb16-4b26-9220-4441124ed45f
Status
ACTIVE
External Gateway Information
Connected External Network: GATEWAY_NET
Interfaces
+ Add Interface
Delete Interfaces
Name
Fixed IPs
Status
Type
Admin State
Actions
(dfa70770)
10.50.0.51
ACTIVE
External Gateway
UP
Displaying 1 item

## Add Interface

**Subnet** *

TENANT_NET: 192.168.0.0/24 (TENANT_SUBNI

**IP Address (optional)**

**Router Name** *

MyRouter

**Router ID** *

e025b2e3-cb16-4b26-9220-4441124ed45f

**Description:**

You can connect a specified subnet to the router.

The default IP address of the interface created is a gateway of the selected subnet. You can specify another IP address of the interface here. You must select a subnet to which the specified IP address belongs to from the above list.

Cancel | Add interface

## Router Details

Logged in as: admin | Settings | Help | Sign Out

### Router Overview: MyRouter

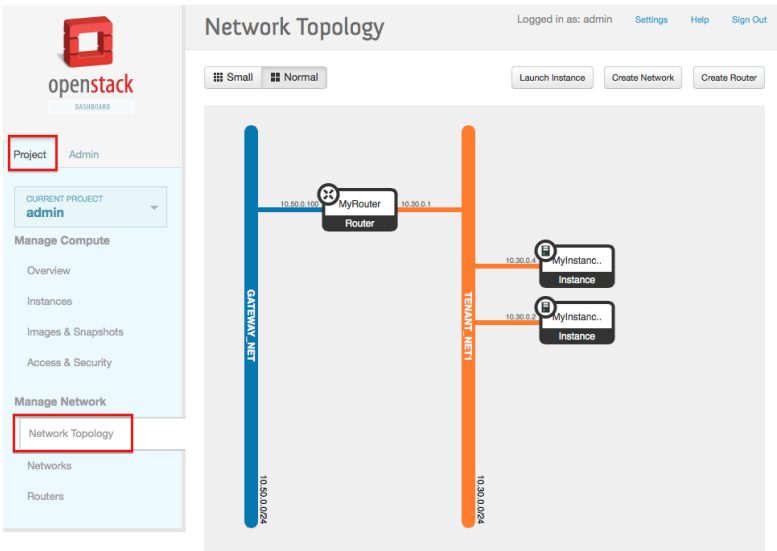
**Name**
MyRouter
**ID**
e025b2e3-cb16-4b26-9220-4441124ed45f
**Status**
ACTIVE
**External Gateway Information**
Connected External Network: GATEWAY_NET

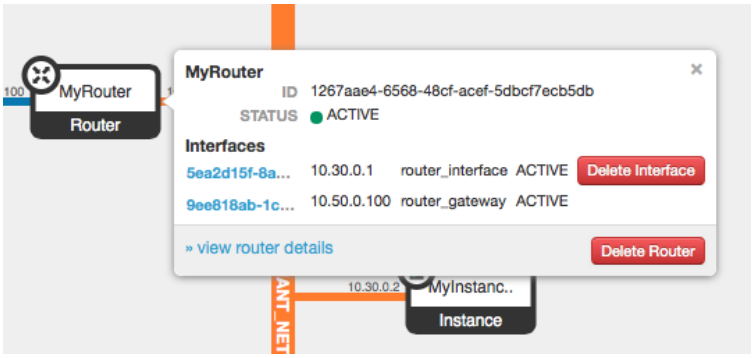
### Interfaces

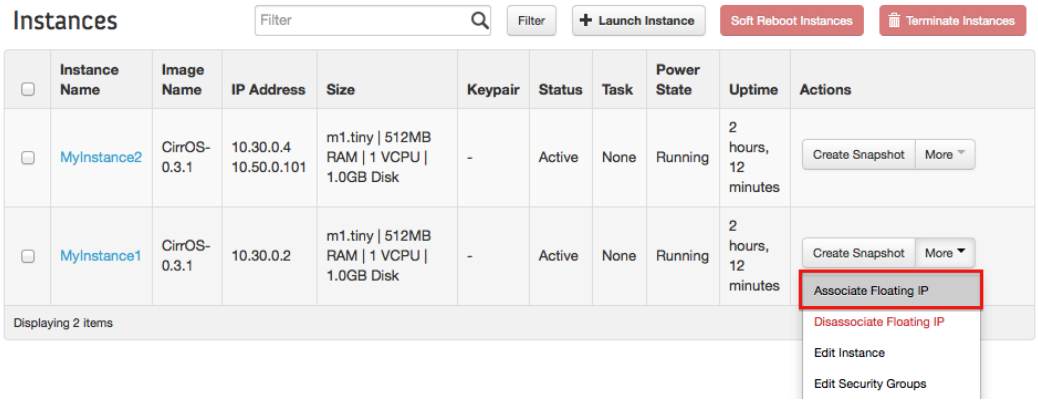
+ Add Interface | Delete Interfaces

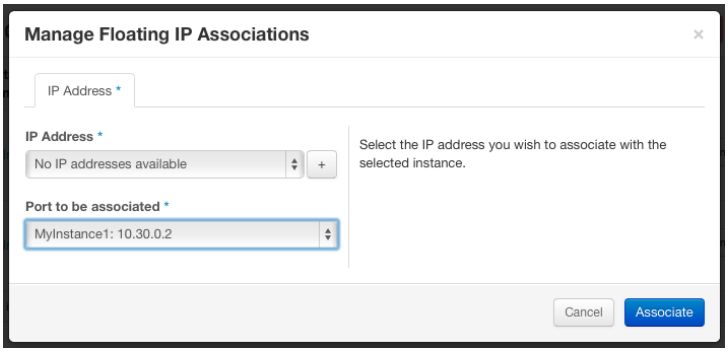
| Name | Fixed IPs | Status | Type | Admin State | Actions |
|---|---|---|---|---|---|
| (65584213) | 192.168.0.1 | ACTIVE | Internal Interface | UP | Delete Interface |
| (dfa70770) | 10.50.0.51 | ACTIVE | External Gateway | UP | |

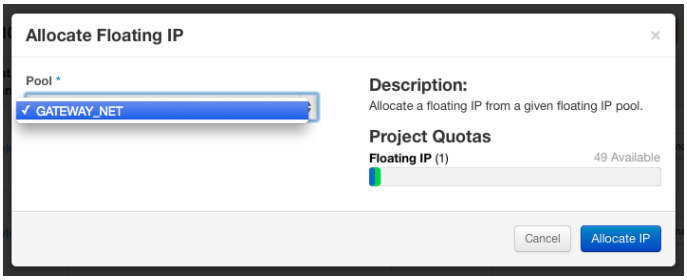
Displaying 2 items

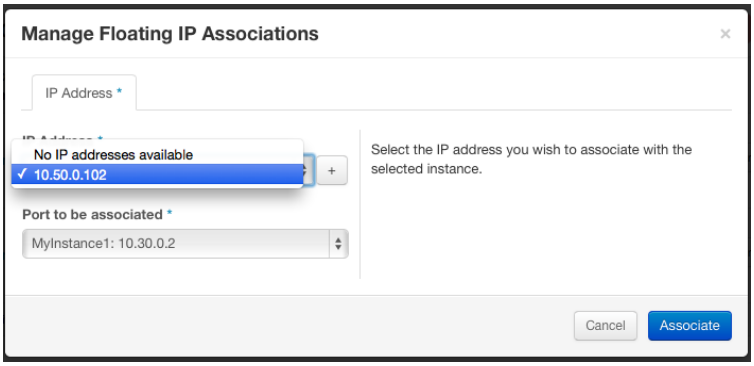


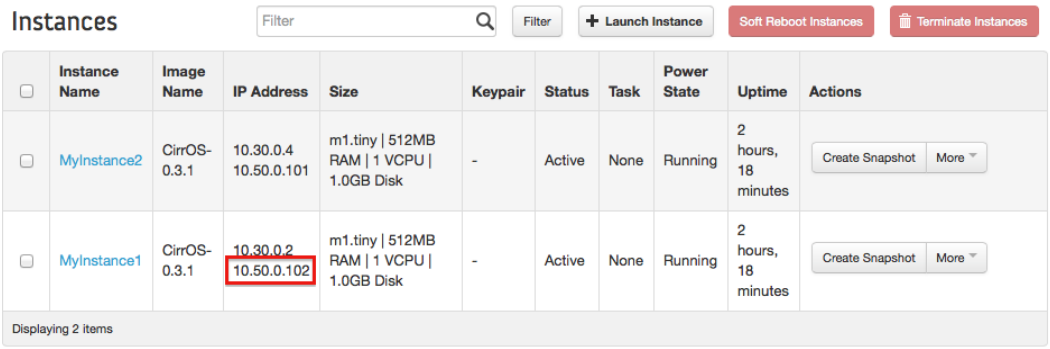

MyRouter
Router
MyRouter
ID 1267aae4-6568-48cf-acef-5dbcf7ecb5db
STATUS ACTIVE
Interfaces
5ea2d15f-8a... 10.30.0.1 router_interface ACTIVE
Delete Interface
9ee818ab-1c... 10.50.0.100 router_gateway ACTIVE
» view router details
Delete Router
10.30.0.2
MyInstanc..
Instance

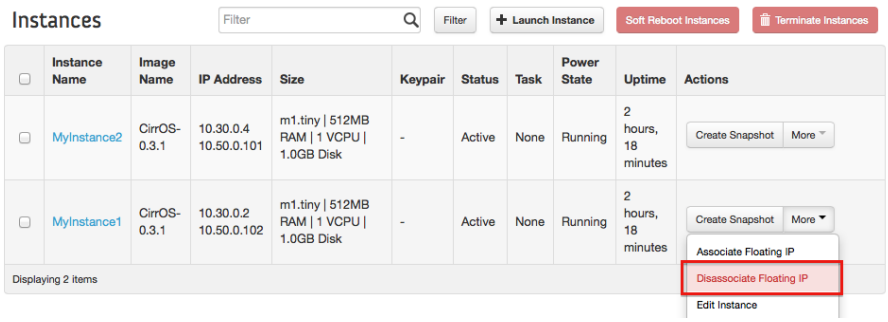

Instances
Filter
Filter
+ Launch Instance
Soft Reboot Instances
Terminate Instances
Instance Name
Image Name
IP Address
Size
Keypair
Status
Task
Power State
Uptime
Actions
MyInstance2
CirrOS-0.3.1
10.30.0.4
10.50.0.101
m1.tiny | 512MB RAM | 1 VCPU | 1.0GB Disk
-
Active
None
Running
2 hours, 12 minutes
Create Snapshot
More
MyInstance1
CirrOS-0.3.1
10.30.0.2
m1.tiny | 512MB RAM | 1 VCPU | 1.0GB Disk
-
Active
None
Running
2 hours, 12 minutes
Create Snapshot
More
Associate Floating IP
Disassociate Floating IP
Edit Instance
Edit Security Groups
Displaying 2 items

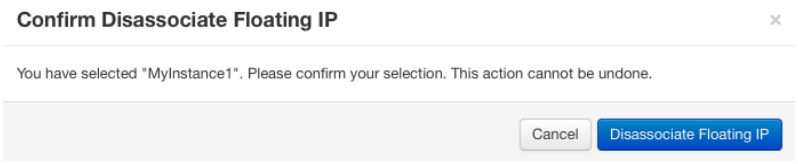

Manage Floating IP Associations
IP Address *
IP Address *
No IP addresses available
Port to be associated *
MyInstance1: 10.30.0.2
Select the IP address you wish to associate with the selected instance.
Cancel
Associate


Allocate Floating IP
Pool *
GATEWAY_NET
Description:
Allocate a floating IP from a given floating IP pool.
Project Quotas
Floating IP (1)
49 Available
Cancel
Allocate IP

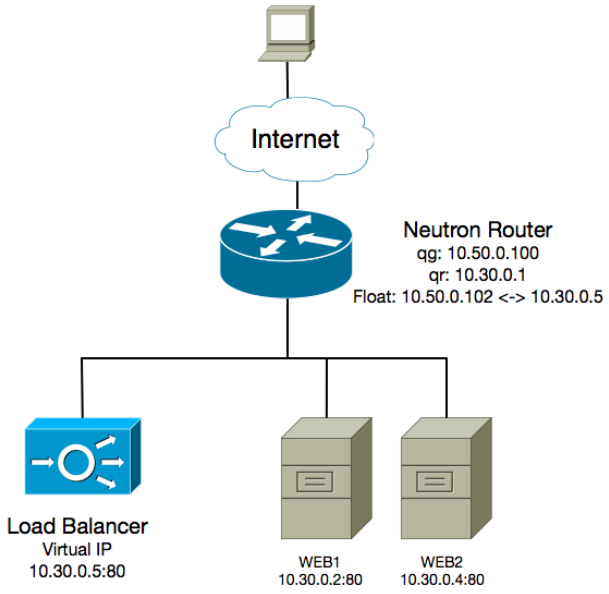

Manage Floating IP Associations
IP Address *
No IP addresses available
10.50.0.102
Port to be associated *
MyInstance1: 10.30.0.2
Select the IP address you wish to associate with the selected instance.
Cancel
Associate

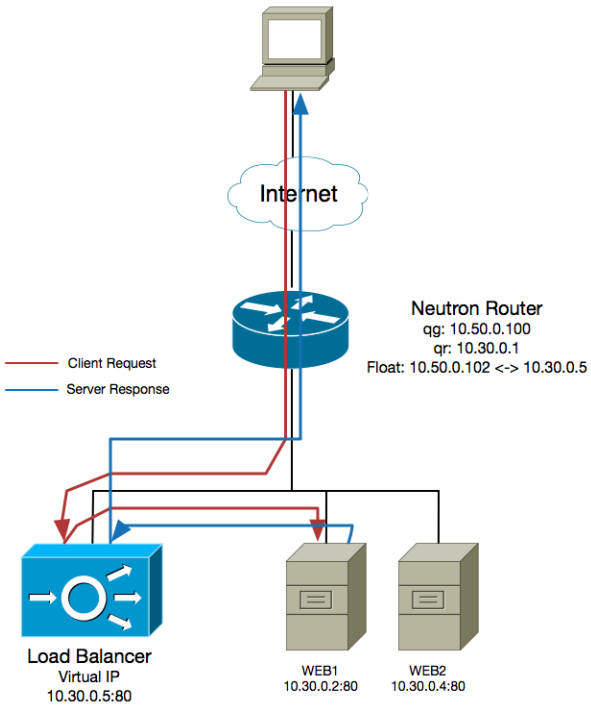



# Chapter 7 – Load Balancing Traffic in Neutron






```
[root@controller ~]# neutron lb-pool-create --description "The Web Pool" --lb-method ROUND_ROBIN \
> --name WEB_POOL --protocol HTTP --subnet-id 9e7f07bc-e194-4632-8558-4d81aa50ef16
Created a new pool:
+---------------------+--------------------------------------+
| Field               | Value                                |
+---------------------+--------------------------------------+
| admin_state_up      | True                                 |
| description         | The Web Pool                         |
| health_monitors     |                                      |
| health_monitors_status |                                   |
| id                  | 393b994c-bb7c-4331-aedd-af1df196f133 |
| lb_method           | ROUND_ROBIN                          |
| members             |                                      |
| name                | WEB_POOL                             |
| protocol            | HTTP                                 |
| provider            | haproxy                              |
| status              | PENDING_CREATE                       |
| status_description  |                                      |
| subnet_id           | 9e7f07bc-e194-4632-8558-4d81aa50ef16 |
| tenant_id           | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
| vip_id              |                                      |
+---------------------+--------------------------------------+
```

```
[root@controller ~]# nova list
+--------------------------------------+------+--------+------------+-------------+----------------------+
| ID                                   | Name | Status | Task State | Power State | Networks             |
+--------------------------------------+------+--------+------------+-------------+----------------------+
| a2b5c8fe-e3a0-4cf1-93ee-86ad4fb0ff35 | Web1 | ACTIVE | -          | Running     | TENANT_NET1=10.30.0.2 |
| eac1f201-76ca-488f-aaa8-d5c50d57c8f4 | Web2 | ACTIVE | -          | Running     | TENANT_NET1=10.30.0.4 |
+--------------------------------------+------+--------+------------+-------------+----------------------+
```

```
[root@controller ~]# neutron lb-member-create --address 10.30.0.2 --protocol-port 80 WEB_POOL
Created a new member:
+--------------------+--------------------------------------+
| Field              | Value                                |
+--------------------+--------------------------------------+
| address            | 10.30.0.2                            |
| admin_state_up     | True                                 |
| id                 | d55b787e-5cab-4dcb-ab7b-e58930988dba |
| pool_id            | 393b994c-bb7c-4331-aedd-af1df196f133 |
| protocol_port      | 80                                   |
| status             | PENDING_CREATE                       |
| status_description |                                      |
| tenant_id          | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
| weight             | 1                                    |
+--------------------+--------------------------------------+
```

```
[root@controller ~]# neutron lb-member-list
+--------------------------------------+-----------+---------------+----------------+----------------+
| id                                   | address   | protocol_port | admin_state_up | status         |
+--------------------------------------+-----------+---------------+----------------+----------------+
| 728c2508-6b43-403d-a32e-03041a85b8ec | 10.30.0.4 |            80 | True           | PENDING_CREATE |
| d55b787e-5cab-4dcb-ab7b-e58930988dba | 10.30.0.2 |            80 | True           | PENDING_CREATE |
+--------------------------------------+-----------+---------------+----------------+----------------+
```

```
[root@controller ~]# neutron lb-member-list -c pool_id -c id -c address -c protocol_port
+--------------------------------------+--------------------------------------+-----------+---------------+
| pool_id                              | id                                   | address   | protocol_port |
+--------------------------------------+--------------------------------------+-----------+---------------+
| 393b994c-bb7c-4331-aedd-af1df196f133 | 728c2508-6b43-403d-a32e-03041a85b8ec | 10.30.0.4 |            80 |
| 393b994c-bb7c-4331-aedd-af1df196f133 | d55b787e-5cab-4dcb-ab7b-e58930988dba | 10.30.0.2 |            80 |
+--------------------------------------+--------------------------------------+-----------+---------------+
```

```
[root@controller ~]# neutron lb-healthmonitor-create --delay 5 --max-retries 3 --timeout 16 --type TCP
Created a new health_monitor:
+----------------+--------------------------------------+
| Field          | Value                                |
+----------------+--------------------------------------+
| admin_state_up | True                                 |
| delay          | 5                                    |
| id             | 28cfd185-5cdb-48b0-ba05-9bba9e0ad083 |
| max_retries    | 3                                    |
| pools          |                                      |
| tenant_id      | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
| timeout        | 16                                   |
| type           | TCP                                  |
+----------------+--------------------------------------+
```

```
[root@controller ~]# neutron lb-healthmonitor-associate 28cfd185-5cdb-48b0-ba05-9bba9e0ad083 WEB_POOL
Associated health monitor 28cfd185-5cdb-48b0-ba05-9bba9e0ad083
```

```
[root@controller ~]# neutron lb-vip-create --description "The Web VIP" --name WEB_VIP \
> --protocol-port 80 --protocol HTTP --subnet-id 9e7f07bc-e194-4632-8558-4d81aa50ef16 WEB_POOL
Created a new vip:
+--------------------+--------------------------------------+
| Field              | Value                                |
+--------------------+--------------------------------------+
| address            | 10.30.0.5                            |
| admin_state_up     | True                                 |
| connection_limit   | -1                                   |
| description        | The Web VIP                          |
| id                 | cfd104cc-398d-4da5-a12e-6e3031e2cc94 |
| name               | WEB_VIP                              |
| pool_id            | 393b994c-bb7c-4331-aedd-af1df196f133 |
| port_id            | 4cd532f5-3188-4e2b-a77b-4c83c4a7128b |
| protocol           | HTTP                                 |
| protocol_port      | 80                                   |
| status             | PENDING_CREATE                       |
| status_description |                                      |
| subnet_id          | 9e7f07bc-e194-4632-8558-4d81aa50ef16 |
| tenant_id          | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+--------------------+--------------------------------------+
```

```
[root@controller ~]# neutron lb-vip-list
+--------------------------------------+---------+-----------+----------+----------------+--------+
| id                                   | name    | address   | protocol | admin_state_up | status |
+--------------------------------------+---------+-----------+----------+----------------+--------+
| cfd104cc-398d-4da5-a12e-6e3031e2cc94 | WEB_VIP | 10.30.0.5 | HTTP     | True           | ACTIVE |
+--------------------------------------+---------+-----------+----------+----------------+--------+
[root@controller ~]# neutron lb-pool-list
+--------------------------------------+----------+----------+-------------+----------+----------------+--------+
| id                                   | name     | provider | lb_method   | protocol | admin_state_up | status |
+--------------------------------------+----------+----------+-------------+----------+----------------+--------+
| 393b994c-bb7c-4331-aedd-af1df196f133 | WEB_POOL | haproxy  | ROUND_ROBIN | HTTP     | True           | ACTIVE |
+--------------------------------------+----------+----------+-------------+----------+----------------+--------+
```

```
[root@controller ~]# ip netns
qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672
qdhcp-a9fa092a-a412-4097-bb04-7f08fa5eb8e3
qlbaas-393b994c-bb7c-4331-aedd-af1df196f133
qdhcp-f92e9357-5070-42e1-916a-32bc11fd4c76
```

```
[root@controller ~]# ip netns exec qlbaas-393b994c-bb7c-4331-aedd-af1df196f133 ip a
22: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
23: ns-4cd532f5-31: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether fa:16:3e:92:92:72 brd ff:ff:ff:ff:ff:ff
    inet 10.30.0.5/24 brd 10.30.0.255 scope global ns-4cd532f5-31
    inet6 fe80::f816:3eff:fe92:9272/64 scope link
       valid_lft forever preferred_lft forever
```

```
[root@controller ~]# cat /var/lib/neutron/lbaas/393b994c-bb7c-4331-aedd-af1df196f133/conf
global                                                    Load balancer ID
        daemon
        user nobody
        group nobody
        log /dev/log local0
        log /dev/log local1 notice
        stats socket /var/lib/neutron/lbaas/393b994c-bb7c-4331-aedd-af1df196f133/sock mode 0666 level user
defaults
        log global
        retries 3
        option redispatch
        timeout connect 5000
        timeout client 50000
        timeout server 50000
frontend cfd104cc-398d-4da5-a12e-6e3031e2cc94
        option tcplog
        bind 10.30.0.5:80  The virtual IP
        mode http
        default_backend 393b994c-bb7c-4331-aedd-af1df196f133
        option forwardfor
backend 393b994c-bb7c-4331-aedd-af1df196f133
        mode http
        balance roundrobin
        option forwardfor
        timeout check 16s                                 Pool Member IPs
        server 728c2508-6b43-403d-a32e-03041a85b8ec 10.30.0.4:80 weight 1 check inter 5s fall 3
        server d55b787e-5cab-4dcb-ab7b-e58930988dba 10.30.0.2:80 weight 1 check inter 5s fall 3
```

```
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.2
This is Web1
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.4
This is Web2
```

```
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web1
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web2
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web1
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web2
```

```
root@web1:~# tcpdump -i any port 80 -n
tcpdump: verbose output suppressed, use -v or -vv for full protocol decode
listening on any, link-type LINUX_SLL (Linux cooked), capture size 65535 bytes

01:36:20.547583 IP 10.30.0.5.49533 > 10.30.0.2.80: Flags [S], seq 3636217985, win 14600,
01:36:20.547613 IP 10.30.0.2.80 > 10.30.0.5.49533: Flags [S.], seq 3716667043, ack 36362
01:36:20.547854 IP 10.30.0.5.49533 > 10.30.0.2.80: Flags [R.], seq 1, ack 1, win 115, op

01:36:25.549560 IP 10.30.0.5.49535 > 10.30.0.2.80: Flags [S], seq 1691059124, win 14600,
01:36:25.549586 IP 10.30.0.2.80 > 10.30.0.5.49535: Flags [S.], seq 1448956896, ack 16910
01:36:25.549816 IP 10.30.0.5.49535 > 10.30.0.2.80: Flags [R.], seq 1, ack 1, win 115, op

01:36:30.551589 IP 10.30.0.5.49537 > 10.30.0.2.80: Flags [S], seq 3689515567, win 14600,
01:36:30.551613 IP 10.30.0.2.80 > 10.30.0.5.49537: Flags [S.], seq 2737257391, ack 36895
01:36:30.551847 IP 10.30.0.5.49537 > 10.30.0.2.80: Flags [R.], seq 1, ack 1, win 115, op
```

```
01:39:00.604726 IP 10.30.0.5.49604 > 10.30.0.2.80: Flags [S], seq 246239507, win 14600, op
01:39:00.604741 IP 10.30.0.2.80 > 10.30.0.5.49604: Flags [R.], seq 0, ack 246239508, win 0

01:39:05.606646 IP 10.30.0.5.49606 > 10.30.0.2.80: Flags [S], seq 1018504608, win 14600, o
01:39:05.606672 IP 10.30.0.2.80 > 10.30.0.5.49606: Flags [R.], seq 0, ack 1018504609, win

01:39:10.608178 IP 10.30.0.5.49608 > 10.30.0.2.80: Flags [S], seq 4134644631, win 14600, o
01:39:10.608193 IP 10.30.0.2.80 > 10.30.0.5.49608: Flags [R.], seq 0, ack 4134644632, win
```

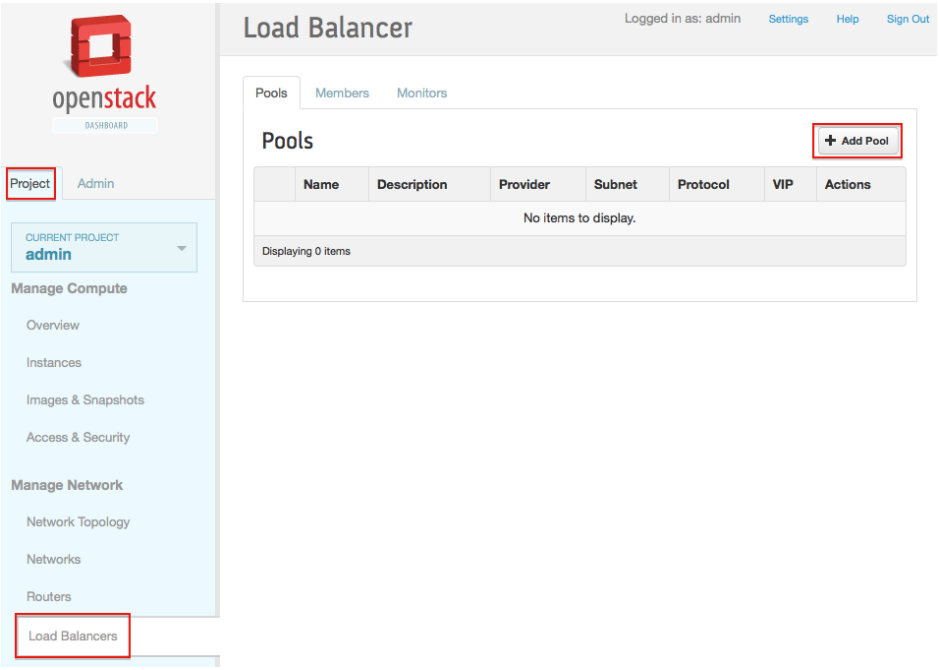
```
Aug 18 21:39:10 controller haproxy[9106]: Server 393b994c-bb7c-4331-aedd-af1df196f133/d55b787e-5cab-4dcb-ab7b-e58930988dba
is DOWN, reason: Layer4 connection problem, info: "Connection refused", check duration: 0ms. 1 active and 0 backup servers
left. 0 sessions active, 0 requeued, 0 remaining in queue.
```

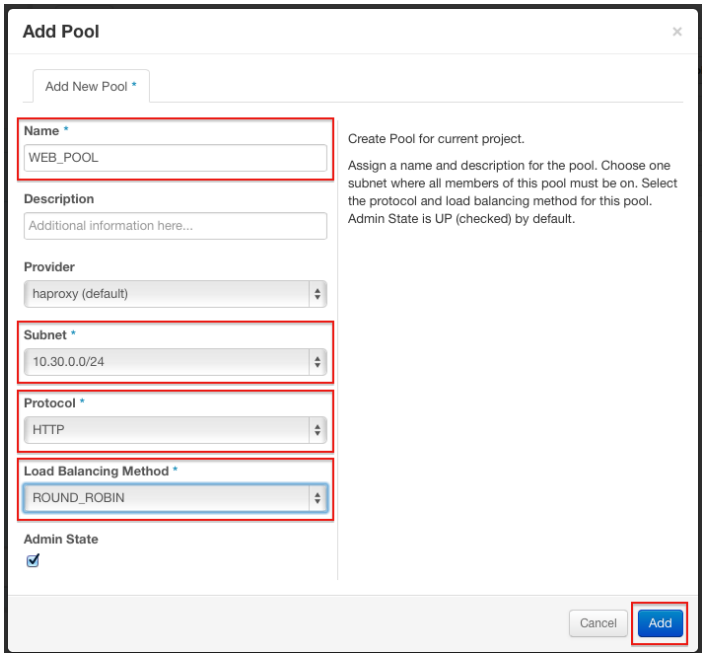
```
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web2
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web2
[root@controller ~]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 curl http://10.30.0.5
This is Web2
```

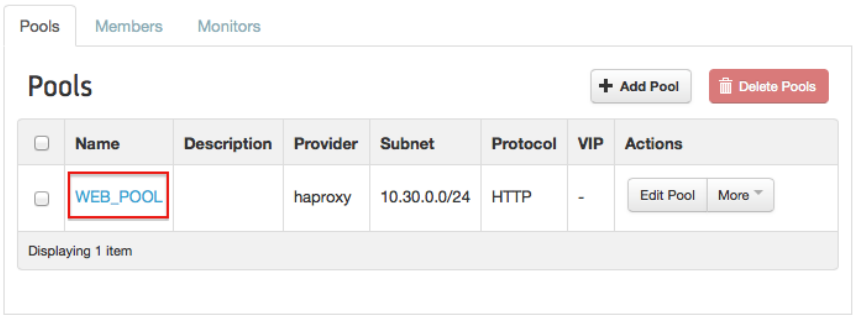
```
Aug 18 21:44:35 controller haproxy[9106]: Server 393b994c-bb7c-4331-aedd-af1df196f133/d55b787e-5cab-4dcb-ab7b-e58930988dba
is UP, reason: Layer4 check passed, check duration: 0ms. 2 active and 0 backup servers online. 0 sessions requeued, 0 total
 in queue.
```

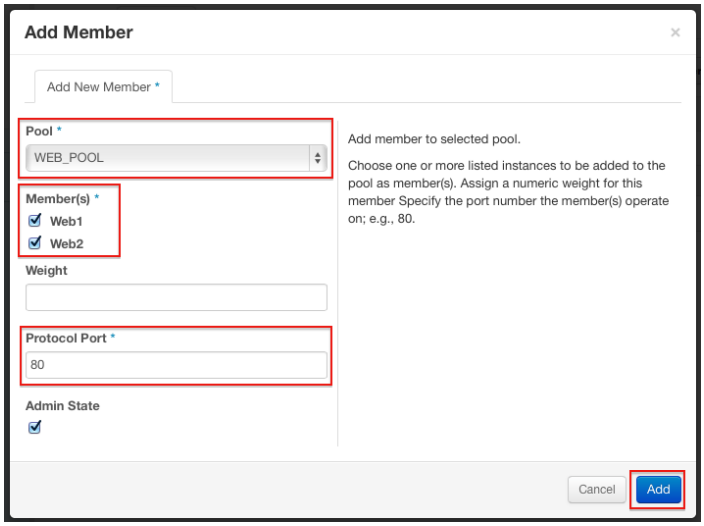
```
[root@controller ~]# neutron floatingip-create GATEWAY_NET --port-id=$(neutron port-list | grep 10.30.0.5 | awk '{print $2}')
Created a new floatingip:
+---------------------+--------------------------------------+
| Field               | Value                                |
+---------------------+--------------------------------------+
| fixed_ip_address    | 10.30.0.5                            |
| floating_ip_address | 10.50.0.102  <-- External Virtual IP |
| floating_network_id | a9fa092a-a412-4097-bb04-7f08fa5eb8e3 |
| id                  | 10781e7e-7ec0-4ffb-8544-ded427da0016 |
| port_id             | 4cd532f5-3188-4e2b-a77b-4c83c4a7128b |
| router_id           | 0f720e65-13b9-45f3-b750-d8a3a1b18672 |
| tenant_id           | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------------+--------------------------------------+
```

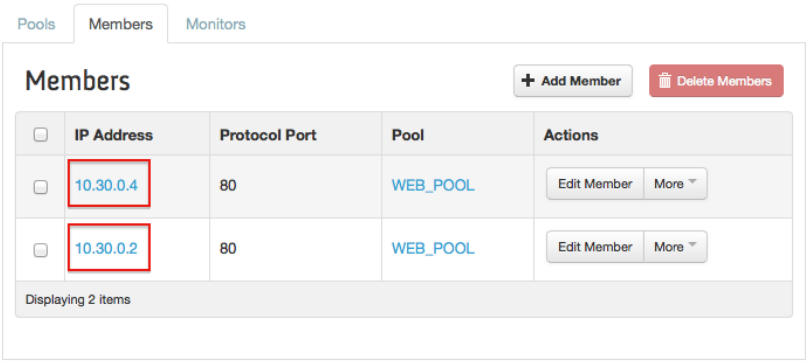
```
jamess-mbp:~ jdenton$ curl http://10.50.0.102
This is Web1
jamess-mbp:~ jdenton$ curl http://10.50.0.102
This is Web2
jamess-mbp:~ jdenton$ curl http://10.50.0.102
This is Web1
jamess-mbp:~ jdenton$ curl http://10.50.0.102
This is Web2
```

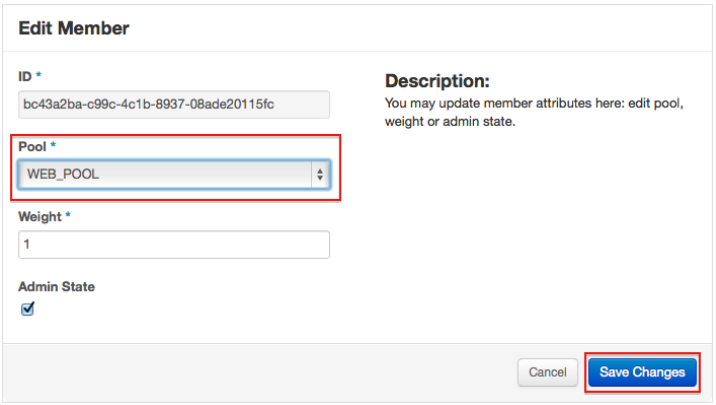


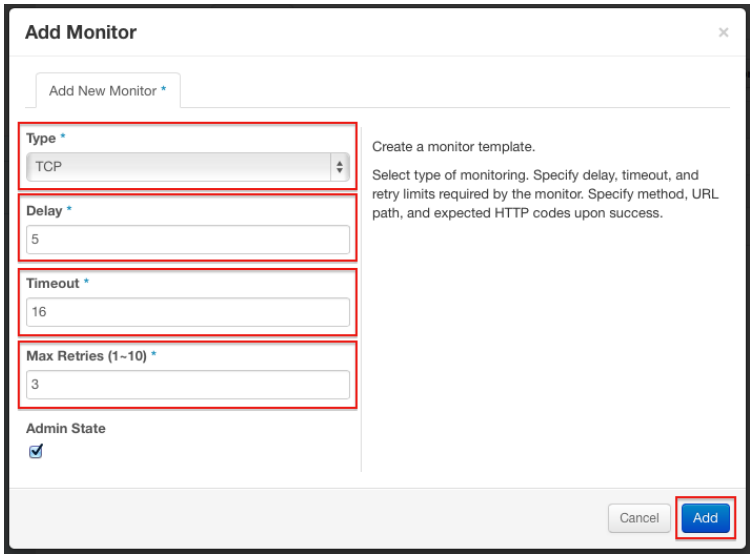



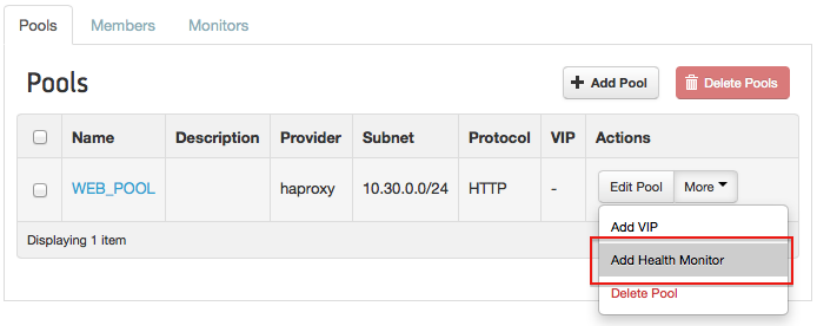

Pools
Members
Monitors
Pools
Add Pool
Delete Pools
Name
Description
Provider
Subnet
Protocol
VIP
Actions
WEB_POOL
haproxy
10.30.0.0/24
HTTP
-
Edit Pool
More
Displaying 1 item

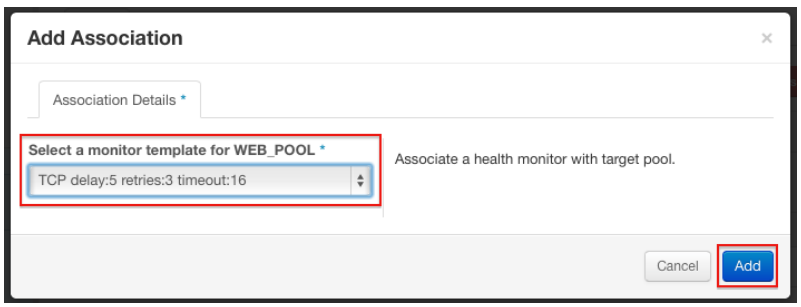

Add Member
Add New Member *
Pool *
WEB_POOL
Member(s) *
Web1
Web2
Weight
Protocol Port *
80
Admin State
Add member to selected pool.
Choose one or more listed instances to be added to the pool as member(s). Assign a numeric weight for this member Specify the port number the member(s) operate on; e.g., 80.
Cancel
Add

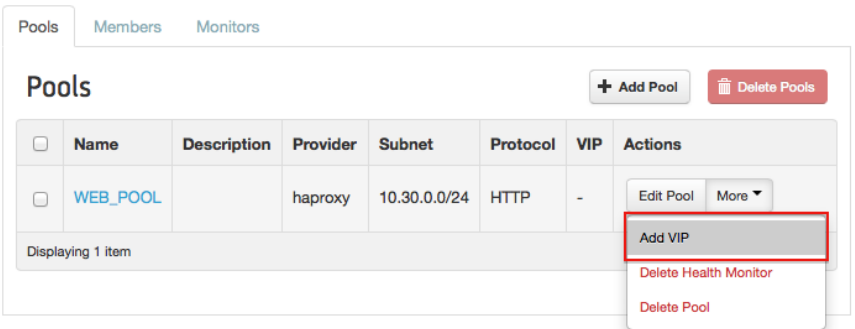

Pools
Members
Monitors
Members
Add Member
Delete Members
IP Address
Protocol Port
Pool
Actions
10.30.0.4
80
WEB_POOL
Edit Member
More
10.30.0.2
80
WEB_POOL
Edit Member
More
Displaying 2 items

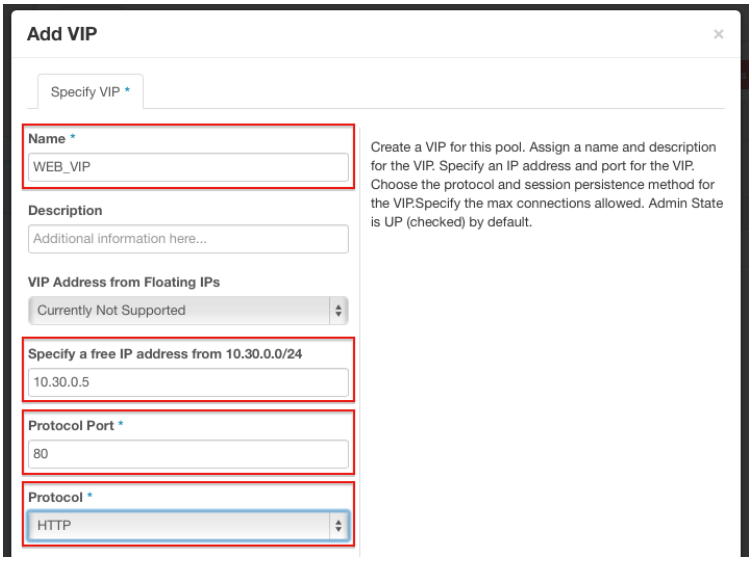

Edit Member
ID *
bc43a2ba-c99c-4c1b-8937-08ade20115fc
Pool *
WEB_POOL
Weight *
1
Admin State
Description:
You may update member attributes here: edit pool, weight or admin state.
Cancel
Save Changes

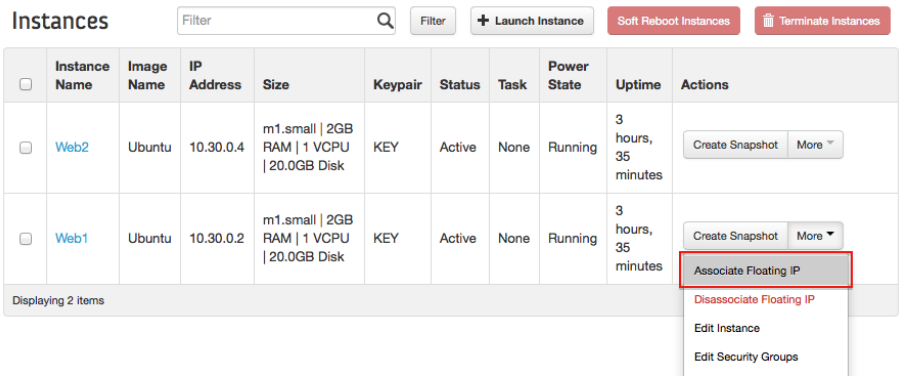

Add Monitor
Add New Monitor *
Type *
TCP
Delay *
5
Timeout *
16
Max Retries (1~10) *
3
Admin State
Create a monitor template.
Select type of monitoring. Specify delay, timeout, and retry limits required by the monitor. Specify method, URL path, and expected HTTP codes upon success.
Cancel
Add

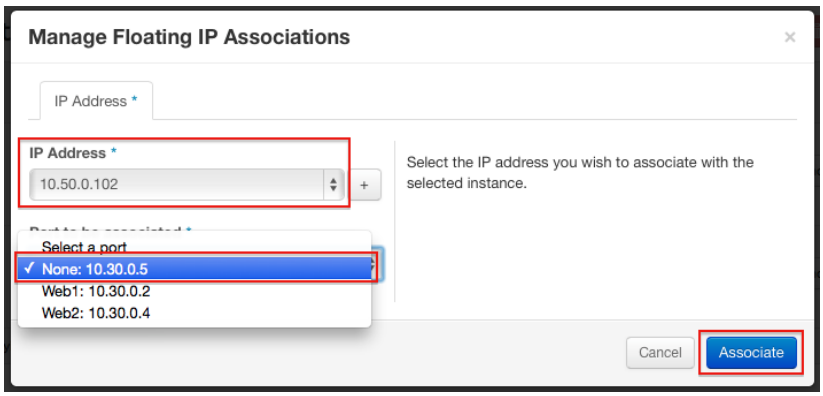

Pools
Members
Monitors
Pools
Add Pool
Delete Pools
Name
Description
Provider
Subnet
Protocol
VIP
Actions
WEB_POOL
haproxy
10.30.0.0/24
HTTP
-
Edit Pool
More
Add VIP
Add Health Monitor
Delete Pool
Displaying 1 item


Add Association
Association Details *
Select a monitor template for WEB_POOL *
TCP delay:5 retries:3 timeout:16
Associate a health monitor with target pool.
Cancel
Add


Pools
Members
Monitors
Pools
Add Pool
Delete Pools
Name
Description
Provider
Subnet
Protocol
VIP
Actions
WEB_POOL
haproxy
10.30.0.0/24
HTTP
-
Edit Pool
More
Add VIP
Delete Health Monitor
Delete Pool
Displaying 1 item




## Chapter 8 – Protecting Instances on the Network

```
Syntax: security-group-rule-create [--tenant-id TENANT_ID][--direction {ingress,egress}]
[--ethertype ETHERTYPE][--protocol PROTOCOL][--port-range-min PORT_RANGE_MIN]
[--port-range-max PORT_RANGE_MAX][--remote-ip-prefix REMOTE_IP_PREFIX]
[--remote-group-id REMOTE_GROUP] SECURITY_GROUP
```

```
[root@controller ~]# neutron security-group-list
+--------------------------------------+-------------+-----------------------------+
| id                                   | name        | description                 |
+--------------------------------------+-------------+-----------------------------+
| 39cb6ec7-561a-4257-8b19-d4124b483cf1 | default     | default                     |
| 3a69c841-5f9d-4be7-bc40-5d247923e86f | WEB_SERVERS | Allows access to web services |
| 6b555da5-da47-4563-985e-78f1bdca6ff5 | default     | default                     |
| 763d3dc3-775c-4e11-a37b-4254b7901d4a | default     | default                     |
+--------------------------------------+-------------+-----------------------------+
```

```
[root@controller ~]# neutron security-group-rule-create --protocol tcp --port-range-min 80 \
> --port-range-max 80 --remote-ip-prefix 0.0.0.0/0 3a69c841-5f9d-4be7-bc40-5d247923e86f
Created a new security_group_rule:
+-------------------+--------------------------------------+
| Field             | Value                                |
+-------------------+--------------------------------------+
| direction         | ingress                              |
| ethertype         | IPv4                                 |
| id                | de24e92b-7601-4a2a-96f1-39f6aa092d4f |
| port_range_max    | 80                                   |
| port_range_min    | 80                                   |
| protocol          | tcp                                  |
| remote_group_id   |                                      |
| remote_ip_prefix  | 0.0.0.0/0                            |
| security_group_id | 3a69c841-5f9d-4be7-bc40-5d247923e86f |
| tenant_id         | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+-------------------+--------------------------------------+
[root@controller ~]# neutron security-group-rule-create --protocol tcp --port-range-min 443 \
> --port-range-max 443 --remote-ip-prefix 0.0.0.0/0 3a69c841-5f9d-4be7-bc40-5d247923e86f
Created a new security_group_rule:
+-------------------+--------------------------------------+
| Field             | Value                                |
+-------------------+--------------------------------------+
| direction         | ingress                              |
| ethertype         | IPv4                                 |
| id                | 690e67aa-fdff-4fbb-b427-806cea37c17f |
| port_range_max    | 443                                  |
| port_range_min    | 443                                  |
| protocol          | tcp                                  |
| remote_group_id   |                                      |
| remote_ip_prefix  | 0.0.0.0/0                            |
| security_group_id | 3a69c841-5f9d-4be7-bc40-5d247923e86f |
| tenant_id         | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+-------------------+--------------------------------------+
```

```
[root@controller ~]# neutron port-update c2a46367-100c-4d87-b2a5-e1ad7aa12324 \
> --security-group WEB_SERVERS
Updated port: c2a46367-100c-4d87-b2a5-e1ad7aa12324
```

```
*filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [17:2586]
:neutron-filter-top - [0:0]
:neutron-linuxbri-FORWARD - [0:0]
:neutron-linuxbri-INPUT - [0:0]
:neutron-linuxbri-OUTPUT - [0:0]
:neutron-linuxbri-ic2a46367-1 - [0:0]
:neutron-linuxbri-local - [0:0]
:neutron-linuxbri-oc2a46367-1 - [0:0]
:neutron-linuxbri-sc2a46367-1 - [0:0]
:neutron-linuxbri-sg-chain - [0:0]
:neutron-linuxbri-sg-fallback - [0:0]
-A INPUT -j neutron-linuxbri-INPUT
-A INPUT -m state --state RELATED,ESTABLISHED -j ACCEPT
-A INPUT -p icmp -j ACCEPT
-A INPUT -i lo -j ACCEPT
-A INPUT -p tcp -m state --state NEW -m tcp --dport 22 -j ACCEPT
-A FORWARD -j neutron-filter-top
-A FORWARD -j neutron-linuxbri-FORWARD
-A OUTPUT -j neutron-filter-top
-A OUTPUT -j neutron-linuxbri-OUTPUT
-A neutron-filter-top -j neutron-linuxbri-local
-A neutron-linuxbri-FORWARD -m physdev --physdev-out tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-sg-chain
-A neutron-linuxbri-FORWARD -m physdev --physdev-in tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-sg-chain
-A neutron-linuxbri-INPUT -m physdev --physdev-in tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-oc2a46367-1
-A neutron-linuxbri-ic2a46367-1 -m state --state INVALID -j DROP
-A neutron-linuxbri-ic2a46367-1 -m state --state RELATED,ESTABLISHED -j RETURN
-A neutron-linuxbri-ic2a46367-1 -p tcp -m tcp --dport 443 -j RETURN
-A neutron-linuxbri-ic2a46367-1 -p tcp -m tcp --dport 80 -j RETURN
-A neutron-linuxbri-ic2a46367-1 -s 10.30.0.3/32 -p udp -m udp --sport 67 --dport 68 -j RETURN
-A neutron-linuxbri-ic2a46367-1 -j neutron-linuxbri-sg-fallback
-A neutron-linuxbri-oc2a46367-1 -p udp -m udp --sport 68 --dport 67 -j RETURN
-A neutron-linuxbri-oc2a46367-1 -j neutron-linuxbri-sc2a46367-1
-A neutron-linuxbri-oc2a46367-1 -p udp -m udp --sport 67 --dport 68 -j DROP
-A neutron-linuxbri-oc2a46367-1 -m state --state INVALID -j DROP
-A neutron-linuxbri-oc2a46367-1 -m state --state RELATED,ESTABLISHED -j RETURN
-A neutron-linuxbri-oc2a46367-1 -j RETURN
-A neutron-linuxbri-oc2a46367-1 -j neutron-linuxbri-sg-fallback
-A neutron-linuxbri-sc2a46367-1 -s 10.30.0.2/32 -m mac --mac-source FA:16:3E:BC:9A:A0 -j RETURN
-A neutron-linuxbri-sc2a46367-1 -j DROP
-A neutron-linuxbri-sg-chain -m physdev --physdev-out tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-ic2a46367-1
-A neutron-linuxbri-sg-chain -m physdev --physdev-in tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-oc2a46367-1
-A neutron-linuxbri-sg-chain -j ACCEPT
-A neutron-linuxbri-sg-fallback -j DROP
COMMIT
# Completed on Fri Aug 22 19:25:47 2014
```

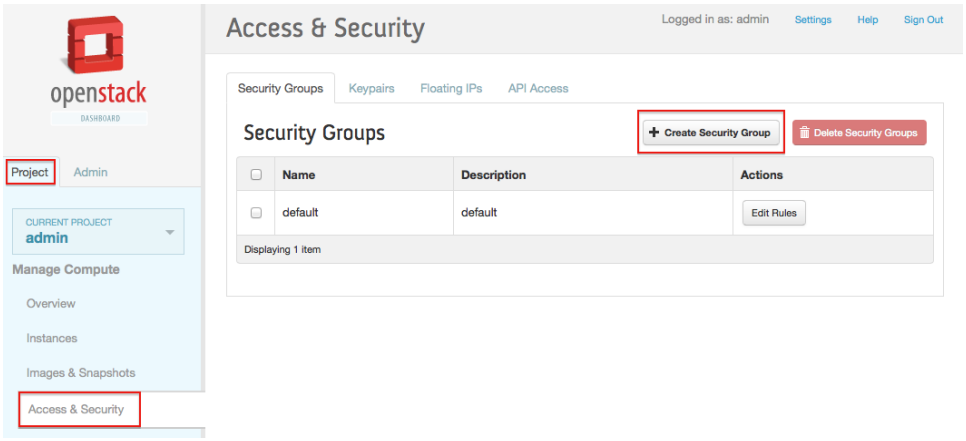
```
-A neutron-linuxbri-FORWARD -m physdev --physdev-out tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-sg-chain
-A neutron-linuxbri-FORWARD -m physdev --physdev-in tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-sg-chain
```

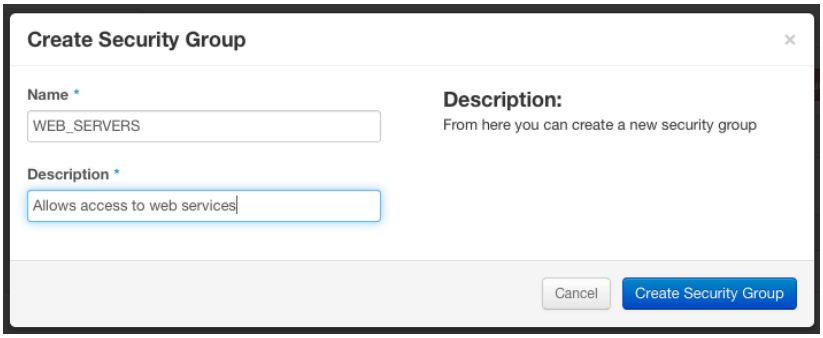
```
-A neutron-linuxbri-sg-chain -m physdev --physdev-out tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-ic2a46367-1
-A neutron-linuxbri-sg-chain -m physdev --physdev-in tapc2a46367-10 --physdev-is-bridged -j neutron-linuxbri-oc2a46367-1
-A neutron-linuxbri-sg-chain -j ACCEPT
```

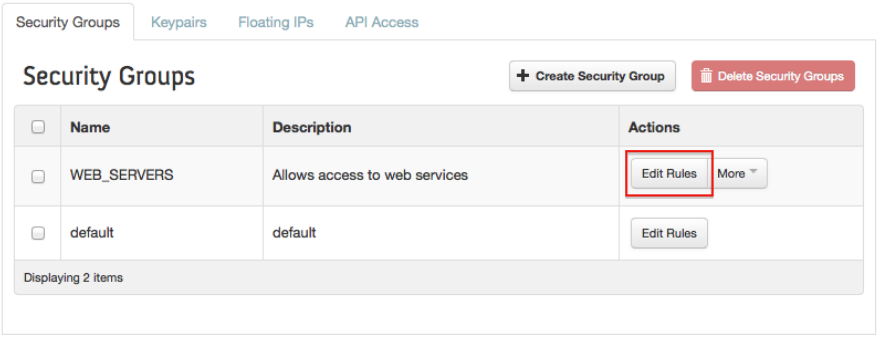
```
-A neutron-linuxbri-ic2a46367-1 -m state --state INVALID -j DROP
-A neutron-linuxbri-ic2a46367-1 -m state --state RELATED,ESTABLISHED -j RETURN
-A neutron-linuxbri-ic2a46367-1 -p tcp -m tcp --dport 443 -j RETURN
-A neutron-linuxbri-ic2a46367-1 -p tcp -m tcp --dport 80 -j RETURN
-A neutron-linuxbri-ic2a46367-1 -s 10.30.0.3/32 -p udp -m udp --sport 67 --dport 68 -j RETURN
-A neutron-linuxbri-ic2a46367-1 -j neutron-linuxbri-sg-fallback
```

```
-A neutron-linuxbri-oc2a46367-1 -p udp -m udp --sport 68 --dport 67 -j RETURN
-A neutron-linuxbri-oc2a46367-1 -j neutron-linuxbri-sc2a46367-1
-A neutron-linuxbri-oc2a46367-1 -p udp -m udp --sport 67 --dport 68 -j DROP
-A neutron-linuxbri-oc2a46367-1 -m state --state INVALID -j DROP
-A neutron-linuxbri-oc2a46367-1 -m state --state RELATED,ESTABLISHED -j RETURN
-A neutron-linuxbri-oc2a46367-1 -j RETURN
-A neutron-linuxbri-oc2a46367-1 -j neutron-linuxbri-sg-fallback
```

```
-A neutron-linuxbri-sc2a46367-1 -s 10.30.0.2/32 -m mac --mac-source FA:16:3E:BC:9A:A0 -j RETURN
-A neutron-linuxbri-sc2a46367-1 -j DROP
```



# Edit Security Group Rules: WEB_SERVERS

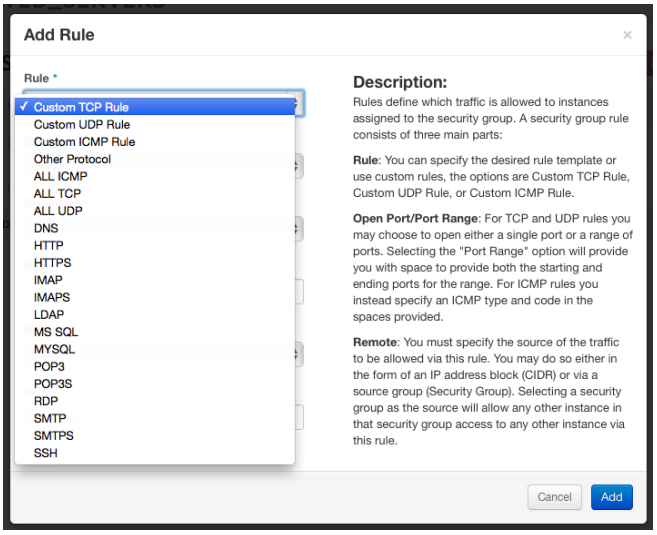
Logged in as: admin Settings Help Sign Out

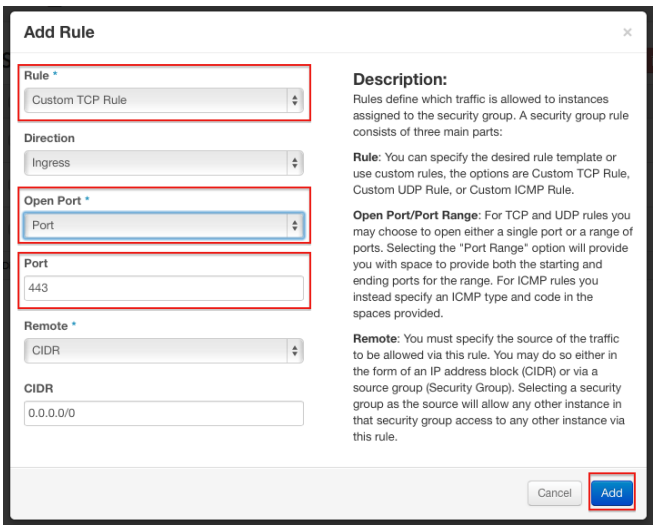
## Security Group Rules

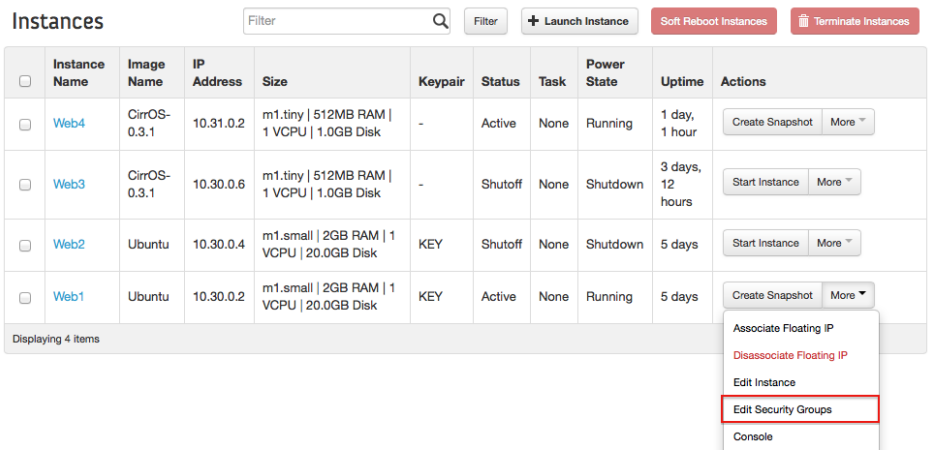
+ Add Rule | Delete Rules

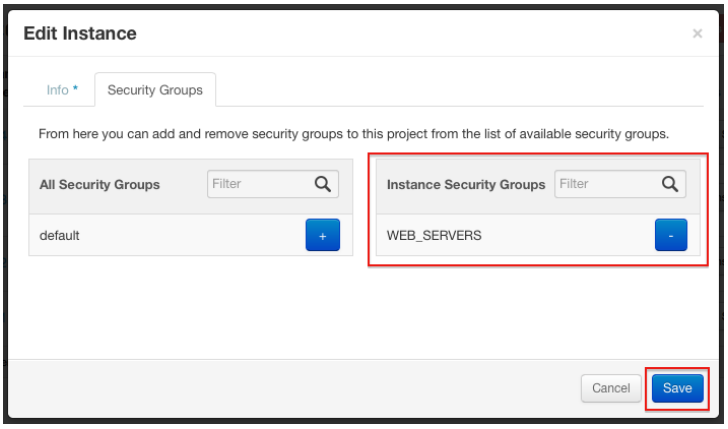
| | Direction | Ether Type | IP Protocol | Port Range | Remote | Actions |
|---|---|---|---|---|---|---|
| ☐ | Egress | IPv4 | Any | - | 0.0.0.0/0 (CIDR) | Delete Rule |
| ☐ | Egress | IPv6 | Any | - | ::/0 (CIDR) | Delete Rule |

Displaying 2 items





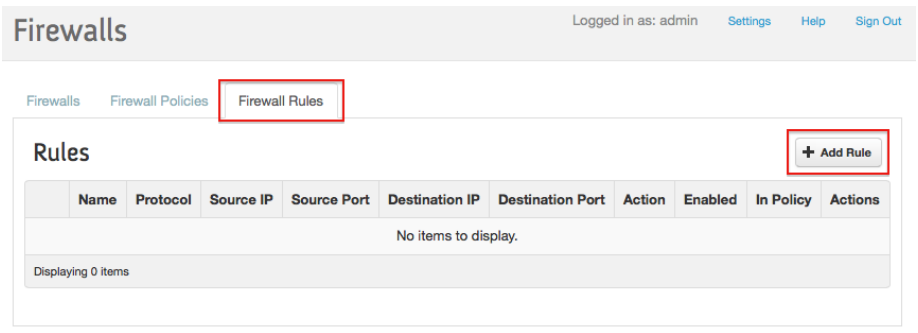



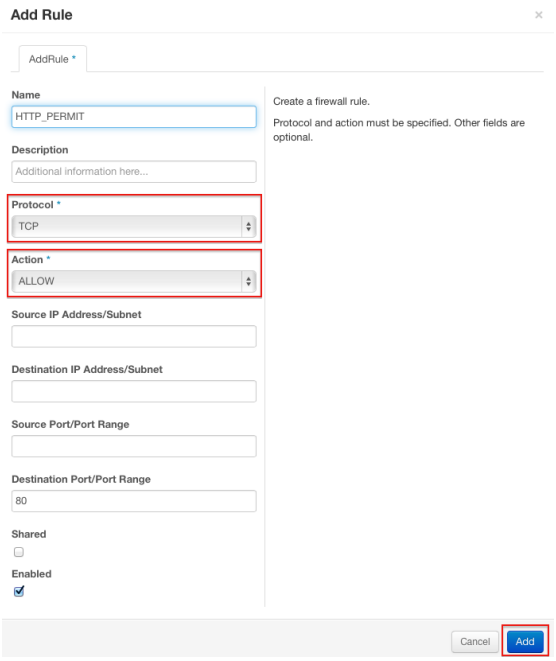

```
Syntax: firewall-rule-create [--tenant-id TENANT_ID][--name NAME] [--description DESCRIPTION]
[--shared] [--source-ip-address SOURCE_IP_ADDRESS] [--destination-ip-address DESTINATION_IP_ADDRESS]
[--source-port SOURCE_PORT] [--destination-port DESTINATION_PORT] [--disabled] --protocol {tcp,udp,icmp,any}
--action {allow,deny}
```

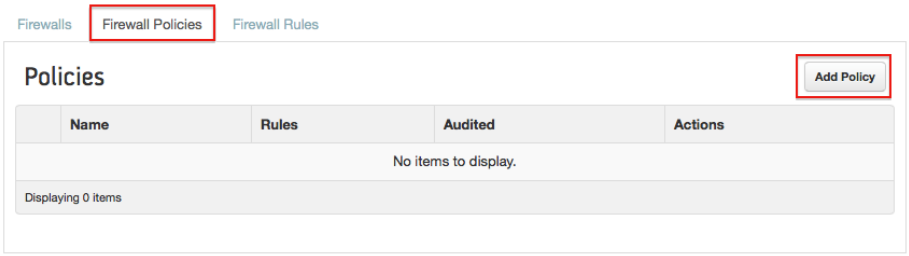
```
Syntax: firewall-rule-update
[--source-ip-address SOURCE_IP_ADDRESS] [--destination-ip-address DESTINATION_IP_ADDRESS]
[--source-port SOURCE_PORT] [--destination-port DESTINATION_PORT] [--protocol {tcp,udp,icmp,any}]
[--action {allow,deny}] [--name NAME] [--description DESCRIPTION] [--shared]
FIREWALL_RULE_ID
```

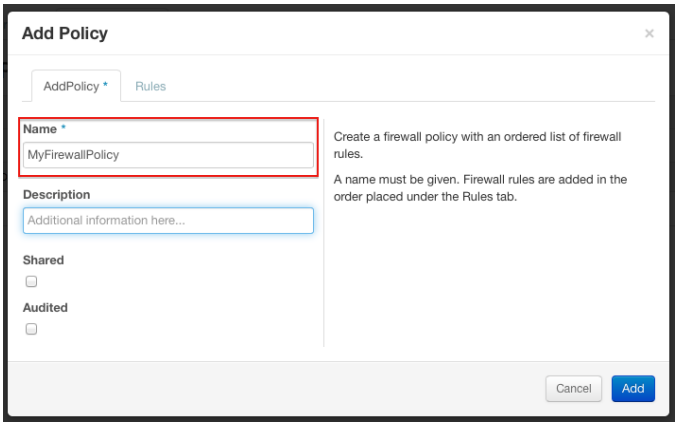
```
Syntax: firewall-policy-create [--tenant-id TENANT_ID] [--description DESCRIPTION]
[--shared] [--firewall-rules FIREWALL_RULES] [--audited] NAME
```

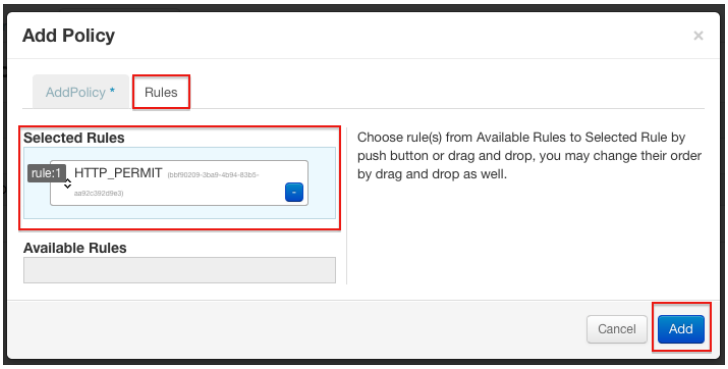
```
Syntax: firewall-policy-insert-rule [--insert-before FIREWALL_RULE]
[--insert-after FIREWALL_RULE] FIREWALL_POLICY_ID NEW_FIREWALL_RULE_ID
```

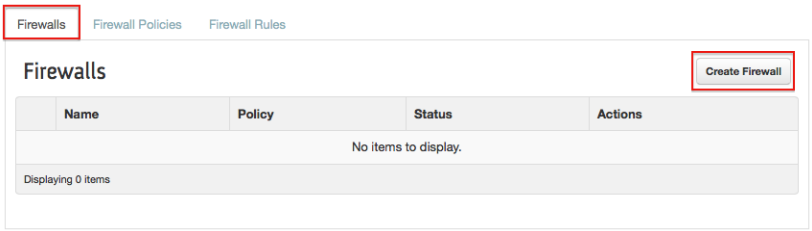



Add Rule
AddRule *
Name
HTTP_PERMIT
Description
Additional information here...
Protocol *
TCP
Action *
ALLOW
Source IP Address/Subnet
Destination IP Address/Subnet
Source Port/Port Range
Destination Port/Port Range
80
Shared
Enabled
Create a firewall rule.
Protocol and action must be specified. Other fields are optional.
Cancel
Add

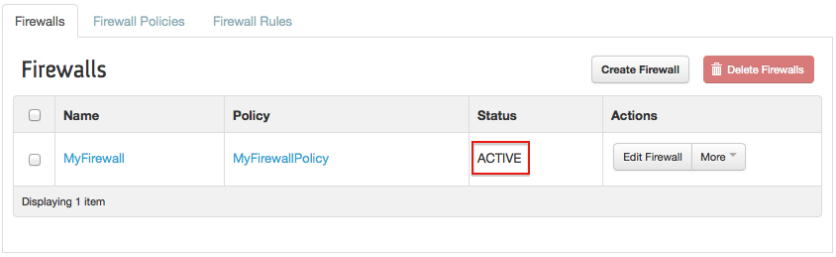

Firewalls
Firewall Policies
Firewall Rules
Policies
Add Policy
Name
Rules
Audited
Actions
No items to display.
Displaying 0 items


Add Policy
AddPolicy *
Rules
Name *
MyFirewallPolicy
Description
Additional information here...
Shared
Audited
Create a firewall policy with an ordered list of firewall rules.
A name must be given. Firewall rules are added in the order placed under the Rules tab.
Cancel
Add


Add Policy
AddPolicy *
Rules
Selected Rules
rule:1
HTTP_PERMIT
Available Rules
Choose rule(s) from Available Rules to Selected Rule by push button or drag and drop, you may change their order by drag and drop as well.
Cancel
Add








```
[root@controller ~]# neutron firewall-rule-create --name HTTP_PERMIT --destination-port 80 --protocol tcp --action allow
Created a new firewall_rule:
+------------------------+--------------------------------------+
| Field                  | Value                                |
+------------------------+--------------------------------------+
| action                 | allow                                |
| description            |                                      |
| destination_ip_address |                                      |
| destination_port       | 80                                   |
| enabled                | True                                 |
| firewall_policy_id     |                                      |
| id                     | 44cb545a-ad2c-43ed-b09c-ff5689e89371 |
| ip_version             | 4                                    |
| name                   | HTTP_PERMIT                          |
| position               |                                      |
| protocol               | tcp                                  |
| shared                 | False                                |
| source_ip_address      |                                      |
| source_port            |                                      |
| tenant_id              | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+------------------------+--------------------------------------+
[root@controller ~]# neutron firewall-rule-list
+--------------------------------------+-------------+--------------------+----------------------+---------+
| id                                   | name        | firewall_policy_id | summary              | enabled |
+--------------------------------------+-------------+--------------------+----------------------+---------+
| 44cb545a-ad2c-43ed-b09c-ff5689e89371 | HTTP_PERMIT |                    | TCP,                 | True    |
|                                      |             |                    |  source: none(none), |         |
|                                      |             |                    |  dest: none(80),     |         |
|                                      |             |                    |  allow               |         |
+--------------------------------------+-------------+--------------------+----------------------+---------+
```

```
[root@controller ~]# neutron firewall-policy-create --firewall-rules \
> 44cb545a-ad2c-43ed-b09c-ff5689e89371 MyFirewallPolicy
Created a new firewall_policy:
+---------------+--------------------------------------+
| Field         | Value                                |
+---------------+--------------------------------------+
| audited       | False                                |
| description   |                                      |
| firewall_rules | 44cb545a-ad2c-43ed-b09c-ff5689e89371 |
| id            | a49c8073-fbc8-4b6c-8621-d27969f73dd2 |
| name          | MyFirewallPolicy                     |
| shared        | False                                |
| tenant_id     | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+---------------+--------------------------------------+
[root@controller ~]# neutron firewall-policy-list
+--------------------------------------+----------------+--------------------------------------+
| id                                   | name           | firewall_rules                       |
+--------------------------------------+----------------+--------------------------------------+
| a49c8073-fbc8-4b6c-8621-d27969f73dd2 | MyFirewallPolicy | [44cb545a-ad2c-43ed-b09c-ff5689e89371] |
+--------------------------------------+----------------+--------------------------------------+
```

```
[root@controller ~]# neutron firewall-create --name MyFirewall \
> a49c8073-fbc8-4b6c-8621-d27969f73dd2
Created a new firewall:
+--------------------+--------------------------------------+
| Field              | Value                                |
+--------------------+--------------------------------------+
| admin_state_up     | True                                 |
| description        |                                      |
| firewall_policy_id | a49c8073-fbc8-4b6c-8621-d27969f73dd2 |
| id                 | 01ea5b3a-e265-4c8a-9103-9200ed80b46a |
| name               | MyFirewall                           |
| status             | PENDING_CREATE                       |
| tenant_id          | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+--------------------+--------------------------------------+
```

```
[root@controller ~]# neutron firewall-show 01ea5b3a-e265-4c8a-9103-9200ed80b46a
+--------------------+--------------------------------------+
| Field              | Value                                |
+--------------------+--------------------------------------+
| admin_state_up     | True                                 |
| description        |                                      |
| firewall_policy_id | a49c8073-fbc8-4b6c-8621-d27969f73dd2 |
| id                 | 01ea5b3a-e265-4c8a-9103-9200ed80b46a |
| name               | MyFirewall                           |
| status             | ACTIVE                               |
| tenant_id          | b1e5de8d1cfc45d6a15d9c0cb442a8ab     |
+--------------------+--------------------------------------+
```

```
[root@controller init.d]# ip netns exec qrouter-0f720e65-13b9-45f3-b750-d8a3a1b18672 \
> iptables-save | sed -e '1,/*filter/d'
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [13466:12225870]
:OUTPUT ACCEPT [0:0]
:neutron-filter-top - [0:0]
:neutron-l3-agent-FORWARD - [0:0]
:neutron-l3-agent-INPUT - [0:0]
:neutron-l3-agent-OUTPUT - [0:0]
:neutron-l3-agent-fwaas-defau - [0:0]
:neutron-l3-agent-iv401ea5b3a - [0:0]
:neutron-l3-agent-local - [0:0]
:neutron-l3-agent-ov401ea5b3a - [0:0]
-A INPUT -j neutron-l3-agent-INPUT
-A FORWARD -j neutron-filter-top
-A FORWARD -j neutron-l3-agent-FORWARD
-A OUTPUT -j neutron-filter-top
-A OUTPUT -j neutron-l3-agent-OUTPUT
-A neutron-filter-top -j neutron-l3-agent-local
-A neutron-l3-agent-FORWARD -o qr-+ -j neutron-l3-agent-iv401ea5b3a
-A neutron-l3-agent-FORWARD -i qr-+ -j neutron-l3-agent-ov401ea5b3a
-A neutron-l3-agent-FORWARD -o qr-+ -j neutron-l3-agent-fwaas-defau
-A neutron-l3-agent-FORWARD -i qr-+ -j neutron-l3-agent-fwaas-defau
-A neutron-l3-agent-INPUT -d 127.0.0.1/32 -p tcp -m tcp --dport 9697 -j ACCEPT
-A neutron-l3-agent-fwaas-defau -j DROP
-A neutron-l3-agent-iv401ea5b3a -m state --state INVALID -j DROP
-A neutron-l3-agent-iv401ea5b3a -m state --state RELATED,ESTABLISHED -j ACCEPT
-A neutron-l3-agent-iv401ea5b3a -p tcp -m tcp --dport 80 -j ACCEPT
-A neutron-l3-agent-ov401ea5b3a -m state --state INVALID -j DROP
-A neutron-l3-agent-ov401ea5b3a -m state --state RELATED,ESTABLISHED -j ACCEPT
-A neutron-l3-agent-ov401ea5b3a -p tcp -m tcp --dport 80 -j ACCEPT
COMMIT
# Completed on Sat Aug 23 22:27:41 2014
```

```
-A neutron-l3-agent-FORWARD -o qr-+ -j neutron-l3-agent-iv401ea5b3a
-A neutron-l3-agent-FORWARD -i qr-+ -j neutron-l3-agent-ov401ea5b3a
-A neutron-l3-agent-FORWARD -o qr-+ -j neutron-l3-agent-fwaas-defau
-A neutron-l3-agent-FORWARD -i qr-+ -j neutron-l3-agent-fwaas-defau
```

```
-A neutron-l3-agent-iv401ea5b3a -m state --state INVALID -j DROP
-A neutron-l3-agent-iv401ea5b3a -m state --state RELATED,ESTABLISHED -j ACCEPT
-A neutron-l3-agent-iv401ea5b3a -p tcp -m tcp --dport 80 -j ACCEPT
```

```
-A neutron-l3-agent-ov401ea5b3a -m state --state INVALID -j DROP
-A neutron-l3-agent-ov401ea5b3a -m state --state RELATED,ESTABLISHED -j ACCEPT
-A neutron-l3-agent-ov401ea5b3a -p tcp -m tcp --dport 80 -j ACCEPT
```

## Appendix A – Additional Neutron Commands

```
[root@controller ~]# neutron ext-list
+---------------------+-----------------------------------------------+
| alias               | name                                          |
+---------------------+-----------------------------------------------+
| security-group      | security-group                                |
| l3_agent_scheduler  | L3 Agent Scheduler                            |
| external-net        | Neutron external network                      |
| ext-gw-mode         | Neutron L3 Configurable external gateway mode |
| binding             | Port Binding                                  |
| quotas              | Quota management support                      |
| agent               | agent                                         |
| dhcp_agent_scheduler | DHCP Agent Scheduler                          |
| provider            | Provider Network                              |
| router              | Neutron L3 Router                             |
| extraroute          | Neutron Extra Route                           |
+---------------------+-----------------------------------------------+
```

```
[root@controller ~]# neutron quota-show
+---------------------+-------+
| Field               | Value |
+---------------------+-------+
| floatingip          | 50    |
| network             | 10    |
| port                | 50    |
| router              | 10    |
| security_group      | 10    |
| security_group_rule | 100   |
| subnet              | 10    |
+---------------------+-------+
```

```
[root@controller ~]# neutron quota-update --tenant-id b1e5de8d1cfc45d6a15d9c0cb442a8ab \
> --floatingip 6 --network 12 --port 23 --router 2 --subnet 5
+---------------------+-------+
| Field               | Value |
+---------------------+-------+
| floatingip          | 6     |
| network             | 12    |
| port                | 23    |
| router              | 2     |
| security_group      | 10    |
| security_group_rule | 100   |
| subnet              | 5     |
+---------------------+-------+
```

```
[root@controller ~]# neutron quota-list --tenant-id b1e5de8d1cfc45d6a15d9c0cb442a8ab
+------------+---------+------+--------+---------------+---------------------+--------+----------------------------------+
| floatingip | network | port | router | security_group | security_group_rule | subnet | tenant_id                        |
+------------+---------+------+--------+---------------+---------------------+--------+----------------------------------+
|          6 |      12 |   23 |      2 |            10 |                 100 |      5 | b1e5de8d1cfc45d6a15d9c0cb442a8ab |
+------------+---------+------+--------+---------------+---------------------+--------+----------------------------------+
```