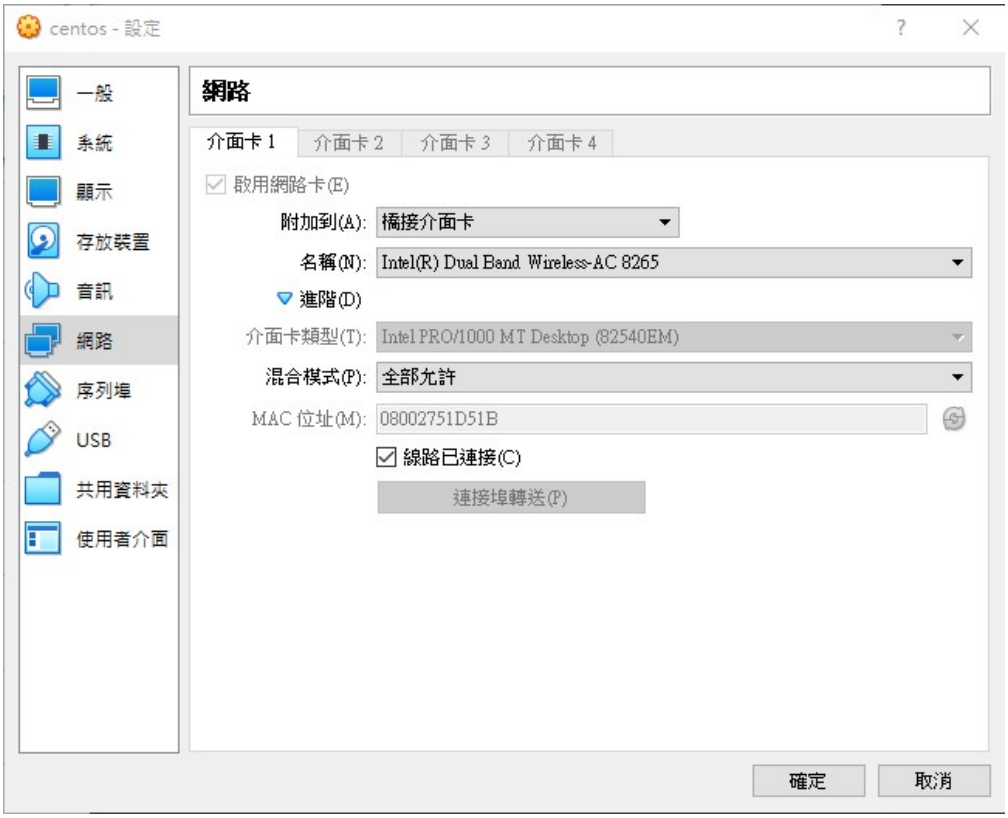
OpenStack Tacker installation

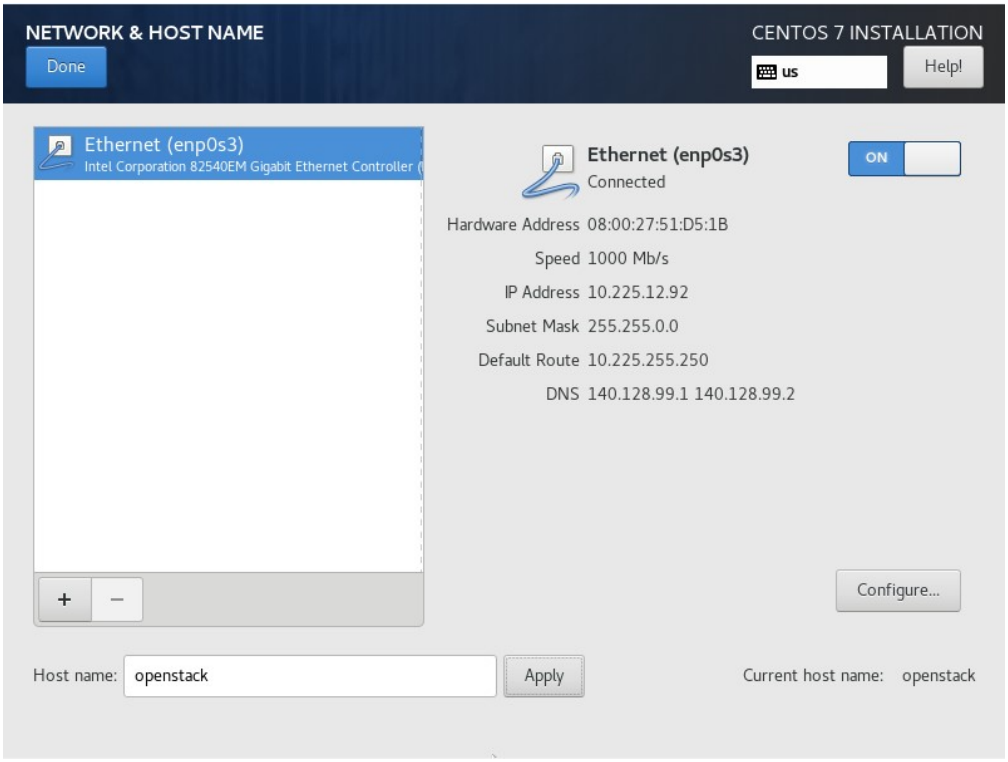
Environment requirement

- **CentOS-7** `2009`
- **OpenStack** `train`
- **Tacker** `stable/train`
- **Oracle VirtualBox**
- **Wired Network (Do not use Wi-Fi)**

VirtualBox Network Setting



- # CentOS7 installation Network Setting



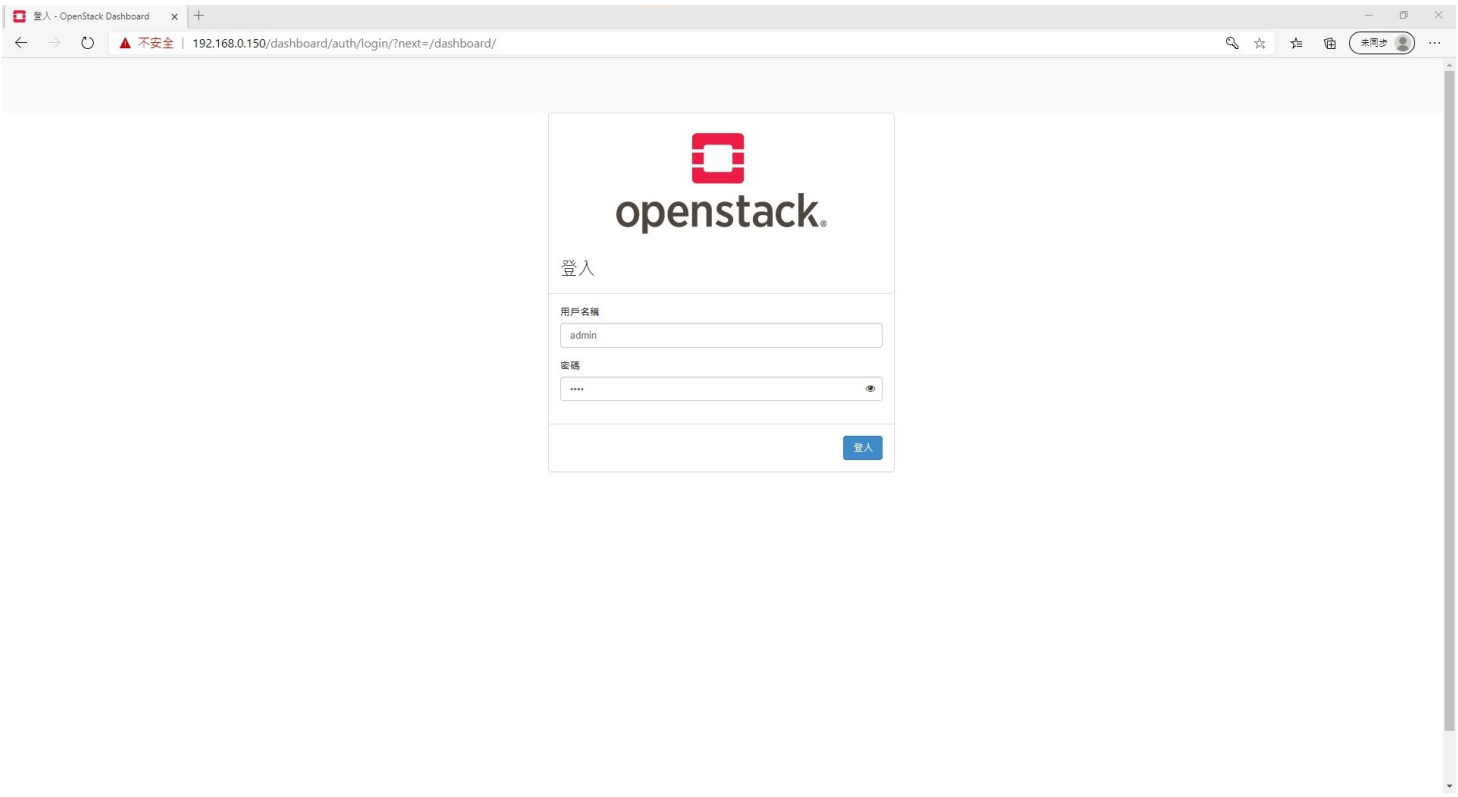
- # Disable firewall, SELINUX and update

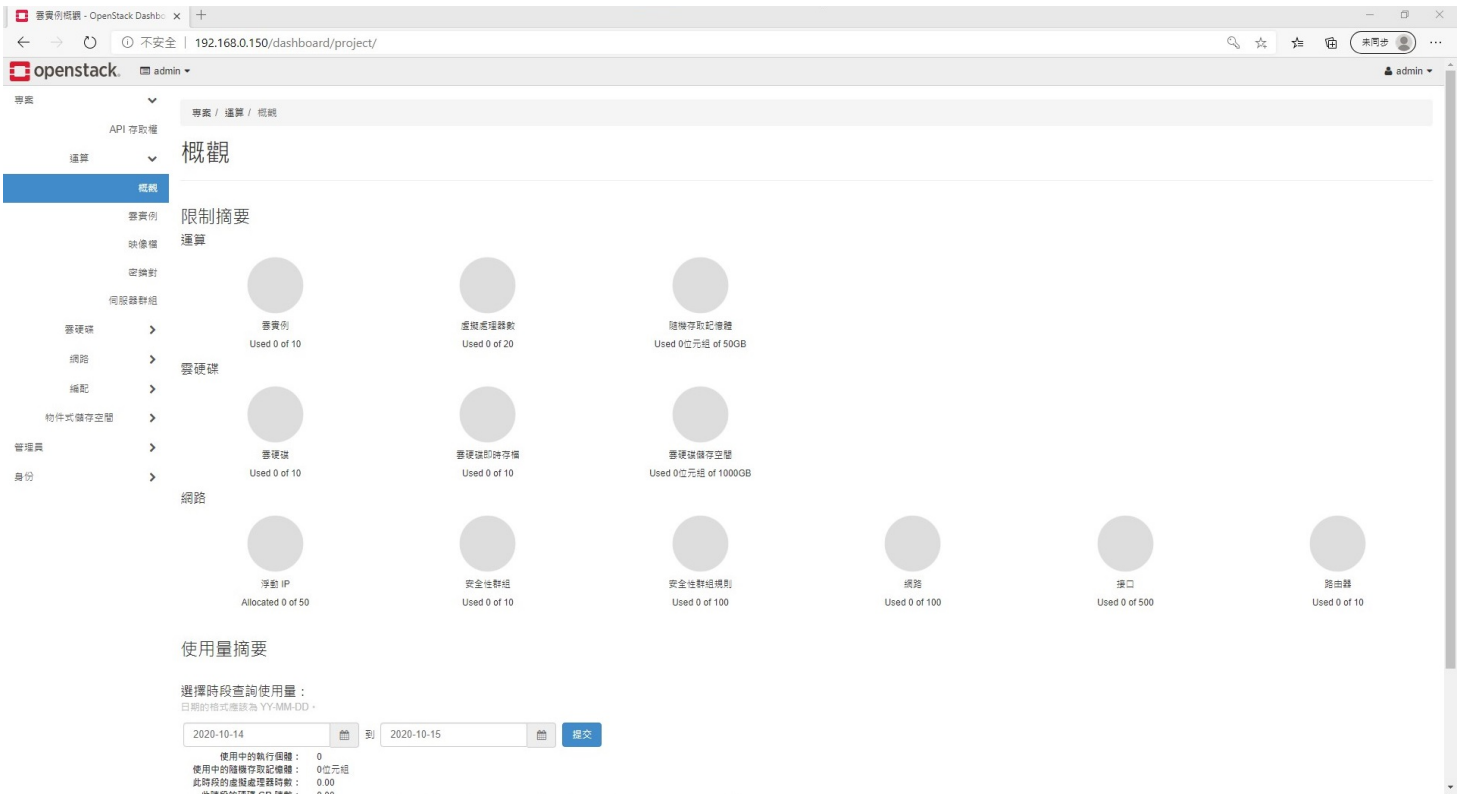
```
# login as root
$ cd ~
# Stop the Firewalld=========
$ systemctl stop firewalld NetworkManager
$ systemctl disable firewalld NetworkManager

# Stop selinux
$ setenforce 0
$ sed -i -e 's/SELINUX=enforcing/SELINUX=disabled/g' /etc/selinux/config
$ sed -i -e 's/SELINUXTYPE=targeted/#SELINUXTYPE=targeted/g' /etc/selinux/config

# restart network
$ systemctl restart network

# Update and Reboot
$ yum update -y
$ reboot
```

- # Install openstack-train

```
$ yum install -y git
$ cd ~
$ git clone https://github.com/xxionhong/network_slice

# check SELINUX
$ sestatus
# should show: SELinux status:                 disabled

# install centos-release-openstack-train
$ yum install centos-release-openstack-train -y

# yum update
$ yum update -y

# install openstack-packstack
$ yum install openstack-packstack -y

# Generate answer file
$ packstack --gen-answer-file answer.txt

# mod the answer.txt file
# CONFIG_DEFAULT_PASSWORD={password}
# CONFIG_NTP_SERVERS=clock.stdtime.gov.tw
# CONFIG_KEYSTONE_ADMIN_PW={password}
# CONFIG_HEAT_INSTALL=y
# CONFIG_PROVISION_DEMO=n

# Edit answer file
$ sed -i -e 's/CONFIG_NTP_SERVERS=/CONFIG_NTP_SERVERS=clock.stdtime.gov.tw/g' answer.txt
$ sed -i -e 's/CONFIG_HEAT_INSTALL=n/CONFIG_HEAT_INSTALL=y/g' answer.txt
$ sed -i -e 's/CONFIG_PROVISION_DEMO=y/CONFIG_PROVISION_DEMO=n/g' answer.txt
$ vim answer.txt

# initial packstack
$ packstack --answer-file answer.txt
# it may take half hour...
```

```
[root@openstack ~]# [root@openstack ~]# [root@openstack ~]# packstack --answer-file ~/answer.txt
Welcome to the Packstack setup utility

The installation log file is available at: /var/tmp/packstack/20201012-040049-GuOYYY/openstack-setup.log

Installing:
Clean Up                                             [ DONE ]
Discovering ip protocol version                      [ DONE ]
Setting up ssh keys                                  [ DONE ]
Preparing servers                                    [ DONE ]
Pre installing Puppet and discovering hosts' details [ DONE ]
Preparing pre-install entries                        [ DONE ]
Installing time synchronization via NTP              [ DONE ]
Setting up CACERT                                    [ DONE ]
Preparing AMQP entries                               [ DONE ]
Preparing MariaDB entries                            [ DONE ]
Fixing Keystone LDAP config parameters to be undef if empty[ DONE ]
Preparing Keystone entries                           [ DONE ]
Preparing Glance entries                             [ DONE ]
Checking if the Cinder server has a cinder-volumes vg[ DONE ]
Preparing Cinder entries                             [ DONE ]
Preparing Nova API entries                           [ DONE ]
Creating ssh keys for Nova migration                 [ DONE ]
Gathering ssh host keys for Nova migration           [ DONE ]
Preparing Nova Compute entries                       [ DONE ]
Preparing Nova Scheduler entries                     [ DONE ]
Preparing Nova VNC Proxy entries                     [ DONE ]
Preparing OpenStack Network-related Nova entries     [ DONE ]
Preparing Nova Common entries                        [ DONE ]
Preparing Neutron API entries                        [ DONE ]
Preparing Neutron L3 entries                         [ DONE ]
Preparing Neutron L2 Agent entries                   [ DONE ]
Preparing Neutron DHCP Agent entries                 [ DONE ]
Preparing Neutron Metering Agent entries             [ DONE ]
Checking if NetworkManager is enabled and running    [ DONE ]
Preparing OpenStack Client entries                   [ DONE ]
Preparing Horizon entries                            [ DONE ]
Preparing Swift builder entries                      [ DONE ]
Preparing Swift proxy entries                        [ DONE ]
Preparing Swift storage entries                      [ DONE ]
Preparing Heat entries                               [ DONE ]
Preparing Heat CloudFormation API entries            [ DONE ]
Preparing Gnocchi entries                            [ DONE ]
Preparing Redis entries                              [ DONE ]
Preparing Ceilometer entries                         [ DONE ]
Preparing Aodh entries                               [ DONE ]
Preparing Puppet manifests                           [ DONE ]
Copying Puppet modules and manifests                 [ DONE ]
Applying 10.225.12.92_controller.pp
10.225.12.92_controller.pp:                          [ DONE ]
Applying 10.225.12.92_network.pp
10.225.12.92_network.pp:                             [ DONE ]
Applying 10.225.12.92_compute.pp
10.225.12.92_compute.pp:                             [ DONE ]
Applying Puppet manifests                            [ DONE ]
Finalizing                                           [ DONE ]

 **** Installation completed successfully ******

Additional information:
 * Parameter CONFIG_NEUTRON_L2_AGENT: You have chosen OVN Neutron backend. Note that this backend does not support the V
PNaaS or FWaaS services. Geneve will be used as the encapsulation method for tenant networks
 * File /root/keystonerc_admin has been created on OpenStack client host 10.225.12.92. To use the command line tools you
 need to source the file.
 * To access the OpenStack Dashboard browse to http://10.225.12.92/dashboard .
Please, find your login credentials stored in the keystonerc_admin in your home directory.
 * The installation log file is available at: /var/tmp/packstack/20201012-040049-GuOYYY/openstack-setup.log
 * The generated manifests are available at: /var/tmp/packstack/20201012-040049-GuOYYY/manifests
[root@openstack ~]#
```


登入 - OpenStack Dashboard
不安全 | 192.168.0.150/dashboard/auth/login/?next=/dashboard/
openstack.
登入
用戶名稱
admin
密碼
登入


不安全 | 192.168.0.150/dashboard/project/
openstack.
admin
專案
API 存取權
運算
概觀
雲實例
映像檔
密鑰對
伺服器群組
雲硬碟
網路
編配
物件式儲存空間
管理員
身份
專案 / 運算 / 概觀
概觀
限制摘要
運算
雲實例
Used 0 of 10
虛擬處理器數
Used 0 of 20
隨機存取記憶體
Used 0位元組 of 50GB
雲硬碟
雲硬碟
Used 0 of 10
雲硬碟即時存檔
Used 0 of 10
雲硬碟儲存空間
Used 0位元組 of 1000GB
網路
浮動 IP
Allocated 0 of 50
安全性群組
Used 0 of 10
安全性群組規則
Used 0 of 100
網路
Used 0 of 100
接口
Used 0 of 500
路由器
Used 0 of 10
使用量摘要
選擇時段查詢使用量：
2020-10-14
到
2020-10-15
提交

- ◦ **ifcfg-br-ex**

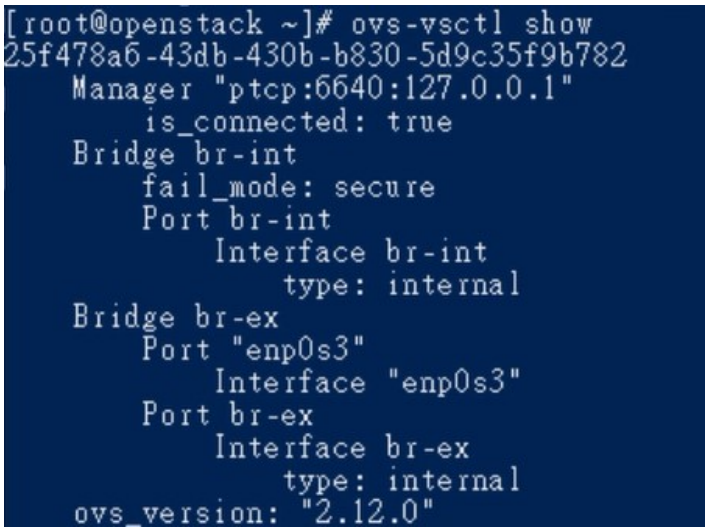
```
IPADDR={Host IP}
GATEWAY={GW IP}
ONBOOT=yes
PREFIX=24
DNS1=8.8.8.8
DEVICE=br-ex
DEVICETYPE=ovs
TYPE=OVSBridge
BOOTPROTO=static
```

- ### ifcfg-enp0s3

```
DEVICE=enp0s3
TYPE=OVSPort
DEVICETYPE=ovs
OVS_BRIDGE=br-ex
ONBOOT=yes
```

Modify the network-script

```
# backup ifcfg-enp0s3
$ mv /etc/sysconfig/network-scripts/ifcfg-enp0s3 /etc/sysconfig/network-scripts/ifcfg-enp0s3.bak

# move ifcfg-enp0s3 and ifcfg-br-ex
$ cp network_slice/experiment_4/script/ifcfg-enp0s3 /etc/sysconfig/network-scripts/
$ cp network_slice/experiment_4/script/ifcfg-br-ex /etc/sysconfig/network-scripts/

# chmod 744 ifcfg-enp0s3 and ifcfg-br-ex
$ chmod 744 /etc/sysconfig/network-scripts/ifcfg-enp0s3
$ chmod 744 /etc/sysconfig/network-scripts/ifcfg-br-ex

# show the ip
$ hostname -i

# edit br-ex
$ vim /etc/sysconfig/network-scripts/ifcfg-br-ex

# restart network
$ systemctl restart network

# show ovs-vsctl
$ ovs-vsctl show
```




```
# create tacker DB
$ mysql -uroot
$ CREATE DATABASE tacker;
$ grant all privileges on tacker.* to 'tacker'@'%' identified by '{pwd}';
$ grant all privileges on tacker.* to 'tacker'@'127.0.0.1' identified by '{pwd}';
$ flush privileges;
$ exit

# Create Openstack User"
$ cd ~
$ source ~/keystonerc_admin
$ openstack user create --domain default --password {pwd} tacker
$ openstack role add --project services --user tacker admin

# Create Service
$ openstack service create --name tacker --description "Tacker Project" nfv-orchestration

$ hostname -i

# create openstack endpoint
$ openstack endpoint create --region RegionOne nfv-orchestration public http://{ip}:9890/
$ openstack endpoint create --region RegionOne nfv-orchestration internal http://{ip}:9890/
$ openstack endpoint create --region RegionOne nfv-orchestration admin http://{ip}:9890/
```

```
+-------------+----------------------------------+
[root@openstack ~(keystone_admin)]# openstack endpoint create --region RegionOne nfv-orchestration public http://192.168
.0.150:9890/
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | cc4168ab11394ca59c0a37bdf9aa7b50 |
| interface    | public                           |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 60ff80e112f44bedbfa77b3016fe4102 |
| service_name | tacker                           |
| service_type | nfv-orchestration                |
| url          | http://192.168.0.150:9890/       |
+--------------+----------------------------------+
[root@openstack ~(keystone_admin)]# openstack endpoint create --region RegionOne nfv-orchestration internal http://192.1
68.0.150:9890/
+--------------+----------------------------------+
| Field        | Value                            |
+--------------+----------------------------------+
| enabled      | True                             |
| id           | c3276a31a3a544a9aba030204332ad58 |
| interface    | internal                         |
| region       | RegionOne                        |
| region_id    | RegionOne                        |
| service_id   | 60ff80e112f44bedbfa77b3016fe4102 |
| service_name | tacker                           |
| service_type | nfv-orchestration                |
| url          | http://192.168.0.150:9890/       |
+--------------+----------------------------------+
[root@openstack ~(keystone_admin)]# openstack endpoint create --region RegionOne nfv-orchestration admin http://192.168.
0.150:9890/
```

- # Install tacker
- - ## tacker.conf

```
[default]
auth_strategy = keystone
policy_file = /etc/tacker/policy.json
debug = True
use_syslog = False
bind_host = {IP}
bind_port = 9890
service_plugins = nfvo,vnfm
state_path = /var/lib/tacker
transport_url = rabbit://openstack:{PASSWORD}@{IP}
[keystone_authtoken]
www_authenticate_uri = http://{IP}:5000
auth_url = http://{IP}:5000
memcached_servers = {IP}:11211
auth_type = password
project_domain_name = default
user_domain_name = default
project_name = services
username = tacker
password = {PASSWORD}
token_cache_time = 3600
[database]
connection = mysql+pymysql://tacker:{PASSWORD}@{IP}/tacker
[nfvo_vim]
vim_drivers = openstack
[tacker]
monitor_driver = ping,http_ping
```

```
# install tackerclient
$ yum install python2-tackerclient -y
$ yum install openstack-tacker -y

# replace tacker.conf
$ mv /etc/tacker/tacker.conf /etc/tacker/tacker.conf.bak
$ cp network_slice/experiment_4/script/tacker.conf /etc/tacker/
$ chmod 744 /etc/tacker/tacker.conf

$ hostname -i

$ vim /etc/tacker/tacker.conf

# upgrade tacker-DB
$ /usr/bin/tacker-db-manage --config-file /etc/tacker/tacker.conf upgrade head

# download and install tacker-horizon
$ cd ~
$ git clone https://github.com/openstack/tacker-horizon.git -b stable/train
$ cd tacker-horizon
$ python setup.py install

# Enable tacker dashboard
$ cp tacker_horizon/enabled/_80_nfv.py /usr/share/openstack-dashboard/openstack_dashboard/enable

# restart httpd and openstack
$ systemctl restart httpd

# restart openstack-tacker-server
$ systemctl restart openstack-tacker-server

# restart openstack-tacker-conductor
$ systemctl restart openstack-tacker-conductor

# enable openstack-tacker-server openstack-tacker-conductor
$ systemctl enable openstack-tacker-server openstack-tacker-conductor

# mkdir and chmod
$ mkdir -p /etc/tacker/vim/fernet_keys
$ chown tacker:tacker /etc/tacker/* -R
```

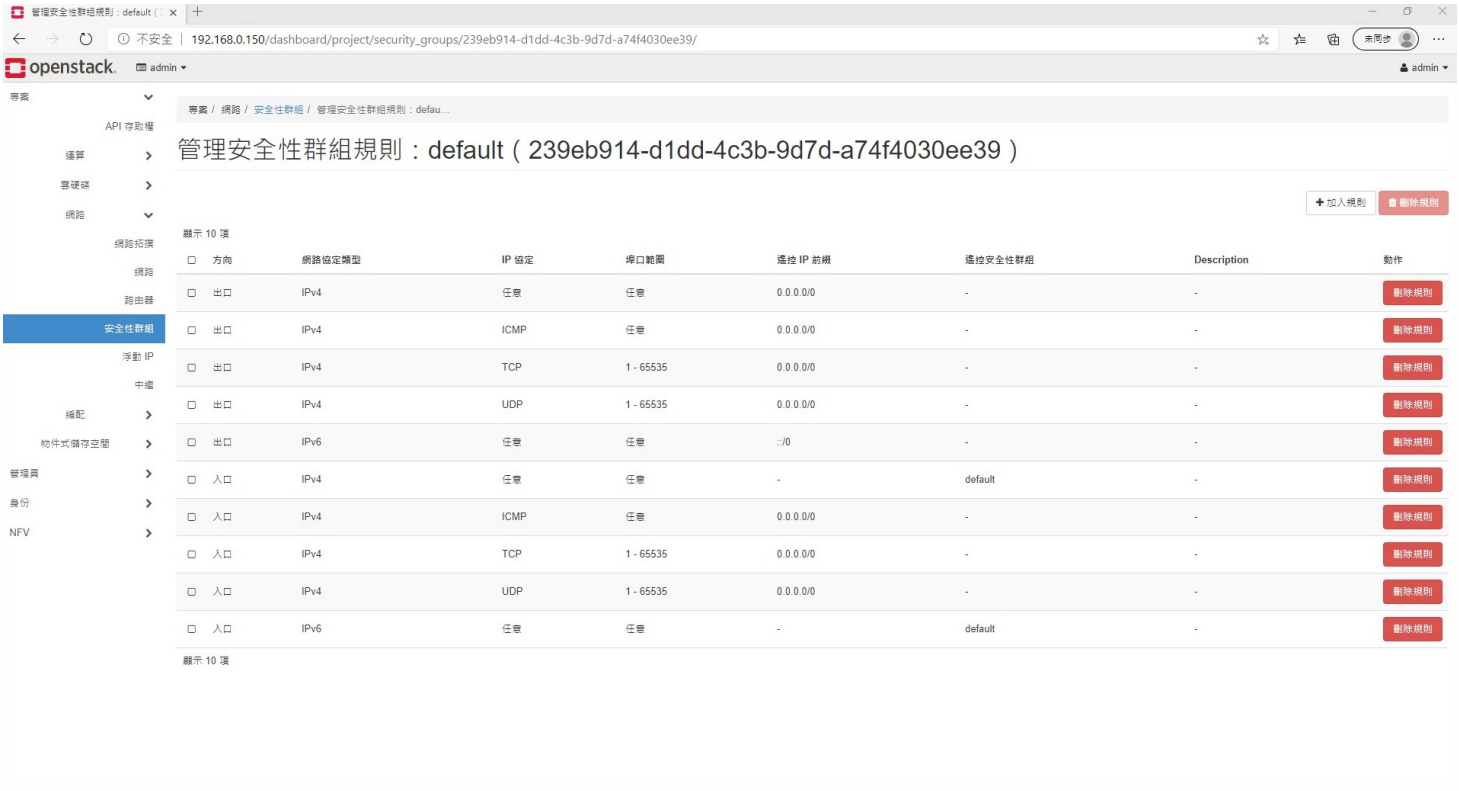
- ### config.yaml

```
auth_url: 'http://{IP}:5000/v3'
username: 'admin'
password: '{pw}'
project_name: 'admin'
project_domain_name: 'Default'
user_domain_name: 'Default'
cert_verify: 'True'
```

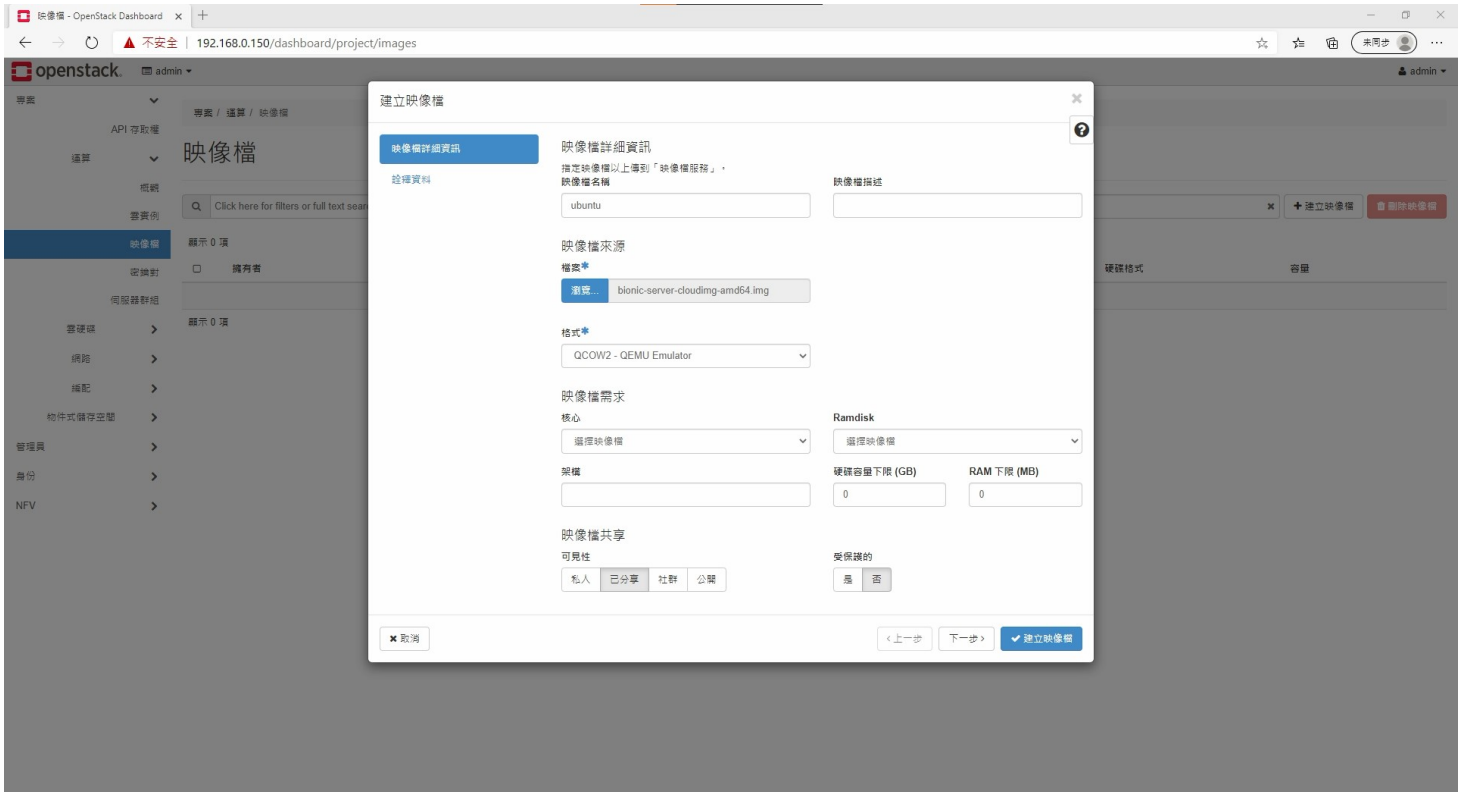
```
# replace config.yaml
$ cd ~
$ cp network_slice/experiment_4/script/config.yaml /etc/tacker/
$ chmod 744 /etc/tacker/config.yaml

$ hostname -i

# vim config.yaml
$ vim /etc/tacker/config.yaml

# create vim in openstack
$ openstack vim register --config-file /etc/tacker/config.yaml --description 'my first vim' --is


# use Tacker to create VNF
$ source keystonerc_admin

$ openstack network create --share --external \
--provider-physical-network extnet \
--provider-network-type flat public

$ openstack subnet create --network public \
--allocation-pool start=192.168.0.20,end=192.168.0.40 \
--gateway 192.168.0.1 \
--subnet-range 192.168.0.0/24 public
```

```
# create Private Network
$ openstack network create net0
$ openstack subnet create net0 --network net0 \
--subnet-range 10.20.0.0/24 \
--gateway 10.20.0.254

# create Virtual Router
$ openstack router create testRouter
$ openstack router set testRouter --external-gateway public
$ openstack router add subnet testRouter net0

# Web UI ** Project->Network->Security Group **
# ALL ICMP Ingress/Egress
# ALL TCP Ingress/Egress
# ALL UDP Ingress/Egress"

$ openstack keypair create --public-key ~/.ssh/id_rsa.pub Demo
```

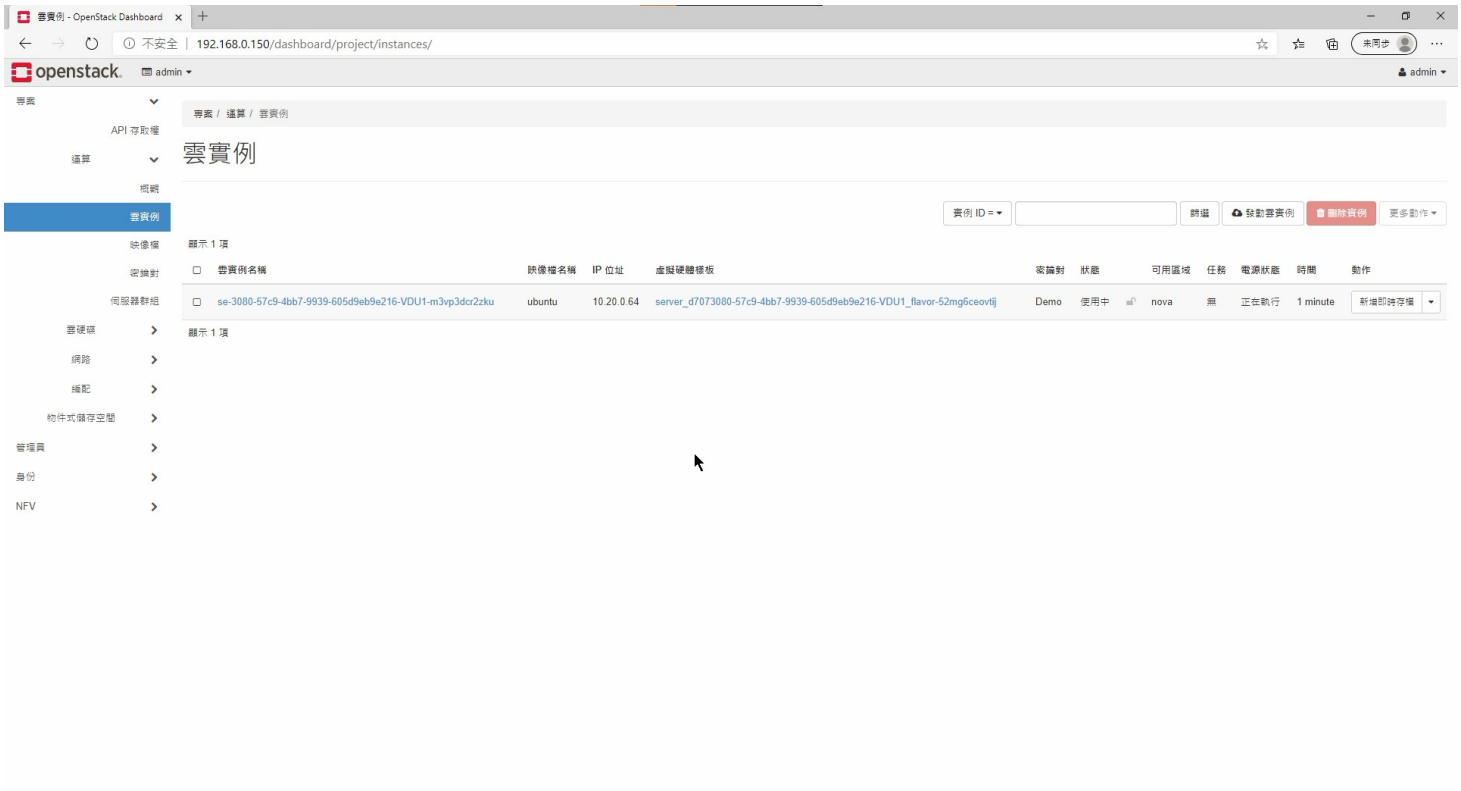
- **Add the ICMP, TCP ,UDP Ingress/Engress Security Group**



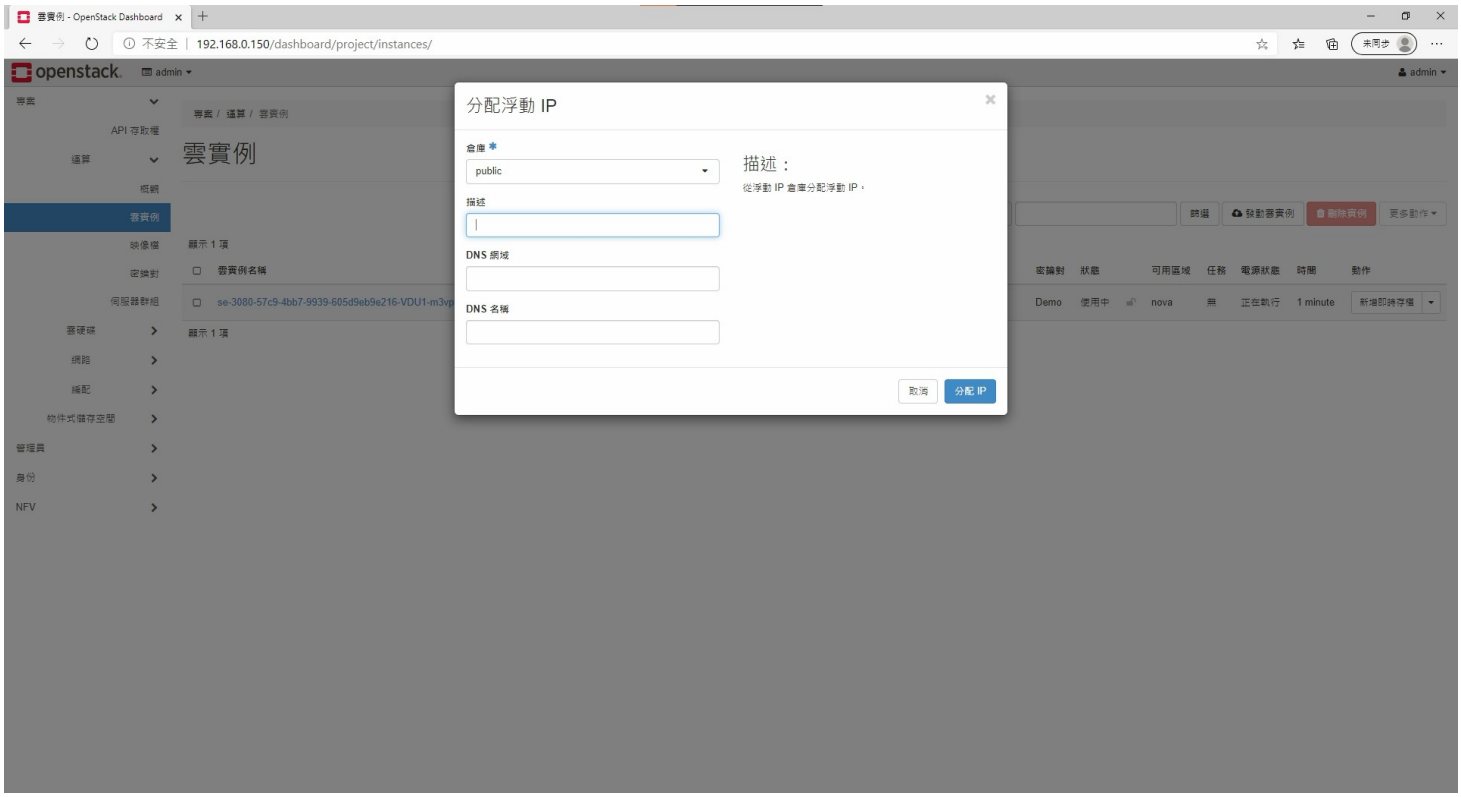
- **Upload the ubuntu Image**




```
# Create Vnfd
# https://docs.openstack.org/tacker/latest/user/vnfm_usage_guide.html
$ openstack vnf descriptor create --vnfd-file network_slice/experiment_4/script/Vnfd.yaml vnfd

# Create VNF
$ openstack vnf create --vnfd-name vnfd server
```



- **Mount the float IP**



- **then you can access `ssh ubuntu@{float-ip}` to login vnf**

fd

```
0 updates are security updates.



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@se-3080-57c9-4bb7-9939-605d9eb9e216-vdu1-m3vp3dcr2zku:~$ ifconfig
ens3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1442
        inet 10.20.0.64  netmask 255.255.255.0  broadcast 10.20.0.255
        inet6 fe80::f816:3eff:fed8:aba4  prefixlen 64  scopeid 0x20<link>
        ether fa:16:3e:d8:ab:a4  txqueuelen 1000  (Ethernet)
        RX packets 241  bytes 42006 (42.0 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 312  bytes 35235 (35.2 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 468  bytes 35836 (35.8 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 468  bytes 35836 (35.8 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

ubuntu@se-3080-57c9-4bb7-9939-605d9eb9e216-vdu1-m3vp3dcr2zku:~$
```