How to Deploy OpenStack via packstack (all in one)

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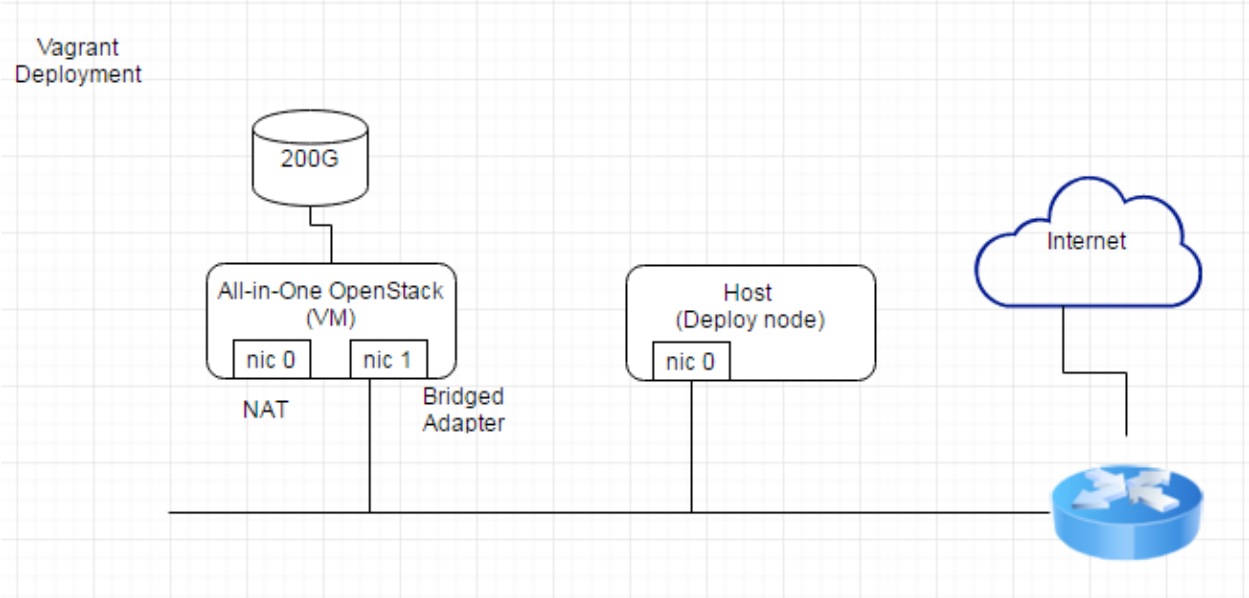
ETA: 27 mins (i5)
Elapsed time:0:34:36 for OpenStack M version

Current: RDO status



(Edit)

我們常常看到人家在講 OpenStack, 常常看到有人在實驗室架設 OpenStack 雲基礎建設, SW 部門每人一個 VDI 遠端桌面, 讓我們不用再擔心自己的實體電腦掛掉的問題. 好! 如果我們想要搞清楚這一切的基礎 OpenStack, 那要怎麼做? 看網路上文章? 我一定要親手設定起來, 然後看到它會動, 我才相信. 有人說:我一定要一堆 server 機器與高速網路, 才能安裝 OpenStack嗎? 又有人說, 就算是有一堆機器與網路設備, 你要先閱讀官方安裝文件, 然後搞了幾個小時之後, 因為一個字打錯, 不能動! 然後又花幾個小時除錯, 然後放棄. 我其實只想試試看 OpenStack, 讓他安裝在自己的電腦上玩玩, 有這麼難嗎? 答案是: 如果想嘗鮮. 一台i5 NB就可以了

基本上, 要把東西摸熟, 最好自己就要有一套設備 (無論在遠端或是自己的桌上), 準備隨時弄壞它, 隨時研究它, 隨時設定各式各樣的參數. 然後做好紀錄.
如果想在家裡試試看 OpenStack 又沒有那麼多設備的人, 他們通常會安裝 OpenStack 官方建議的 devstack, 它可以把 OpenStack Services 裝在同一台電腦裡. 可是 devstack 只是實驗, 無法讓你進行產品等級的安裝.

而想要有產品等級的安裝方式,又想嘗鮮在自己的電腦上, 那你可以考慮直接安裝 Mirantis, 如果你的電腦 CPU 夠快, Memory 夠多, Storage 夠快 (例如: SSD). Mirantis 可以讓你的 OpenStack 安裝在多個 VritualBox VM (or VMware VM) 裡面, 模擬多台機器部署的情況. Mirantis 是正式的商業部屬工具. 很多公司都是直接使用 Mirantis 部署他們 OpenStack, 以提供 IaaS 的服務給他們的 RD. 有興趣的人可以參考這篇文章 進行安裝學習. 但前提是你需要很厲害的電腦. 這些通常不是 notebook. 當然, 如果你有很快的 NB (例如搭配 SSD 的 MacBook Pro), 我的建議是直接學習使用 Mirantis, 因為 Mirantis 有很友善的 GUI 讓你設定. 但你很快就會為當初沒有衝 SSD 容量而懊惱 ^_^

今天要教大家安裝的是 Red Hat 安裝 OpenStack 的方式: packstack. (商業產品等級的部屬方式: 可以裝在一台電腦上, 也可以進行大量部屬在工作站等級的機器上)
使用 packstack 你可以自由選擇將 OpenStack 的 service 全部安裝在一台 VM 上或是安裝在多台 VM 或實體機器上. 你可以用很一般普通的電腦, 就可以快速安裝一個 all in one 的 OpenStack system 在你 NB 上. 在硬體資源不足的情況下, 是一項很不錯的選擇.

今天介紹的 packstack 方式在 MacBook Pro 與 Linux 都沒問題. 我把安裝的步驟寫成了一下面的 script. 讓你可以隨時在 40 分鐘內, 自動重新安裝一個 All in One OpenStack 系統. 讓你隨時都可以有一個個人的 OpenStack 在手上把玩.

當然, 網路上還有更方便, 更厲害的安裝方式. 例如把 OpenStack docker 版, 連安裝都不需要. 就不再這篇裡面說明了 (因為我還沒時間去試)

有兩種方法; (1) vagrant 自動安裝 (最簡單) (2) 手動 vboxmanage + pure script 方法.

vagrant version

需要的軟體

1. [host] Linux (Ubuntu or CentOS)
2. [host] 安裝 Official Released VirtualBox (install extension package guide) (<3mins)
3. [host] 安裝 vagrant (download) (<3 mins)

Quick Installation (<40 mins)

```
## pull the code
[host] git clone https://github.com/jing-tw/OpenStack.git # 簡單的安裝 script (加入 bugfix script)
[host] cd OpenStack
[host] git checkout allinone        # 切到 allinone 獨立分支
```

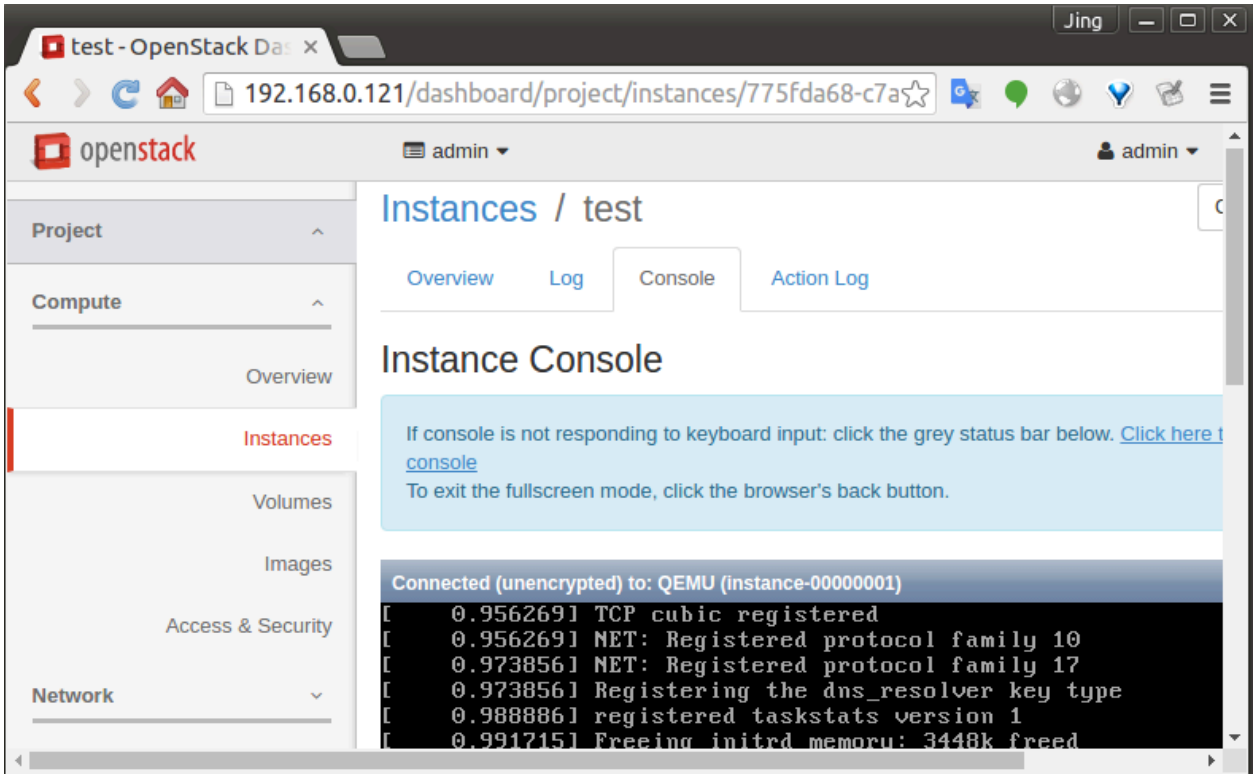
```
#
```

Please check the Openstack version that you want to install for the variable OpenStack_RPM_File in allinone/allinone.sh

```
# start deployment
. ./vagrant_up.sh      #vagrant up --provider virtualbox
```

Verification

Horizon



OpenStack Client

ssh ${Control Node}
sudo su # as root

. ./keystonerc_admin
nova image-list

Ex:

```
[vagrant@jing-vm1 ~]$ sudo su
[root@jing-vm1 vagrant]# ls
admin-openrc.sh  sync
[root@jing-vm1 vagrant]# cd
[root@jing-vm1 ~]# ls
anaconda-ks.cfg  keystonerc_admin  keystonerc_demo
[root@jing-vm1 ~]# . ./keystonerc_admin
```

Fig. 1. Login as root and check the openstackrc files.

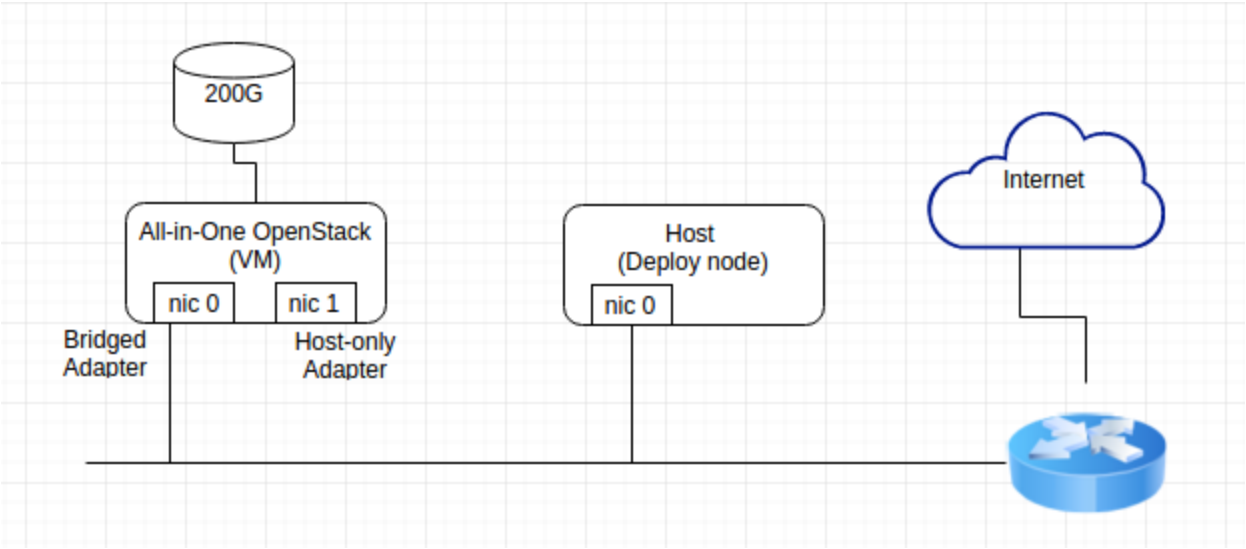
```
[root@jing-vm1 ~(keystone_admin)]# nova image-list
+--------------------------------------+----------------------+--------+--------
+
| ID                                   | Name                 | Status | Server
|
+--------------------------------------+----------------------+--------+--------
+
| 57b674a5-9755-46c6-adeb-748e983ed55f | cirros               | ACTIVE |
|
| 33d53db8-9447-40c4-8fd3-79485ee1cb7f | manila-service-image | ACTIVE |
|
+--------------------------------------+----------------------+--------+--------
```

Fig. 2. Test nova image-list command to list image.

todo

1. Let user choose public network {NAT or Bridge}: Now is Bridge

vboxmanage + pure bash version



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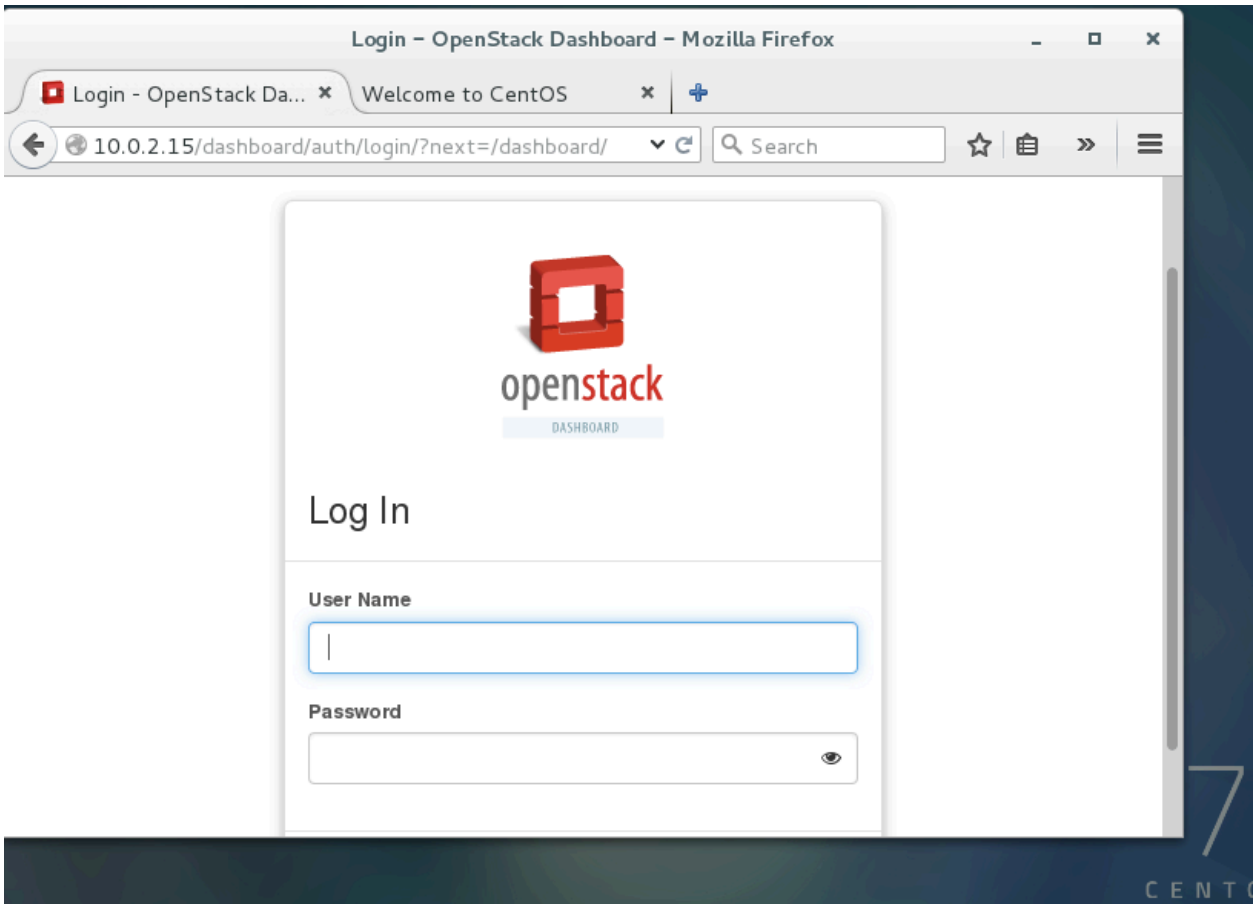
需要的軟體

4. [host] 下載 CentOS (download) (ex: CentOS-7-x86_64-Everything-1511.iso)
5. [host] 安裝 Official Released VirtualBox and the Extension Pack (download) (install extension package guide)
6. [host] sudo yum install git

Quick Installation

```
## pull the code
[host] git clone https://github.com/jing-tw/OpenStack.git # 簡單的安裝 script (加入 bugfix script)
[host] git checkout allinone          # 切到 allinone 獨立分支


== Scenario A: Deploy OpenStack on a existed VM ==
[host] . ./tool-get-vm-ip.sh          # get the target vm instance ip
[host] . ./deploy_allinone.sh <VM IP>     # 在你的 host 執行遠端安裝 allinone script 到你的 VM
                                      # the script will run installation with root (1111111)

== Scenario B: Auto-Create VM + Deploy OpenStack on that VM ==
# step 1: create and install general centos vm
[host] cd allinone
[host] . ./init-vm.sh  # 自動建立 VM (請編輯內容選擇適當的設定), 例如: 橋接 wlan0 or eth0
                       # 執行 init.sh 會自動開啟 VM 安裝 OS

# 取得 VM ip <VM IP>, 稍後我們直接在 host 用 連接 bridge 的那個 IP, 連到 VM
```

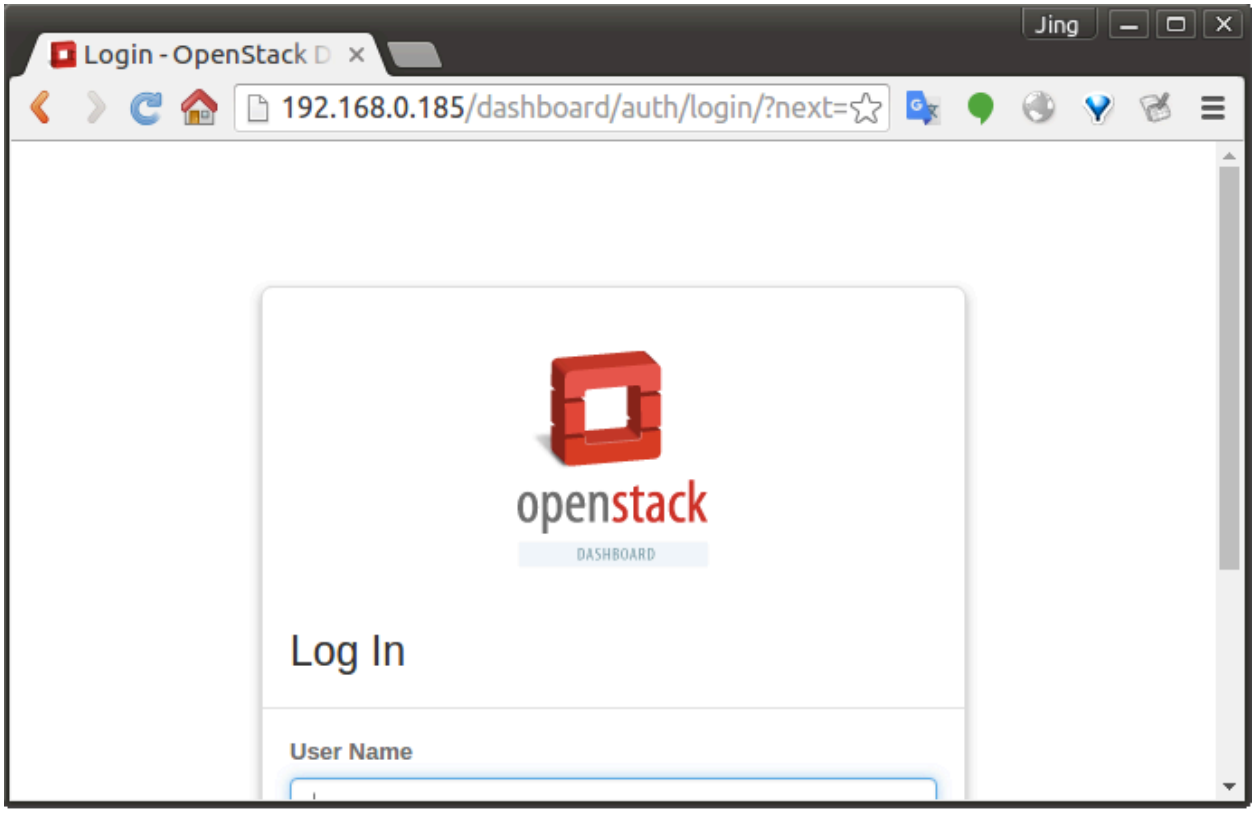
```
# 進行遠端安裝

== step 2: Deploy OpenStack via packstack tool==
[host] . ./tool-get-vm-ip.sh          # get the target vm instance ip
[host] deploy_allinone.sh <VM IP>     # 在你的 host 執行遠端安裝 allinone script 到你的 VM
                                      # the script will run installation with root (1111111)
```

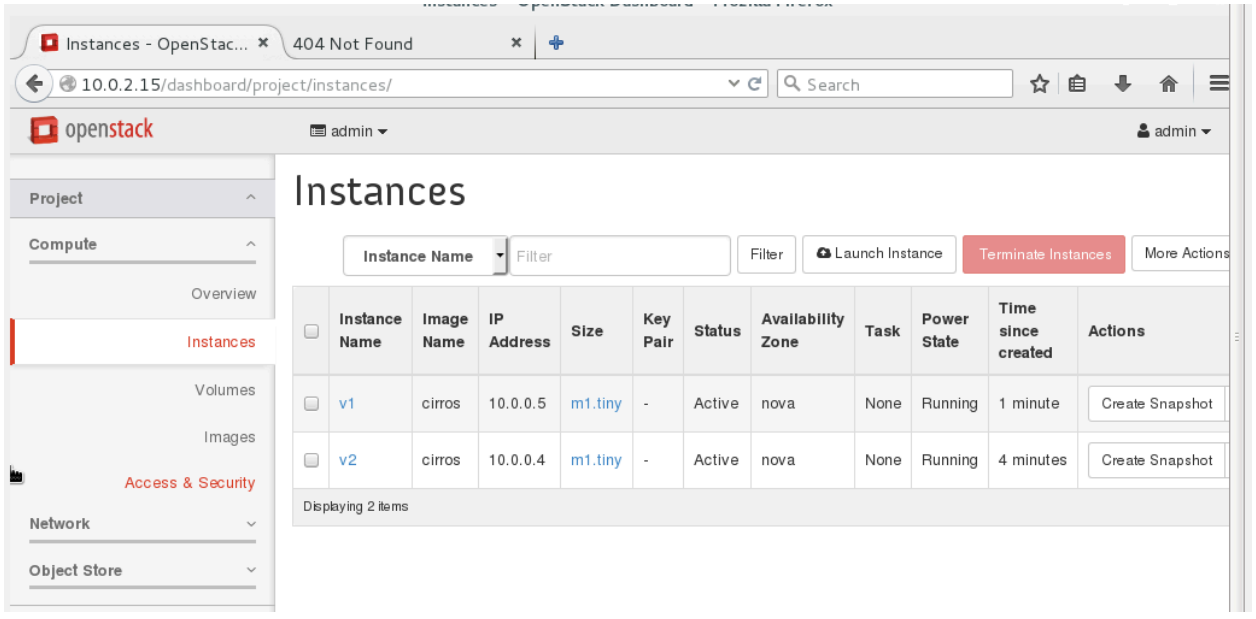


Fix: Bug 1119920

Issue: Bug 1119920 - http://ip/dashboard 404 from all-in-one rdo install on rhel7

File:
vi /etc/httpd/conf.d/15-horizon_vhost.conf
Step 1: remove all ServerAlias
Step 2: add the line
ServerAlias *
Step 3: restart the httpd
service httpd restart





Useful OpenStack Command

- Check hypervisor resource
    - nova hypervisor-list
    - nova hypervisor-show
- Simple VM management
    - nova list // list all instance
    - nova stop <id> // stop instance

Further Information

- Multi Node deployment, https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Linux_OpenStack_Platform/2/html/Getting_Started_Guide/part-Deploying_OS_using_PackStack.html

To do

- Add default

Reference

- http://dbaxps.blogspot.tw/2016/01/set-up-rdo-kilo-on-centos-72-with.html

Detail

Add a bridge to the VM, so you can easily to access your vm.

VirtualBox Site

Step 1: Install CentOS 7
[Host]

init-vm.sh

```
#!/bin/bash

iso_file=~/test/allinone/CentOS-7-x86_64-Everything-1511.iso
vm_name=os-node1-test-$(date +"%Y%m%d_%H%M%S")
manager=vboxmanage
storage_size=10240   #10GB
bridge_nic=eth0 #wlan0

# Create vm
# with memory 4096, nic1: bridged to ${bridge_nic}, nic2: hostonly, vboxnet1s
${manager} createvm --name ${vm_name} --ostype RedHat_64 --register
${manager}  modifyvm ${vm_name} --memory 4096 --nic1 bridged --bridgeadapter1
${bridge_nic} --nic2 hostonly --hostonlyadapter2 vboxnet1

# Setup cdrom and mount the iso
${manager}  storagectl ${vm_name} --name "IDE Controller" --add ide --controller PIIX4
--hostiocache on --bootable on
${manager}  storageattach ${vm_name} --storagectl "IDE Controller" --type dvddrive --port 0
--device 0 --medium ${iso_file}

# Add a disk
${manager}  storagectl ${vm_name} --name "SATA Controller" --add sata --controller
IntelAHCI --hostiocache on --bootable on
${manager}  createhd --filename OS-${vm_name}.vdi --size ${storage_size}
```

Step 2: Enable nic and dhcp
[centos, nic, enable] Enable nic when system boot in CentOS (view)

Guest VM Site

Install packstack and deploy all-in-one OpenStack

Remote script

[Host] . ./deploy_allinone.sh 192.168.0.176

GitHub: https://github.com/jing-tw/OpenStack/tree/allinone

Instruction

```
sudo yum -y update
sudo yum install -y
https://repos.fedorapeople.org/repos/openstack/openstack-kilo/rdo-release-kilo-1.noarch.rpm
sudo yum install -y openstack-packstack

# yum -y install mongodb-server python-pymongo

// mongodb.conf -> /etc/mongod.conf
// mongod = 0

# cd /etc;rm -f mongodb.conf; touch -f mongod.conf
# ln -s /etc/mongod.conf mongodb.conf
```

```
# cd; packstack --gen-answer-file answerAIO.txt

********************************
Update answerAIO.txt
********************************

        CONFIG_KEYSTONE_SERVICE_NAME=httpd

#  packstack --answer-file=./answerAIO.txt
```

Question List

- How to change the default IP 10.0.2.15 to another ip?
    - hint: modified answer.cfg file by replacing DHCP IP 10.0.2.15 to static IP (192.168.56.105) ?? (ref)
    - Hint: Setup the iptable for outside access horizon (ref)
    -
-

Troubleshooting Log

Issue: Bug 1119920 - http://ip/dashboard 404 from all-in-one rdo install on rhel7

File: /etc/httpd/conf.d/15-default.conf
Step 1: remove all ServerAlias
Step 2: add the line
ServerAlias *
Step 3: restart the httpd
service httpd restart

in order to avoid this problem we should set: ServerAlias * to accept from all ip's or names. This way if there's some kind of redirection (NAT, load balancer, reverse proxy, etc...) connections always be accepted.

Resolution
https://bugzilla.redhat.com/show_bug.cgi?id=1119920

Issue: monogod Unknown crash while installing the all intone script
Error: Unable to connect to mongodb server! (192.168.0.109:27017) [root cause]

Resolution:
mongodb and mongod configuration issue
See: http://dbaxps.blogspot.tw/2016/01/set-up-rdo-kilo-on-centos-72-with.html

Issue Cinder.pp Issue

[ref]

```
# . keystonerc_admin

# cinder type-list
+--------------------------------------+-------+
|                  ID                  |  Name |
+--------------------------------------+-------+
```

| f9c66f1c-3ad4-4231-a87f-0f508ef8b40c | iscsi |
+--------------------------------------+-------+

Sure enough, it is already created.

The workaround is to delete that type:
cinder type-delete iscsi

Issue Nova.pp
returns: NameError: global name 'retcode' is not defined