OpenStack Installation on RHEL 6.4 using RDO

This installation guide is based on the OpenStack RDO community site. Many of the sentences are directly extracted from the site.

http://openstack.redhat.com/Quickstart

Please USE IT AT YOUR OWN RISK.

1. Uninstall RDO (if necessary)

```bash
# uninstall_rdo.sh

for x in $(virsh list --all | grep instance- | awk '{print $2}'); do virsh destroy $x; virsh undefine $x; done; yum remove -y nrpe "*nagios*" puppet ntp "ntp-*" ntpdate "rdo-release" "*openstack*" "*nova*" "*keystone*" "*glance*" "*cinder*" "*swift*" mysql mysql-server httpd "*memcache*" scsi-target-utils iscsi-initiator-utils perl-DBI perl-DBD-MySQL ; ps -ef | grep -i repli | grep swift | awk '{print $2}'; xargs kill -rm -rf /etc/nagios /var/log/keystore /tmp/keystore-signing-nova ; find /etc | grep rpm-save | xargs rm -vf; umount /srv/node/device*; killall -9 dnsmasq tgtd httpd; setenforce 1 ; vgremove -f cinder-volumes ; losetup -a | sed -e 's/\.*//g' | xargs losetup -d ; find /etc/pki/tls -name "ssl_ps*" | xargs rm -rf; for x in $(df | grep "/lib/" | sed -e 's/\./\//g'); do umount $x; done
```

2. OpenStack Installation using RDO

http://openstack.redhat.com/Quickstart

(a) Software repositories (Grizzly or Havana)

```bash
sudo yum install -y http://rdo.fedorapeople.org/openstack/openstack-grizzly/rdo-release-grizzly.rpm

OR

sudo yum install -y http://rdo.fedorapeople.org/openstack/openstack-havana/rdo-release-havana.rpm
```

(b) SELINUX Configuration

- If selinux is set for disable, the packstack installation error occurs.

http://openstack.redhat.com/SELinux_issues
SELINUX=permissive

(c) Packstack Installer (Use SSH TCP Port 22 NOT 24 & Add Allowusers root)
- Add AllowUsers root =>
/etc/ssh/sshd_config or /etc/ssh/external_ssh_config (VCL)

```
sudo yum install -y openstack-packstack
```

(d) Install MySQL-Server

```
sudo yum install -y mysql-server
```

(e) Install OpenStack

Packstack takes the work out of manually setting up OpenStack. For a single node OpenStack deployment, run the following command.

```
packstack --allinone --os-quantum-install=n
```

Advanced users: Packstack does have some support for Neutron networking, however, until we have better support for Neutron and some documentation on the wiki for it, we recommend Nova Networking for now

The installer will ask you to enter the root password for each host node you are installing on the network, to enable remote configuration of the host so it can remotely configure each node using Puppet.

3. OpenStack Configuration

(a) Add permissions of nova and cinder to sudoers (visudo)

```
# /etc/sudoers
cinder ALL= NOPASSWD: ALL
nova ALL= NOPASSWD: ALL
```
(b) Comment out `requiretty` in sudoers (visudo)

```
# /etc/suoders

# comment out requiretty
# Disable "ssh hostname sudo <cmd>", because it will show the password in clear.
# You have to run "ssh -t hostname sudo <cmd>".

#Defaults requiretty
```

(c) nova.conf for FlatDHCPManager network option

```
[DEFAULT]
#root_helper = sudo nova-rootwrap /etc/quantum/rootwrap.conf
#root_helper = sudo nova-rootwrap
logdir = /var/log/nova
state_path = /var/lib/nova
lock_path = /var/lib/nova/tmp
volumes_dir = /etc/nova/volumes
dhcpbridge = /usr/bin/nova-dhcpbridge
dhcpbridge_flagfile = /etc/nova/nova.conf
force_dhcp_release = True

injected_network_template = /usr/share/nova/interfaces.template

libvirt_nonblocking = True
libvirt_inject_partition = -1

iscsi_helper = tgtadm

sql_connection = mysql://nova:password@public_ip/nova
compute_driver = libvirt.LibvirtDriver
firewall_driver = nova.virt.libvirt.firewall.IptablesFirewallDriver

rpc_backend = nova.openstack.common.rpc.impl_qpid
#rootwrap_config = /etc/nova/rootwrap.conf

api_paste_config=/etc/nova/api-paste.ini
glance_api_servers=public_ip:9292

qpid_username=guest
osapi_compute_listen=0.0.0.0

qpid_port=5672
osapi_compute_workers=24
osapi_volume_listen=0.0.0.0
qpid_reconnect=True
```
qpid_hostname=public_ip
qpid_reconnect_interval_min=0
e2_listen=0.0.0.0
qpid_password=guest
auth_strategy=keystone

debug=False

enabled_apis=ec2,osapi_compute,metadata
volume_api_class=nova.volume.cinder.API
qpid_reconnect_interval_max=0
metadata_liste=0.0.0.0
image_service=nova.image.glance.GlanceImageService
qpid_protocol=tcp
metadata_host=public_ip
qpid_reconnect_interval=0
qpid_reconnect_limit=0
qpid_heartbeat=60
qpid_reconnect_timeout=0
service_quantum_metadata_proxy=False
qpid_tcp_nodelay=True
verbose=True
service_down_time=60
default_floating_pool=nova
vncserver_proxyclient_address=public_ip

libvirt_type=kvm

NETWORK
#network_manager=nova.network.manager.FlatManager
network_manager=nova.network.manager.FlatDHCPManager
libvirt_use_virtio_for_bridges=true
flat_injected=False
flat_interface=eth0
flat_network_bridge=br100
public_interface=br101
#flat_network_dhcp_start=private_ip or public_ip (e.g., 10.25.6.10)
multi_host=false

fixed_range=private_ip or public_ip/subnet (e.g., 10.25.6.0/24)
floating_range=private_ip or public_ip/subnet (e.g., 10.25.6.0/24)

force_dhcp_release=false
auto_assign_floating_ip=false
#dhcp_domain=local.local

libvirt_cpu_mode = none
libvirt_vif_type=ethernet
novncproxy_base_url=http://public_ip:6080/vnc_auto.html
scheduler_default_filters=RetryFilter,AvailabilityZoneFilter,RamFilter,ComputeFilter,ComputeCapabilitiesFilter,ImagePropertiesFilter,CoreFilter
ram_allocation_ratio=1.5
vnc_enabled=True
novncproxy_host=0.0.0.0
connection_type=libvirt
vncserver_listen=public_ip
novncproxy_port=6080
cpu_allocation_ratio=16.0

[keystone_authtoken]
admin_tenant_name = %SERVICE_TENANT_NAME%
admin_user = %SERVICE_USER%
admin_password = %SERVICE_PASSWORD%
auth_host = 127.0.0.1
auth_port = 35357
auth_protocol = http
signing_dir = /tmp/keystone-signing-nova
use_ipv6=False

(d) Add network for both private and public networks (example)

```
# nova-manage network create private --fixed_range_v4=private_ip/24 --bridge=br100 --bridge_interface=eth0
   Default vlan is vlan100
# nova-manage network create public --fixed_range_v4=public_ip/24 --bridge=br101 --bridge_interface=eth1 --vlan=101
Example) private_ip/subnet (e.g., 10.25.6.0/24) and public_ip/subnet (e.g., 10.25.7.0/24)
# brctl show
bridge name     bridge id               STP enabled     interfaces
br100           8000.3440b5dc1a7c       no              eth0
                vlan100
                vnet0
br101           8000.3440b5dc1a7e       no              eth1
                vlan101
                vnet1
# nova-manage network list
id    IPv4                    IPv6            start address   DNS1            DNS2            VlanID    project    uuid
1    10.25.6.0/24            None            10.25.6.3       8.8.4.4         None            100
802ada9e5954736b970e234551a0899 246783da-28f3-444e-9847-97cc262e2592
2    10.25.7.0/24            None            10.25.7.3       8.8.4.4         None            101
802ada9e5954736b970e234551a0899 642743da-41k1-986w-6319-73ke126q1253
```

3. Running an instance

(a) Visit the dashboard

- Log in to the Openstack dashboard at http://CONTROL_NODE/dashboard
- the username is "admin". The password can be found in the file keystonerc_admin in the /root/ directory of the control node.

(b) Enable SSH on your default security group

- OpenStack dashboard => "Project" => "Access & Security" => "Security Groups" => "Edit Rules" for the "default" security group => "Add Rule" => enter "22" in the "Port" field => "Add"
(b) Create or import a key pair

- OpenStack dashboard => "Project" => "Access & Security" => "Keypairs" => "Create Keypair" or "Import Keypair."
- "Import Keypair" : Use the contents of your public key file, usually in `~/.ssh/id_rsa.pub` or `~/.ssh/id_dsa.pub` on the machine from which you will be ssh-ing in.
(b) Add an image

- OpenStack dashboard => "Project" => "Images & Snapshots" => "Create Image" => enter "Fedora19" in the "Name" field, "http://cloud.fedoraproject.org/fedora-19.x86_64.qcow2" in the "Image Location" field, choose "QCOW2" from the "Format" drop-down menu, leave the "Minimum Disk" and "Minimum Ram" fields blank, check the "Public" box, and click the "Create Image" button.
(c) Launch an instance

(d) SSH to your instance
# nova list
+-------------------------------+----------------+---------------+----------+
| ID                            | Name           | Status        | Networks  |
+-------------------------------+----------------+---------------+----------+
| 39104e92-97c8-4e4b-bd4a-86b9e0d30fcb | Fedora19-VM1   | ACTIVE        | private=ip_address |
+-------------------------------+----------------+---------------+----------+

# ssh -l fedora -i /root/.ssh/id_rsa ip_address