OpenStack Icehouse Multiple Virtual Machines Manual

Joseph Callen

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Chapter 1

Packstack

1.1 Prerequisites

You can use any hypervisor: VMware Workstation, Fusion, Player, ESXi, KVM w/virt-manager (you don't really need virt-manager with KVM, just makes it easier) or VirtualBox. As of this writing download a network-based install CD of Fedora 20. This will allow you to create a minimal install that is all up to date. The OS disk needs minimally 8 GB and a secondary disk for cinder volumes which should be at least 20 GB. I recommend using the NAT network interface since it will provide a route and DNS. We will overlap IP addresses of the DHCP server but that shouldn't be an issue unless you have multiple virtual machines running.

After the OS has been installed lets create our cinder-volumes volume group. In this example the device is named vdb, yours could be different. To determine disk name use dmesg or fdisk -1.

Listing 1.1: Create Cinder Volume VG

ı vgcreate cinder-volumes /dev/vdb

Listing 1.2: Disable firewalld, enable iptables-services

```
1 systemctl enable network
2 systemctl disable firewalld
3 yum install iptables-services -y
4 systemctl enable iptables.service
```

The configurations files that Packstack creates will use your IP address not the hostname so we need to make sure that we have a static IP before generating the answer file. Lets first determine your current network information.

Listing 1.3: Current IP address

```
1 [root@virsatpaw001 ~]# ip a
2 1: 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
leth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
link/ether 52:54:00:e7:12:47 brd ff:ff:ff:ff:ff
inet 192.168.122.10/24 brd 192.168.122.255 scope global eth0
inet6 fe80::5054:ff:fee7:1247/64 scope link
valid_lft forever preferred_lft forever
```

Line 9 displays our current IP and subnet mask of 192.168.122.10 /24 (or 255.255.255.0).

Listing 1.4: Current Default Route

```
1 [root@virsatpaw001 ~]# ip route
2 192.168.122.0/24 dev eth0 proto kernel scope link src 192.168.122.10
3 169.254.0.0/16 dev eth0 scope link metric 1002
4 default via 192.168.122.1 dev eth0
```

Line 4 displays our current default gateway of 192.168.122.1.

Listing 1.5: Current Resolver

```
[root@virsatpaw001 ~]# cat /etc/resolv.conf
nameserver 192.168.122.1
```

Based on your device name there will be a corresponding ifcfg file. DEVICE, IPADDR, NET-MASK, GATEWAY and DNS1,2 will be based on your network. Modify the file removing options that don't exist in the example below, adding the options that do.

Listing 1.6: Modify Ethernet interface from DHCP to static

```
ı vi /etc/sysconfig/network-scripts/ifcfg-
```

Listing 1.7: Example Ethernet configuration

```
DEVICE=eth0
TYPE=Ethernet
ONBOOT=yes
MM_CONTROLLED=no
BOOTPROTO=static
NAME="eth0"
IPADDR=192.168.122.10
NETMASK=255.255.255.0
GATEWAY=192.168.122.1
DNS1=192.168.122.1
```

At this point let us reboot. When the virtual machine is available make sure that you can still reach the default gateway, then proceed to the next section.

Chapter 2

Multi Node install

Listing 2.1: foo

Listing 2.2: foo

```
virt-sysprep -a /dev/virtualmachine/virctlpaw001 --hostname
    virctlpaw001.virtomation.com \
2 --firstboot-command "sed -i -r 's/IPADDR=(\b[0-9]{1,3}\.){3}[0-9]{1,3}\
    b'/IPADDR=10.53.252.61/ /etc/sysconfig/network-scripts/ifcfg-eth0" \
3 --firstboot-command 'systemctl restart network' \
4 --firstboot-command 'yum install -y http://rdo.fedorapeople.org/rdo-
    release.rpm' \
5 --firstboot-command 'yum install openstack-packstack -y'
```

Listing 2.3: foo

```
alias yi="yum -y install"
2 alias start="systemctl start"
3 alias e="systemctl enable"
4 alias ocs="openstack-config --set"
```

Listing 2.4: foo

```
yum install mariadb mariadb-server -y
2 systemctl enable mariadb.service
3 systemctl start mariadb.service
4 netstat -tanp | grep 3306
5 mysql_secure_installation
```

Listing 2.5: foo

```
1 yum install yum-plugin-priorities.noarch
2 alias yi="yum -y install"
```

Listing 2.6: foo

```
yi rabbitmq-server
2 e rabbitmq-server
3 systemctl start rabbitmq-server.service
```

Listing 2.7: Add the public network to the router

```
1 [root@virctlpaw001 jcallen]# for serv in "cinder" "nova" "neutron" "
    heat"; do passwd='openssl rand -base64 8'; echo "$serv - $passwd";
    rabbitmqctl add_user $serv $passwd; done
```

Listing 2.8: Add the public network to the router

```
1 cinder - Q7gPp1FOK5g=
2 Creating user "cinder" ...
3 ...done.
4 nova - 2mM7OaVNFKM=
5 Creating user "nova" ...
6 ...done.
7 neutron - krPOwjPbKJs=
8 Creating user "neutron" ...
9 ...done.
10 heat - 12iDS1n7nmw=
11 Creating user "heat" ...
12 ...done.
```

Listing 2.9: foo

```
1 yi openstack-keystone openstack-utils
2 mysql -u root -p
3 export SERVICE_TOKEN=$(openssl rand -hex 10)
4 echo $SERVICE_TOKEN > ~/ks_admin_token
```

Listing 2.10: foo

```
13 chown -R keystone: keystone /var/log/keystone
14 /etc/keystone/ssl/
15 chown -R keystone:keystone /var/log/keystone /etc/keystone/ssl/
16 su -s /bin/sh -c "keystone-manage db_sync" keystone
17 history
18 keystone-manage pki_setup --keystone-user keystone --keystone-group
     keystone
19 yi python-keystoneclient
20 chmod -R o-rwx /etc/keystone/ssl
21 history | alias
22 start openstack-keystone
23 systemctl status openstack-keystone.service
24 firewall-cmd --permanent --add-port=5000/tcp
26 export OS SERVICE TOKEN=$SERVICE TOKEN
27 export OS_SERVICE_ENDPOINT=http://10.53.252.61:35357/v2.0
28 keystone user-create --name=admin --pass=trustn01
^{29} keystone role-create --name=admin
30 keystone tenant-create --name=admin --description="Admin Tenant"
31 keystone user-role-add --user=admin --tenant=admin --role=admin
32 keystone user-role-add --user-admin --role-_member_ --tenant-admin
33 source /etc/bash_completion.d/keystone.bash_completion
34 keystone tenant-create --name=service --description="Service Tenant"
35 keystone service-create --name=keystone --type=identity --description="
     OpenStack Identity"
36 keystone endpoint-create --service=keystone --publicurl=http
     ://10.53.252.61:5000/v2.0 --internalurl=http://10.53.252.61:5000/v2
     .0 --adminurl=http://10.53.252.61:35357/v2.0
```

Listing 2.11: ∧ Unset environment variables

```
unset OS_SERVICE_ENDPOINT
unset OS_ENDPOINT
unset OS_SERVICE_TOKEN
unset SERVICE_TOKEN
```

Listing 2.12: ∧ Error msg if environment variables are not unset

```
1 [root@virctlpaw001 ~]# keystone catalog
2 'NoneType' object has no attribute 'has_service_catalog'
```

Listing 2.13: foo

```
1 yi glance...
2 yum install -y openstack-swift-proxy \
3 openstack-swift-object \
4 openstack-swift-container \
5 openstack-swift-account \
6 openstack-utils \
7 memcached
```

```
9 fdisk /dev/vdb
no mkfs.ext4 /dev/vdb1
12 [root@virctlpaw001 ~(keystone_admin)]# blkid /dev/vdb1
13 /dev/vdb1: UUID="7cefc9b8-3313-40cb-941b-78b35c029bac" TYPE="ext4"
     PARTUUID="9faed234-01"
14
15 vi /etc/fstab
16 mkdir -p /srv/node/d1
17 mount --help
18 mount -a
20 ocs /etc/swift/swift.conf swift-hash swift_hash_path_prefix $(openssl
     rand -hex 10)
21 ocs /etc/swift/swift.conf swift-hash swift_hash_path_suffix $(openssl
     rand -hex 10)
22 clear
23 ocs /etc/swift/object-server.conf DEFAULT bind_ip 10.53.252.61
24 ocs /etc/swift/account-server.conf DEFAULT bind ip 10.53.252.61
25 ocs /etc/swift/container-server.conf DEFAULT bind_ip 10.53.252.61
27
28 clear
29 for swiftserv in "openstack-swift-account" "openstack-swift-container"
     "openstack-swift-object"; do systemctl enable $swiftserv; systemctl
     start $swiftserv; done
31 ocs /etc/swift/proxy-server.conf filter:authtoken auth_host
     10.53.252.61
32 ocs /etc/swift/proxy-server.conf filter:authtoken auth_tenant_name
33 ocs /etc/swift/proxy-server.conf filter:authtoken admin user swift
34 ocs /etc/swift/proxy-server.conf filter:authtoken admin_password
     trustn01
35
37 for ops_service in "memcached" "openstack-swift-proxy"; do systemctl
     enable $ops_service; systemctl start $ops_service; done
```

Listing 2.14: foo

```
keystone user-create --name glance --pass trustn01
keystone user-role-add --user glance --role admin --tenant service
keystone service-create --name glance --type image --description "
Glance Image Service"
keystone endpoint-create --service glance --publicurl "http://10.53.252.61:9292" --adminurl "http://10.53.252.61:9292" --internalurl "http://10.53.252.61:9292"
openstack-config --set /etc/glance/glance-api.conf DEFAULT
```

```
sql_connection mysql://glance:trustn01@10.53.252.61/glance
6 clear
7 openstack-config --set /etc/glance/glance-api.conf paste_deploy flavor
     keystone
  openstack-config --set /etc/glance/glance-api.conf keystone_authtoken
      auth_host 10.53.252.61
  openstack-config --set /etc/glance/glance-api.conf keystone authtoken
      auth_port 35357
  openstack-config --set /etc/glance/glance-api.conf keystone_authtoken
      auth_protocol http
  openstack-config --set /etc/glance/glance-api.conf keystone_authtoken
      admin_tenant_name service
  openstack-config --set /etc/glance/glance-api.conf keystone_authtoken
      admin_user glance
  openstack-config --set /etc/glance/glance-api.conf keystone_authtoken
      admin_password trustn01
14 clear
15 openstack-config --set /etc/glance/glance-registry.conf paste_deploy
     flavor keystone
16 openstack-config --set /etc/glance/glance-registry.conf
     keystone_authtoken auth_host 10.53.252.61
17 openstack-config --set /etc/glance/glance-registry.conf
     keystone_authtoken auth_port 35357
18 openstack-config --set /etc/glance/glance-registry.conf
     keystone_authtoken auth_protocol http
19 openstack-config --set /etc/glance/glance-registry.conf
     keystone authtoken admin tenant name service
20 openstack-config --set /etc/glance/glance-registry.conf
     keystone_authtoken admin_user glance
21 openstack-config --set /etc/glance/glance-registry.conf
     keystone_authtoken admin_password trustn01
```

Listing 2.15: ∧ Red Hat bug

```
1 2014-08-12 15:06:55.083 1694 CRITICAL glance [-] ValueError: Tables "
    migrate_version" have non utf8 collation, please make sure all
    tables are CHARSET=utf8
2 2014-08-12 15:06:55.083 1694 TRACE glance Traceback (most recent call
3 2014-08-12 15:06:55.083 1694 TRACE glance File "/bin/glance-manage",
    line 10, in <module>
4 2014-08-12 15:06:55.083 1694 TRACE glance
                                               sys.exit(main())
5 2014-08-12 15:06:55.083 1694 TRACE glance File "/usr/lib/python2.7/
    site-packages/glance/cmd/manage.py", line 259, in main
6 2014-08-12 15:06:55.083 1694 TRACE glance
                                              return CONF.command.
    action fn()
7 2014-08-12 15:06:55.083 1694 TRACE glance File "/usr/lib/python2.7/
    site-packages/glance/cmd/manage.py", line 160, in sync
8 2014-08-12 15:06:55.083 1694 TRACE glance
                                              CONF.command.
    current_version)
```

```
9 2014-08-12 15:06:55.083 1694 TRACE glance File "/usr/lib/python2.7/
     site-packages/glance/cmd/manage.py", line 137, in sync
10 2014-08-12 15:06:55.083 1694 TRACE glance
                                              sanity_check=self.
     _need_sanity_check())
11 2014-08-12 15:06:55.083 1694 TRACE glance File "/usr/lib/python2.7/
     site-packages/glance/openstack/common/db/sglalchemy/migration.py",
     line 195, in db sync
12 2014-08-12 15:06:55.083 1694 TRACE glance
                                              _db_schema_sanity_check(
     engine)
13 2014-08-12 15:06:55.083 1694 TRACE glance File "/usr/lib/python2.7/
     site-packages/glance/openstack/common/db/sqlalchemy/migration.py",
     line 221, in _db_schema_sanity_check
14 2014-08-12 15:06:55.083 1694 TRACE glance ) % ','.join(table_names)
15 2014-08-12 15:06:55.083 1694 TRACE glance ValueError: Tables "
     migrate_version" have non utf8 collation, please make sure all
     tables are CHARSET=utf8
16 2014-08-12 15:06:55.083 1694 TRACE glance
```

Listing 2.16: <u>∧</u>Red Hat bug

```
1 vi /etc/glance/glance-api.conf
2 su -s /bin/sh -c "glance-manage db_sync" glance
3 mysql -u glance -p -e "show tables" glance
```