OpenStack Icehouse Multiple Virtual Machines Manual Install

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Acknowledgements

This document is a culmination of the Red Hat and OpenStack documentation for Icehouse.

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Physical Hardware

1.1 Cisco Catalyst 4006 Configuration

Listing 1.1: Trunk and Port Channel

```
interface Port-channel1
 switchport
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 2-4,12,80,81,100,250-253,2168
 switchport mode trunk
 switchport nonegotiate
 spanning-tree portfast trunk
end

interface GigabitEthernet3/20
 switchport access vlan 253
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 2-4,12,80,81,100,250-253,2168
 switchport mode trunk
 switchport nonegotiate
 channel-group 1 mode active
end

interface GigabitEthernet3/21
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 2-4,12,80,81,100,250-253,2168
 switchport mode trunk
 switchport nonegotiate
 channel-group 1 mode active
end
```

1.2 Open vSwitch Bridge

Listing 1.2: Open vSwitch

```
ovs-vsctl add-br ovsbr0
ovs-vsctl add-bond ovsbr0 bond0 enp19s4f0 enp19s4f1
ovs-vsctl set port bond0 lacp=active
ovs-vsctl set port bond0 bond_mode=balance-slb
```

Listing 1.3: ifcfg scripts

```
DEVICE="bond0"
ONBOOT="yes"
DEVICETYPE="ovs"
TYPE="OVSBond"
OVS_BRIDGE="ovsbr0"
BOOTPROTO="none"
BOND_IFACES="enp19s4f0 enp19s4f1"
OVS_OPTIONS="bond_mode=balance-slb lacp=active"
HOTPLUG="no"

DEVICE="ovsbr0"
ONBOOT="yes"
DEVICETYPE="ovs"
TYPE="OVSBridge"
BOOTPROTO="none"
HOTPLUG="no"
```

Listing 1.4: Libvirt and Open vSwitch

```
<network>
  <name>ovs-network</name>
  <uuid>2fde288e-242c-4b48-95f4-28f844c768f4</uuid>
  <forward mode='bridge'/>
  <bridge name='ovsbr0'/>
  <virtualport type='openvswitch'/>
  <portgroup name='vlan-252'>
    <vlan>
      <tag id='252'/>
    </vlan>
  </portgroup>
  <portgroup name='vlan-253'>
    <vlan>
      <tag id='253'/>
    </vlan>
  </portgroup>
  <portgroup name='vlan-all'>
    <vlan trunk='yes'>
      <tag id='80'/>
      <tag id='81'/>
```

```
21     </vlan>
22   </portgroup>
23 </network>
```

1.3 Clone and sysprep

Listing 1.5: Clone using virt-clone

```
1 virt-clone -o fedora20 -n virneupaw001 --auto-clone
```

Listing 1.6: Sysprep using virt-sysprep

```
1 virt-sysprep -a /dev/virtualmachine/virctlpaw001 --hostname
    virctlpaw001.virtomation.com --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" --firstboot-command 'systemctl
     restart network' --firstboot-command 'yum install -y http://rdo.
    fedorapeople.org/rdo-release.rpm' --firstboot-command 'yum install
    openstack-packstack -y'
```

Chapter 2

Prerequisites

Listing 2.1: Bash Aliases

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

Listing 2.2: Database Install

```
yi mariadb mariadb-server
e mariadb.service
start mariadb.service
netstat -tanp | grep 3306
mysql_secure_installation
```

```
CREATE DATABASE keystone;
CREATE DATABASE nova;
CREATE DATABASE glance;
CREATE DATABASE cinder;
CREATE DATABASE neutron_ml2;
GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'localhost' IDENTIFIED
    BY 'trustn01';
GRANT ALL PRIVILEGES ON keystone.* TO 'keystone'@'%' IDENTIFIED BY '
    trustn01';
GRANT ALL PRIVILEGES ON nova.* TO 'nova'@'localhost' IDENTIFIED BY '
    trustn01';
GRANT ALL PRIVILEGES ON nova.* TO 'nova'@'%' IDENTIFIED BY 'trustn01';
GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'localhost' IDENTIFIED BY
    'trustn01';
GRANT ALL PRIVILEGES ON glance.* TO 'glance'@'%' IDENTIFIED BY '
    trustn01';
GRANT ALL PRIVILEGES ON cinder.* TO 'cinder'@'localhost' IDENTIFIED BY
    'trustn01';
```

```
13 GRANT ALL PRIVILEGES ON cinder.* TO 'cinder'@'%' IDENTIFIED BY '
    trustn01';
14 GRANT ALL PRIVILEGES ON neutron_ml2.* TO 'neutron'@'localhost'
    IDENTIFIED BY 'trustn01';
15 GRANT ALL PRIVILEGES ON neutron_ml2.* TO 'neutron'@'%' IDENTIFIED BY '
    trustn01';
16 FLUSH PRIVILEGES;
```

Listing 2.3: RabbitMQ Install

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

Listing 2.4: Create RabbitMQ User Accounts

```
1 for serv in "cinder" "nova" "neutron" "heat"; do passwd=`openssl rand -
    base64 8`; echo "$serv - $passwd"; rabbitmqctl add_user $serv
    $passwd; rabbitmqctl set_permissions -p / $serv ".*" ".*" ".*"; done
```

Listing 2.5: Result from user account creation

```
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 - l2iDSln7nmw=
11 Creating user "heat" ...
12 ...done.
```

Chapter 3

Keystone

3.1 Installation

Listing 3.1: Install Keystone packages

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

3.2 Database

~~chmod -R o-rwx /etc/keystone/ssl~~

Listing 3.2: Keystone configuration

```
chown -R keystone:keystone /var/log/keystone /etc/keystone/ssl/
ocs /etc/keystone/keystone.conf DEFAULT admin_token $SERVICE_TOKEN
ocs /etc/keystone/keystone.conf sql connection mysql://keystone:
    trustn01@10.53.252.61/keystone
keystone-manage pki_setup --keystone-user keystone --keystone-group
    keystone
su -s /bin/sh -c "keystone-manage db_sync" keystone
```

Listing 3.3: Start and enable Keystone

```
start openstack-keystone
e openstack-keystone
```

3.3 Admin User and Tenant

Listing 3.4: Keystone ???

```
export OS_SERVICE_TOKEN=$SERVICE_TOKEN
export OS_SERVICE_ENDPOINT=http://10.53.252.61:35357/v2.0
source /etc/bash_completion.d/keystone.bash_completion

keystone user-create --name=admin --pass=trustn01
keystone role-create --name=admin
keystone tenant-create --name=admin --description="Admin Tenant"
keystone user-role-add --user=admin --tenant=admin --role=admin
keystone user-role-add --user=admin --role=_member_ --tenant=admin
keystone tenant-create --name=service --description="Service Tenant"
keystone service-create --name=keystone --type=identity --description="
    OpenStack Identity" 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 3.5: Unset Environment variables

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

Make sure that you unset environmental variables or you will receive keystone errors.

Listing 3.6: Keystone Error Message

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

Chapter 4

Swift

⚠ This chapter is a mess, ignore

Listing 4.1: Install Swift

```
yi glance...
yum install -y openstack-swift-proxy \
openstack-swift-object \
openstack-swift-container \
openstack-swift-account \
openstack-utils \
memcached
```

Listing 4.2: Install Swift

```
fdisk /dev/vdb
mkfs.ext4 /dev/vdb1
[root@virctlpaw001 ~(keystone_admin)]# blkid /dev/vdb1
/dev/vdb1: UUID="7cefc9b8-3313-40cb-941b-78b35c029bac" TYPE="ext4"
    PARTUUID="9faed234-01"
vi /etc/fstab
mkdir -p /srv/node/d1
mount -a
```

Listing 4.3: Swift account, container, object

```
ocs /etc/swift/swift.conf swift-hash swift_hash_path_prefix $(openssl
    rand -hex 10)
ocs /etc/swift/swift.conf swift-hash swift_hash_path_suffix $(openssl
    rand -hex 10)
ocs /etc/swift/object-server.conf DEFAULT bind_ip 10.53.252.61
ocs /etc/swift/account-server.conf DEFAULT bind_ip 10.53.252.61
ocs /etc/swift/container-server.conf DEFAULT bind_ip 10.53.252.61
for ops_service in "openstack-swift-account" "openstack-swift-container
    " "openstack-swift-object"; do systemctl enable $ops_service;
    systemctl start $ops_service; done
```

Listing 4.4: Swift Proxy

```
1 ocs /etc/swift/proxy-server.conf filter:authtoken auth_host
    10.53.252.61
2 ocs /etc/swift/proxy-server.conf filter:authtoken auth_tenant_name
    service
3 ocs /etc/swift/proxy-server.conf filter:authtoken admin_user swift
4 ocs /etc/swift/proxy-server.conf filter:authtoken admin_password
    trustn01
5 for ops_service in "memcached" "openstack-swift-proxy" ; do systemctl
    enable $ops_service; systemctl start $ops_service; done
```

Chapter 5

Glance

Listing 5.1: Glance Keystone create

```
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"
```

5.1 Configuration

Listing 5.2: Glance API

```
openstack-config --set /etc/glance/glance-api.conf DEFAULT
    sql_connection mysql://glance:trustn01@10.53.252.61/glance
ocs /etc/glance/glance-api.conf paste_deploy flavor keystone
ocs /etc/glance/glance-api.conf keystone_authtoken auth_host
    10.53.252.61
ocs /etc/glance/glance-api.conf keystone_authtoken auth_port 35357
ocs /etc/glance/glance-api.conf keystone_authtoken auth_protocol http
ocs /etc/glance/glance-api.conf keystone_authtoken admin_tenant_name
    service
ocs /etc/glance/glance-api.conf keystone_authtoken admin_user glance
ocs /etc/glance/glance-api.conf keystone_authtoen admin_password
    trustn01
```

Listing 5.3: Glance Registry

```
ocs /etc/glance/glance-registry.conf DEFAULT sql_connection mysql://
    glance:trustn01@10.53.252.61/glance
```

```
2 ocs /etc/glance/glance-registry.conf paste_deploy flavor keystone
3 ocs /etc/glance/glance-registry.conf keystone_authtoken auth_host
    10.53.252.61
4 ocs /etc/glance/glance-registry.conf keystone_authtoken auth_port 35357
5 ocs /etc/glance/glance-registry.conf keystone_authtoken auth_protocol
    http
6 ocs /etc/glance/glance-registry.conf keystone_authtoken
    admin_tenant_name service
7 ocs /etc/glance/glance-registry.conf keystone_authtoken admin_user
    glance
8 ocs /etc/glance/glance-registry.conf keystone_authtoken admin_password
    trustn01
```

Listing 5.4: Bugzilla 1090648 - glance-manage db_sync silently fails to prepare the database

```
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
2014-08-12 15:06:55.083 1694 TRACE glance Traceback (most recent call
    last):
2014-08-12 15:06:55.083 1694 TRACE glance   File "/bin/glance-manage",
    line 10, in <module>
2014-08-12 15:06:55.083 1694 TRACE glance     sys.exit(main())
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
2014-08-12 15:06:55.083 1694 TRACE glance     return CONF.command.
    action_fn()
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
2014-08-12 15:06:55.083 1694 TRACE glance     CONF.command.
    current_version)
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
2014-08-12 15:06:55.083 1694 TRACE glance     sanity_check=self.
    _need_sanity_check())
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 195, in db_sync
2014-08-12 15:06:55.083 1694 TRACE glance     _db_schema_sanity_check(
    engine)
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
2014-08-12 15:06:55.083 1694 TRACE glance     ) % ','.join(table_names)
    )
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
2014-08-12 15:06:55.083 1694 TRACE glance
```

Listing 5.5: Workaround - db_enforce_mysql_charset=False

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

Listing 5.6: Start and enable Glance Services

```
for ops_service in "openstack-glance-registry" "openstack-glance-api" ;
    do systemctl enable $ops_service; systemctl start $ops_service;
   done
```

Listing 5.7: Add Cirros Image

```
wget http://download.cirros-cloud.net/0.3.2/cirros-0.3.2-x86_64-disk.
    img

glance image-create --name "cirros" --is-public true --disk-format
    qcow2 --container-format bare --file cirros-0.3.2-x86_64-disk.img
```

Chapter 6

Cinder

```
keystone user-create --name cinder --pass trustn01

keystone user-role-add --user cinder --role admin --tenant service
keystone service-create --name cinder --type volume --description "
    Cinder Volume Service"

keystone endpoint-create --service cinder --publicurl "http
    ://10.53.252.62:8776/v1/\$(tenant_id)s" --adminurl "http
    ://10.53.252.62:8776/v1/\$(tenant_id)s" --internalurl "http
    ://10.53.252.62:8776/v1/\$(tenant_id)s"

mysql -u cinder -p -e "show tables" cinder
```

```
yi openstack-cinder openstack-utils scsi-target-utils

ocs /etc/cinder/cinder.conf DEFAULT auth_strategy keystone
ocs /etc/cinder/cinder.conf keystone_authtoken auth_host 10.53.252.61
ocs /etc/cinder/cinder.conf keystone_authtoken admin_tenant_name
    service
ocs /etc/cinder/cinder.conf keystone_authtoken admin_user cinder
ocs /etc/cinder/cinder.conf keystone_authtoken admin_password trustn01

vgcreate cinder-volumes /dev/vdb


ocs /etc/cinder/cinder.conf DEFAULT rpc_backend cinder.openstack.common
    .rpc.impl_kombu
ocs /etc/cinder/cinder.conf DEFAULT rabbit_host 10.53.252.61
ocs /etc/cinder/cinder.conf DEFAULT rabbit_port 5672
ocs /etc/cinder/cinder.conf DEFAULT rabbit_userid cinder
ocs /etc/cinder/cinder.conf DEFAULT rabbit_password Q7gPp1FOK5g=

ocs /etc/cinder/cinder.conf DEFAULT sql_connection mysql://cinder:
```

```
    trustn01@10.53.252.61/cinder

su -s /bin/sh -c "cinder-manage db sync" cinder
```

Listing 6.1: add * to include /etc/cinder/volumes/

```
add * to include /etc/cinder/volumes/
vi /etc/tgt/conf.d/cinder.conf
```


Confirm RabbitMQ Status

```
rabbitmqctl status
```

Chapter 7

Nova Controller

```
yum install openstack-nova-api openstack-nova-cert openstack-nova-conductor openstack-nova-console openstack-nova-novncproxy openstack-nova-scheduler python-novaclient
ocs /etc/nova/nova.conf database connection mysql://nova:trustn01@10.53.252.61/nova
ocs /etc/nova/nova.conf DEFAULT rpc_backend rabbit
ocs /etc/nova/nova.conf DEFAULT rabbit_host 10.53.252.61
ocs /etc/nova/nova.conf DEFAULT rabbit_port 5672
ocs /etc/nova/nova.conf DEFAULT rabbit_userid nova
ocs /etc/nova/nova.conf DEFAULT rabbit_password '2mM7OaVNFKM='

ocs /etc/nova/nova.conf database connection mysql://nova:trustn01@10.53.252.61/nova
ocs /etc/nova/nova.conf DEFAULT rpc_backend rabbit
ocs /etc/nova/nova.conf DEFAULT rabbit_host 10.53.252.61
ocs /etc/nova/nova.conf DEFAULT rabbit_port 5672
ocs /etc/nova/nova.conf DEFAULT rabbit_userid nova
ocs /etc/nova/nova.conf DEFAULT rabbit_password '2mM7OaVNFKM='
ocs /etc/nova/nova.conf DEFAULT my_ip 10.53.252.62
ocs /etc/nova/nova.conf DEFAULT vncserver_listen 10.53.252.62
ocs /etc/nova/nova.conf DEFAULT vncserver_proxyclient_address 10.53.252.62
```

Listing 7.1: virctlpaw001

```
keystone user-create --name=nova --pass=trustn01
keystone user-role-add --user=nova --tenant=service --role=admin
mysql -u root -p
```

Listing 7.2: virctlpaw001

```
keystone endpoint-create --service nova --publicurl=http://10.53.252.62:8774/v2/%\(tenant_id\)s --internalurl=http
```

```
    ://10.53.252.62:8774/v2/%\(tenant_id\)s --adminurl=http
    ://10.53.252.62:8774/v2/%\(tenant_id\)s
2 keystone service-create --name=nova --type=compute --description="
    OpenStack Compute"
3 keystone endpoint-create --service nova --publicurl=http
    ://10.53.252.62:8774/v2/%\(tenant_id\)s --internalurl=http
    ://10.53.252.62:8774/v2/%\(tenant_id\)s --adminurl=http
    ://10.53.252.62:8774/v2/%\(tenant_id\)s
4 mysql -u nova -p -e "show tables" nova
```

Listing 7.3: virctlpaw002

```
1 ocs /etc/nova/nova.conf DEFAULT auth_strategy keystone
2 ocs /etc/nova/nova.conf keystone_authtoken auth_uri http
    ://10.53.252.61:5000
3 ocs /etc/nova/nova.conf keystone_authtoken auth_host 10.53.252.61
4 ocs /etc/nova/nova.conf keystone_authtoken auth_protocol http
5 ocs /etc/nova/nova.conf keystone_authtoken auth_port 35357
6 ocs /etc/nova/nova.conf keystone_authtoken admin_user nova
7 ocs /etc/nova/nova.conf keystone_authtoken admin_tenant_name service
8 ocs /etc/nova/nova.conf keystone_authtoken admin_password trustn01
9 su -s /bin/sh -c "nova-manage db sync" nova
10 for ops_service in "openstack-nova-api" "openstack-nova-cert" "
    openstack-nova-consoleauth" "openstack-nova-scheduler" "openstack-
    nova-conductor" "openstack-nova-novncproxy"; do systemctl enable
    $ops_service; systemctl start $ops_service; done
11 egrep 'ERROR' /var/log/nova/*
12
13 ocs /etc/nova/nova.conf DEFAULT network_api_class nova.network.
    neutronv2.api.API
14 ocs /etc/nova/nova.conf DEFAULT neutron_url http://10.53.252.63:9696
15 ocs /etc/nova/nova.conf DEFAULT neutron_auth_strategy keystone
16 ocs /etc/nova/nova.conf DEFAULT neutron_admin_tenant_name service
17 ocs /etc/nova/nova.conf DEFAULT neutron_admin_username neutron
18 ocs /etc/nova/nova.conf DEFAULT neutron_admin_password trustn01
19 ocs /etc/nova/nova.conf DEFAULT neutron_admin_auth_url http
    ://10.53.252.61:35357/v2.0
20 ocs /etc/nova/nova.conf DEFAULT linuxnet_interface_driver nova.network.
    linux_net.LinuxOVSInterfaceDriver
21 ocs /etc/nova/nova.conf DEFAULT firewall_driver nova.virt.firewall.
    NoopFirewallDriver
22 ocs /etc/nova/nova.conf DEFAULT security_group_api neutron
23 ocs /etc/nova/nova.conf DEFAULT service_neutron_metadata_proxy true
24 ocs /etc/nova/nova.conf DEFAULT neutron_metadata_proxy_shared_secret
    trustn01
```

Listing 7.4: Nova Glance configuration

```
1 ocs /etc/nova/nova.conf DEFAULT image_service nova.image.glance.
    GlanceImageService
```

```
ocs /etc/nova/nova.conf DEFAULT glance_host 10.53.252.61
ocs /etc/nova/nova.conf DEFAULT glance_port 9292
ocs /etc/nova/nova.conf DEFAULT glance_protocol http
ocs /etc/nova/nova.conf DEFAULT glance_api_servers 10.53.252.61:9292
```

Listing 7.5: vircmppaw001

```
yum install openstack-nova-compute
cat >> /etc/sysctl.conf << EOF
net.ipv4.conf.all.rp_filter=0
net.ipv4.conf.default.rp_filter=0
EOF
sysctl -p
yum install openstack-neutron-ml2 openstack-neutron-openvswitch
    openstack-nova-compute -y
ocs /etc/nova/nova.conf database connection mysql://nova:trustn01@10
    .53.252.61/nova
ocs /etc/nova/nova.conf DEFAULT auth_strategy keystone
ocs /etc/nova/nova.conf keystone_authtoken auth_uri http
    ://10.53.252.61:5000
ocs /etc/nova/nova.conf keystone_authtoken auth_host controller
ocs /etc/nova/nova.conf keystone_authtoken auth_protocol http
ocs /etc/nova/nova.conf keystone_authtoken auth_port 35357
ocs /etc/nova/nova.conf keystone_authtoken admin_user nova
ocs /etc/nova/nova.conf keystone_authtoken admin_tenant_name service
ocs /etc/nova/nova.conf keystone_authtoken admin_password trustn01

ocs /etc/nova/nova.conf DEFAULT rabbit_host 10.53.252.61
ocs /etc/nova/nova.conf DEFAULT rabbit_port 5672
ocs /etc/nova/nova.conf DEFAULT rabbit_userid nova
ocs /etc/nova/nova.conf DEFAULT rabbit_password '2mM7OaVNFKM='
ocs /etc/nova/nova.conf DEFAULT my_ip 10.53.252.64
ocs /etc/nova/nova.conf DEFAULT vncserver_listen 10.53.252.64
ocs /etc/nova/nova.conf DEFAULT vncserver_proxyclient_address
    10.53.252.62

ocs /etc/nova/nova.conf DEFAULT image_service nova.image.glance.
    GlanceImageService
ocs /etc/nova/nova.conf DEFAULT glance_host 10.53.252.61
ocs /etc/nova/nova.conf DEFAULT glance_port 9292
ocs /etc/nova/nova.conf DEFAULT glance_protocol http
ocs /etc/nova/nova.conf DEFAULT glance_api_servers 10.53.252.61:9292

ocs /etc/nova/nova.conf DEFAULT network_api_class nova.network.
    neutronv2.api.API
ocs /etc/nova/nova.conf DEFAULT neutron_url http://10.53.252.63:9696
ocs /etc/nova/nova.conf DEFAULT neutron_auth_strategy keystone
ocs /etc/nova/nova.conf DEFAULT neutron_admin_tenant_name service
ocs /etc/nova/nova.conf DEFAULT neutron_admin_username neutron
ocs /etc/nova/nova.conf DEFAULT neutron_admin_password trustn01
```

```
38 ocs /etc/nova/nova.conf DEFAULT neutron_admin_auth_url http
       ://10.53.252.61:35357/v2.0
39 ocs /etc/nova/nova.conf DEFAULT linuxnet_interface_driver nova.network.
       linux_net.LinuxOVSInterfaceDriver
40 ocs /etc/nova/nova.conf DEFAULT firewall_driver nova.virt.firewall.
       NoopFirewallDriver
41 ocs /etc/nova/nova.conf DEFAULT security_group_api neutron
42
43
44 ocs /etc/neutron/neutron.conf DEFAULT auth_strategy keystone
45 ocs /etc/neutron/neutron.conf DEFAULT rpc_backend neutron.openstack.
       common.rpc.impl_kombu
46 ocs /etc/neutron/neutron.conf DEFAULT rabbit_host 10.53.252.61
47 ocs /etc/neutron/neutron.conf DEFAULT rabbit_port 5672
48 ocs /etc/neutron/neutron.conf DEFAULT rabbit_userid neutron
49 ocs /etc/neutron/neutron.conf DEFAULT rabbit_password 'krPOwjPbKJs='
50 ocs /etc/neutron/neutron.conf keystone_authtoken auth_uri http
       ://10.53.252.61:5000
51 ocs /etc/neutron/neutron.conf keystone_authtoken auth_host 10.53.252.61
52 ocs /etc/neutron/neutron.conf keystone_authtoken auth_protocol http
53 ocs /etc/neutron/neutron.conf keystone_authtoken auth_port 35357
54 ocs /etc/neutron/neutron.conf keystone_authtoken admin_tenant_name
       service
55 ocs /etc/neutron/neutron.conf keystone_authtoken admin_user neutron
56 ocs /etc/neutron/neutron.conf keystone_authtoken admin_password
       trustn01
57 ocs /etc/neutron/neutron.conf DEFAULT core_plugin ml2
58 ocs /etc/neutron/neutron.conf DEFAULT service_plugins router
59 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2 type_drivers gre
60 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2 tenant_network_types gre
61 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2 mechanism_drivers
       openvswitch
62 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2_type_gre tunnel_id_ranges
        1:1000
63 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ovs local_ip 10.53.252.164
64 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ovs tunnel_type gre
65 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ovs enable_tunneling True
66 ocs /etc/neutron/plugins/ml2/ml2_conf.ini securitygroup firewall_driver
        neutron.agent.linux.iptables_firewall.
       OVSHybridIptablesFirewallDriver
67 ocs /etc/neutron/plugins/ml2/ml2_conf.ini securitygroup
       enable_security_group True
68
69 systemctl start openvswitch
70 systemctl enable openvswitch
71 ovs-vsctl add-br br-int
72 ln -s plugins/ml2/ml2_conf.ini /etc/neutron/plugin.ini
73 ovs-vsctl add-br br-tun
74
75 openstack-nova-compute
```

```
76 systemctl enable neutron-openvswitch-agent
```

Chapter 8

Neutron

Listing 8.1: Neutron virctlpaw001

```
keystone user-create --name neutron --pass trustn01
keystone user-role-add --user neutron --role admin --tenant service
keystone service-create --name neutron --type network --description "
    OpenStack Networking Service"
keystone endpoint-create --service neutron --publicurl "http
    ://10.53.252.63:9696" --adminurl "http://10.53.252.63:9696" --
    internalurl "http://10.53.252.63:9696"

mysql -u root -p
ocs /etc/neutron/plugin.ini DATABASE sql_connection mysql://neutron:
    trustn01@10.53.252.61/neutron_ml2
mysql -u neutron -p -e "show tables" neutron
```

Listing 8.2: Neutron virneupaw001

```
yum install openstack-neutron openstack-neutron-ml2 openstack-utils
    openstack-neutron-openvswitch -y

ocs /etc/neutron/neutron.conf DEFAULT auth_strategy keystone
ocs /etc/neutron/neutron.conf keystone_authtoken auth_host 10.53.252.61
ocs /etc/neutron/neutron.conf keystone_authtoken admin_tenant_name
    service
ocs /etc/neutron/neutron.conf keystone_authtoken admin_user neutron
ocs /etc/neutron/neutron.conf keystone_authtoken admin_password
    trustn01

ocs /etc/neutron/neutron.conf DEFAULT rpc_backend neutron.openstack.
    common.rpc.impl_kombu
ocs /etc/neutron/neutron.conf DEFAULT rabbit_host 10.53.252.61
ocs /etc/neutron/neutron.conf DEFAULT rabbit_port 5672
ocs /etc/neutron/neutron.conf DEFAULT rabbit_userid neutron
ocs /etc/neutron/neutron.conf DEFAULT rabbit_password 'krPOwjPbKJs='
```

```
14
15 ln -s /etc/neutron/plugins/ml2/ml2_conf.ini /etc/neutron/plugin.ini
16
17 neutron-db-manage --config-file /usr/share/neutron/neutron-dist.conf --
       config-file /etc/neutron/neutron.conf --config-file /etc/neutron/
       plugin.ini upgrade head
18 touch /etc/sysconfig/iptables
19 ocs /etc/neutron/dhcp_agent.ini DEFAULT auth_strategy keystone
20 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken auth_host
       10.53.252.61
21 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken admin_tenant_name
       service
22 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken admin_user neutron
23 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken admin_password
       trustn01
24 ocs /etc/neutron/dhcp_agent.ini DEFAULT interface_driver neutron.agent.
       linux.interface.OVSInterfaceDriver
25
26 clear
27 for ops_service in "neutron-server" "neutron-dhcp-agent" ; do systemctl
        enable $ops_service; systemctl start $ops_service; done
28
29
30 ocs /etc/neutron/neutron.conf DEFAULT
       notify_nova_on_port_status_changes True
31 ocs /etc/neutron/neutron.conf DEFAULT notify_nova_on_port_data_changes
       True
32 ocs /etc/neutron/neutron.conf DEFAULT nova_url http
       ://10.53.252.62:8774/v2
33 ocs /etc/neutron/neutron.conf DEFAULT nova_admin_username nova
34 ocs /etc/neutron/neutron.conf DEFAULT nova_admin_tenant_id service
35 ocs /etc/neutron/neutron.conf DEFAULT nova_admin_password trustn01
36 ocs /etc/neutron/neutron.conf DEFAULT nova_admin_auth_url http
       ://10.53.252.61:35357/v2.0
37
38
39 ocs /etc/neutron/neutron.conf DEFAULT core_plugin ml2
40 ocs /etc/neutron/neutron.conf DEFAULT service_plugins router
41
42
43 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2 type_drivers gre
44 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2 tenant_network_types gre
45 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2 mechanism_drivers
       openvswitch
46 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ml2_type_gre tunnel_id_ranges
        1:1000
47 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ovs local_ip 10.53.252.163
48 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ovs tunnel_type gre
49 ocs /etc/neutron/plugins/ml2/ml2_conf.ini ovs enable_tunneling True
50 ocs /etc/neutron/plugins/ml2/ml2_conf.ini securitygroup firewall_driver
```

```
     neutron.agent.linux.iptables_firewall.
    OVSHybridIptablesFirewallDriver
ocs /etc/neutron/plugins/ml2/ml2_conf.ini securitygroup
    enable_security_group True

cp /usr/lib/systemd/system/neutron-openvswitch-agent.service{,.orig}
sed -i 's,plugins/openvswitch/ovs_neutron_plugin.ini,plugin.ini,g' /usr
    /lib/systemd/system/neutron-openvswitch-agent.service

systemctl daemon-reload

ocs /etc/neutron/l3_agent.ini DEFAULT interface_driver neutron.agent.
    linux.interface.OVSInterfaceDriver
ocs /etc/neutron/l3_agent.ini DEFAULT use_namespaces True
systemctl enable openvswitch
systemctl start openvswitch
```

Listing 8.3: br-tun

```
DEVICE="br-tun"
ONBOOT="yes"
DEVICETYPE="ovs"
TYPE="OVSBridge"
BOOTPROTO="static"
HOTPLUG="no"
IPADDR=10.53.252.164
NETMASK=255.255.255.0
```

Listing 8.4: br-ex

```
DEVICE="br-tun"
ONBOOT="yes"
DEVICETYPE="ovs"
TYPE="OVSBridge"
BOOTPROTO="static"
HOTPLUG="no"
IPADDR=10.53.252.164
NETMASK=255.255.255.0
```

```
TYPE=OVSPort
DEVICETYPE=ovs
OVS_BRIDGE=br-ex
BOOTPROTO=none
HOTPLUG=no
NAME="eth1"
DEVICE=eth1
NM_CONTROLLED=no
ONBOOT=yes
```

```
TYPE=OVSPort
DEVICETYPE=ovs
OVS_BRIDGE=br-tun
BOOTPROTO=none
HOTPLUG=no
NAME="eth2"
DEVICE=eth2
NM_CONTROLLED=no
ONBOOT=yes
```