OpenStack Icehouse Multiple Virtual Machines Manual Install

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Acknowledgements

Contents

List of Figures

List of Tables

Listings

Chapter 1

Physical Hardware

Listing 1.1: Open vSwitch

```
1 <network>
2   <name>ovs-network</name>
3   <uuid>2fde288e-242c-4b48-95f4-28f844c768f4</uuid>
4   <forward mode='bridge'/>
5   <bridge name='ovsbr0'/>
6   <virtualport type='openvswitch'/>
7   <portgroup name='vlan-252'>
8     <vlan>
9       <tag id='252'/>
10    </vlan>
11  </portgroup>
12  <portgroup name='vlan-253'>
13    <vlan>
14      <tag id='253'/>
15    </vlan>
16  </portgroup>
17  <portgroup name='vlan-all'>
18    <vlan trunk='yes'>
19      <tag id='80'/>
20      <tag id='81'/>
21    </vlan>
22  </portgroup>
23 </network>
```

1.1   Clone and sysprep

Listing 1.2: Clone using virt-clone

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

Listing 1.3: Sysprep using virt-sysprep

```
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

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

Listing 2.2: Database Install

```
1 yi mariadb mariadb-server
2 e mariadb.service
3 start mariadb.service
4 netstat -tanp | grep 3306
5 mysql_secure_installation
```

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

```
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
```

3.2 Database

Listing 3.2: Keystone configuration

```
1 chown -R keystone:keystone /var/log/keystone /etc/keystone/ssl/
2 chmod -R o-rwx /etc/keystone/ssl
3 ocs /etc/keystone/keystone.conf DEFAULT admin_token $SERVICE_TOKEN
4 ocs /etc/keystone/keystone.conf sql connection mysql://keystone:
    trustn01@10.53.252.61/keystone
5 keystone-manage pki_setup --keystone-user keystone --keystone-group
    keystone
6 su -s /bin/sh -c "keystone-manage db_sync" keystone
```

Listing 3.3: Start and enable Keystone

```
1 start openstack-keystone
2 e openstack-keystone
```

3.3 Admin User and Tenant

Listing 3.4: Keystone ???

```
1 export OS_SERVICE_TOKEN=$SERVICE_TOKEN
2 export OS_SERVICE_ENDPOINT=http://10.53.252.61:35357/v2.0
3 source /etc/bash_completion.d/keystone.bash_completion
4
5 keystone user-create --name=admin --pass=trustn01
6 keystone role-create --name=admin
7 keystone tenant-create --name=admin --description="Admin Tenant"
8 keystone user-role-add --user=admin --tenant=admin --role=admin
9 keystone user-role-add --user=admin --role=_member_ --tenant=admin
10 keystone tenant-create --name=service --description="Service Tenant"
11 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

```
1 unset OS_SERVICE_ENDPOINT
2 unset OS_ENDPOINT
3 unset OS_SERVICE_TOKEN
4 unset SERVICE_TOKEN
```

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

Listing 3.6: Keystone Error Message

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

Chapter 4

Swift

⚠ This chapter is a mess, ignore

Listing 4.1: Install Swift

```
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
```

Listing 4.2: Install Swift

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

Listing 4.3: Swift account, container, object

```
1 ocs /etc/swift/swift.conf swift-hash swift_hash_path_prefix $(openssl
    rand -hex 10)
2 ocs /etc/swift/swift.conf swift-hash swift_hash_path_suffix $(openssl
    rand -hex 10)
3 ocs /etc/swift/object-server.conf DEFAULT bind_ip 10.53.252.61
4 ocs /etc/swift/account-server.conf DEFAULT bind_ip 10.53.252.61
5 ocs /etc/swift/container-server.conf DEFAULT bind_ip 10.53.252.61
6 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

```
1 keystone user-create --name glance --pass trustn01
2 keystone user-role-add --user glance --role admin --tenant service
3 keystone service-create --name glance --type image --description "
    Glance Image Service"
4 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

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

Listing 5.3: Glance Registry

```
1 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

```
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
```

Listing 5.6: Start and enable Glance Services

```
1 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

```
1 wget http://download.cirros-cloud.net/0.3.2/cirros-0.3.2-x86_64-disk.
    img
2
3 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

```
1 keystone user-create --name cinder --pass trustn01
2
3 keystone user-role-add --user cinder --role admin --tenant service
4 keystone service-create --name cinder --type volume --description "
    Cinder Volume Service"
5
6 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"
7
8 mysql -u cinder -p -e "show tables" cinder
```

```
1 yi openstack-cinder openstack-utils scsi-target-utils
2
3 ocs /etc/cinder/cinder.conf DEFAULT auth_strategy keystone
4 ocs /etc/cinder/cinder.conf keystone_authtoken auth_host 10.53.252.61
5 ocs /etc/cinder/cinder.conf keystone_authtoken admin_tenant_name
    service
6 ocs /etc/cinder/cinder.conf keystone_authtoken admin_user cinder
7 ocs /etc/cinder/cinder.conf keystone_authtoken admin_password trustn01
8
9 vgcreate cinder-volumes /dev/vdb
10
11
12 ocs /etc/cinder/cinder.conf DEFAULT rpc_backend cinder.openstack.common
    .rpc.impl_kombu
13 ocs /etc/cinder/cinder.conf DEFAULT rabbit_host 10.53.252.61
14 ocs /etc/cinder/cinder.conf DEFAULT rabbit_port 5672
15 ocs /etc/cinder/cinder.conf DEFAULT rabbit_userid cinder
16 ocs /etc/cinder/cinder.conf DEFAULT rabbit_password Q7gPp1FOK5g=
17
18 ocs /etc/cinder/cinder.conf DEFAULT sql_connection mysql://cinder:
```

```
      trustn01@10.53.252.61/cinder
19
20 su -s /bin/sh -c "cinder-manage db sync" cinder
```

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

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

⚠ Confirm RabbitMQ Status

```
1 rabbitmqctl status
```

Chapter 7

Nova Controller

```
1 yum install openstack-nova-api openstack-nova-cert openstack-nova-
     conductor openstack-nova-console openstack-nova-novncproxy openstack
     -nova-scheduler python-novaclient
2 ocs /etc/nova/nova.conf database connection mysql://nova:trustn01@10
     .53.252.61/nova
3 ocs /etc/nova/nova.conf DEFAULT rpc_backend rabbit
4 ocs /etc/nova/nova.conf DEFAULT rabbit_host 10.53.252.61
5 ocs /etc/nova/nova.conf DEFAULT rabbit_port 5672
6 ocs /etc/nova/nova.conf DEFAULT rabbit_userid nova
7 ocs /etc/nova/nova.conf DEFAULT rabbit_password '2mM7OaVNFKM='
8 alias yi="yum -y install"
9 alias start="systemctl start"
10 alias e="systemctl enable"
11 alias ocs="openstack-config --set"
12 clear
13 ocs /etc/nova/nova.conf database connection mysql://nova:trustn01@10
     .53.252.61/nova
14 ocs /etc/nova/nova.conf DEFAULT rpc_backend rabbit
15 ocs /etc/nova/nova.conf DEFAULT rabbit_host 10.53.252.61
16 ocs /etc/nova/nova.conf DEFAULT rabbit_port 5672
17 ocs /etc/nova/nova.conf DEFAULT rabbit_userid nova
18 ocs /etc/nova/nova.conf DEFAULT rabbit_password '2mM7OaVNFKM='
19 ocs /etc/nova/nova.conf DEFAULT my_ip 10.53.252.62
20 ocs /etc/nova/nova.conf DEFAULT vncserver_listen 10.53.252.62
21 ocs /etc/nova/nova.conf DEFAULT vncserver_proxyclient_address
     10.53.252.62
```

Chapter 8

Neutron

Listing 8.1: Neutron virctlpaw001

```
1 keystone user-create --name neutron --pass trustn01
2 keystone user-role-add --user neutron --role admin --tenant service
3 keystone service-create --name neutron --type network --description "
    OpenStack Networking Service"
4 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"
5
6 mysql -u root -p
7 ocs /etc/neutron/plugin.ini DATABASE sql_connection mysql://neutron:
    trustn01@10.53.252.61/neutron_ml2
8 mysql -u neutron -p -e "show tables" neutron
```

Listing 8.2: Neutron virneupaw001

```
1 yum install openstack-neutron openstack-neutron-ml2 openstack-utils -y
2 alias yi="yum -y install"
3 alias start="systemctl start"
4 alias e="systemctl enable"
5 alias ocs="openstack-config --set"
6 ocs /etc/neutron/neutron.conf DEFAULT auth_strategy keystone
7 ocs /etc/neutron/neutron.conf keystone_authtoken auth_host 10.53.252.61
8 ocs /etc/neutron/neutron.conf keystone_authtoken admin_tenant_name
    service
9 ocs /etc/neutron/neutron.conf keystone_authtoken admin_user neutron
10 ocs /etc/neutron/neutron.conf keystone_authtoken admin_password
    trustn01
11 clear
12 ocs /etc/neutron/neutron.conf DEFAULT rpc_backend neutron.openstack.
    common.rpc.impl_kombu
13 ocs /etc/neutron/neutron.conf DEFAULT rabbit_host 10.53.252.61
14 ocs /etc/neutron/neutron.conf DEFAULT rabbit_port 5672
```

```
15 ocs /etc/neutron/neutron.conf DEFAULT rabbit_userid neutron
16 ocs /etc/neutron/neutron.conf DEFAULT rabbit_password 'krPOwjPbKJs='
17 ln -s /etc/neutron/plugins/ml2/ml2_conf.ini
18 ln -s /etc/neutron/plugins/ml2/ml2_conf.ini /etc/neutron/plugin.ini
19 ls
20 rm ml2_conf.ini
21 ocs /etc/neutron/plugin.ini DATABASE sql_connection mysql://neutron:
      trustn01@10.53.252.61/neutron
22 ocs /etc/neutron/plugin.ini DATABASE sql_connection mysql://neutron:
      trustn01@10.53.252.61/neutron_ml2
23 neutron-db-manage --config-file /usr/share/neutron/neutron-dist.conf --
      config-file /etc/neutron/neutron.conf --config /etc/neutron/plugin.
      ini upgrade head
24 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
25 vi /etc/neutron/plugin.ini
26 vi /etc/neutron/neutron.conf
27 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
28 touch /etc/sysconfig/iptables
29 ocs /etc/neutron/dhcp_agent.ini DEFAULT auth_strategy keystone
30 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken auth_host
      10.53.252.61
31 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken admin_tenant_name
      service
32 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken admin_user neutron
33 ocs /etc/neutron/dhcp_agent.ini keystone_authtoken admin_password
      trustn01
34 ocs /etc/neutron/dhcp_agent.ini DEFAULT interface_driver neutron.agent.
      linux.interface.OVSInterfaceDriver
35 clear
36 for ops_service in "neutron-server" "neutron-dhcp-agent" ; do systemctl
       enable $ops_service; systemctl start $ops_service; done
37 cd /var/log/neutron/
38 ls
39 tail server.log
40 vi /etc/neutron/plugin.ini
41 systemctl restart neutron-server.service
42 ls
43 tail server.log
44 vi /etc/neutron/plugin.ini
45 systemctl restart neutron-server.service
46 tail server.log
47 cat /etc/neutron/plugin.ini
48 yum install openstack-neutron-openvswitch.noarch -y
```