Dell Pilot Deployment Guide

1. Configure Foreman Server

If the provisioning interface on the provisioned host is not the first interface returned in the puppet data, Foreman will overwrite the configuration in the database. This can cause issues later.

To prevent Foreman from changing the IP and MAC information to reflect the puppet data, change the **ignore_puppet_facts_for_provisioning** setting.

- Log into the Foreman user interface.
- Move the mouse over the **Administer** drop down menu on the right side of the interface.
- Select **Settings** from the menu.
- Select the **Provisioning** tab.
- Select **Value** for the **ignore_puppet_facts_for_provisioning** setting.
    - Change this setting to ***true***.

1.1. Hammer Command Preparation

During the steps in this document, the hammer command is used to more easily perform the configurations. Usage of the hammer command requires identifiers for the various pieces of information stored within the Foreman server. This includes identifiers for the defined installation media, partitions, templates, hosts, as well as other items.

A checklist file, dell-pilot-checklist.pdf, is available to easily keep track of this information. Download and print the Dell Pilot Checklist from https://wiki.opencrowbar.org/pages/viewpage.action?pageId=6326050.

Write the various information gathered and needed on the checklist for reference as needed.

Several steps in this document use files to configure the environment. These files are available in a TAR file called dell-pilot-deploy.tgz. This TAR fail is available from https://wiki.opencrowbar.org/pages/viewpage.action?pageId=6326050.

Download the tar file and unzip it into the /root/pilot directory..

```
# cd /root

# tar xzvf /PATH/TO/FILE/dell-pilot-deploy.tgz
```

1.2. Version Locking

All RPMs on the Foreman VM, Ceph ICE VM, OpenStack Controller nodes, OpenStack Compute nodes, and Ceph Storage nodes are locked to specific versions. This is to ensure that the software on these nodes is the same software that has been tested and validated by Dell. To allow updating RPMs on these nodes, see Appendix A.

Execute the following command to make the version locking files available during node provisioning:

```
# cp -r /root/dell-pilot-deploy/vlock_files /usr/share/foreman/public
```

1.3. The hammer command

- Install the packages that contain the **hammer** command.

  ```
  # yum -y install "*hammer*"
  ```

  This should install the following packages:

  - **rubygem-hammer_cli-doc-0.1.1-12.el6sat.noarch**
  - **rubygem-hammer_cli-0.1.1-12.el6sat.noarch**
  - **rubygem-hammer_cli_foreman-0.1.1-16.el6sat.noarch**
  - **rubygem-hammer_cli_foreman-doc-0.1.1-16.el6sat.noarch**

- Configure the **hammer** command to display ***200*** items per page. This just makes it easier to read everything.
  - Replace the value for the **:per_page:** option in the */etc/hammer/cli_config.yml* file.
- Configure the **hammer** command to not prompt for a username/password when connecting.
  - Add the following to the beginning of the /etc/hammer/cli_config.yml file. Replace the name and password appropriately.

    ```
    :foreman:
     :username: 'admin'
     :password: 'changeme'
    ```

1.4. Hammer help

The hammer command takes the **--help** option. This option can be used with most of its sub-commands as well. It is useful to see the various options that can be used.

1.5. Configure the Installation Medium

Configure the installation medium that will be used to provision the hosts.

Use the **hammer medium create** command to add the entry.

The command requires the **--name**, **--os-family** and **--path** options.

The **`name`** option should specify a name that is appropriate for the installation.

The **`os-family`** should remain ***`Redhat`*** in most cases.

The **`path`** option specifies the path or URL to the installation tree.

1.5.1. Satellite Server

The path included in the example below should work with most satellite installations, just replace ***SATELLITE_SERVER*** with the appropriate FQDN.

```
# hammer medium create --name "Dell OSP Pilot" --os-family Redhat \
  --path 'http://SATELLITE_SERVER/ks/dist/ks-rhel-$arch-server-$major-
$version'
```

1.5.2. Local ISO on Foreman Node

- **mkdir /usr/share/foreman/public/iso**
- Copy the RHEL7 iso to the */root* directory of the foreman node
- Edit */etc/fstab*
- Add the following line to the end:

```
/root/RHEL-7.0-Server-x86_64-dvd.iso /usr/share/foreman/public/iso
iso9660 loop,ro 0 0
```

- mount –a

```
# hammer medium create --name "Dell OSP Pilot" --os-family Redhat \
  --path 'http://FOREMAN_SERVER/iso'
```

1.5.3. Local ISO on Solution Admin Host

- On the Solution Admin Host:
  - **yum install httpd**
  - Configure **httpd** with any options you want. Defaults will work, but are not secure.
  - copy the ISO to the SAH in */store/data/iso*
  - **"mount -o loop ISO NAME /mnt"**
  - **"mkdir /store/data/iso/RHEL6.5" (Name of the OS)**
  - **"rsync -av /mnt/ /store/data/iso/RHEL6.5"**
  - **"umount /mnt"**
  - **"ln -s /store/data/iso/RHEL6.5 RHEL6.5"**
- Validate the web interface works

  http://ipaddress of foreman/RHEL6.5/README

1.6. Note the Medium ID

After the medium is created, execute the **`hammer medium list`** command.

Take note of the ID (first column) for the newly created medium. This will be needed later.

1.7. Configure the Partition Table

Configure the partition table that the provisioned hosts will use. The partition table is provided in the following file.

dell-pilot.partition Partition table for the nodes.

Use the **`hammer partition-table create`** command to install the partition table. Specify an appropriate ***`NAME`*** for each partition table and specify the file that contains the data.

```
# hammer partition-table create --name dell-pilot --os-family Redhat \
  --file /root/pilot/dell-pilot.partition
```

After the partition table is created, execute the **`hammer partition-table list`** command.

Take note of the ID of the newly created partition table.

1.8. Configure the Operating System

A definition for the Red Hat Enterprise Linux 7.0 operating system must be created.

Create a new operating system definition for Red Hat Enterprise Linux 7.0.

Use the **`hammer os create`** command to create the definition.

```
# hammer os create --name "RedHat" --major 7 --minor 0 --family Redhat
```

After creating the operating system, execute the **`hammer os list`** command.

Take note of the ID for the new RedHat 7.0 operating system.

Associate the x86_64 architecture with the RedHat 7.0 operating system.

Execute the hammer **`os add-architecture`** command to do this.

```
# hammer os add-architecture --architecture x86_64 --id OS_ID
```

The appropriate partition table needs to be associated with the operating system.

Use the **`hammer os add-ptable`** command to associate the partition table to the operating system Id.

```
# hammer os add-ptable --ptable-id P_ID --id OS_ID
```

1.9. Configure Subnets

A subnet called OpenStack was created automatically during installation. Execute **`hammer subnet list`** and note the ID of this subnet.

```
# hammer subnet list
```

IP addresses can be automatically assigned to newly provisioned hosts from this subnet. To do this, a range of IPs to assign must be defined.

Use the **`hammer subnet update`** command to assign the range of IP addresses and to also set the default gateway for the provisioned hosts.

If the foreman server is acting as the gateway, the gateway address is the IP address of the Foreman servers provisioning interface.

```
# hammer subnet update --id SN_ID --from START_IP_RANGE --to END_IP_RANGE \
  --gateway GATEWAY_IP
```

1.10. Configure Templates

Four template files are provided and used to provision hosts.

dell-osp-ks.template	Provisioning template that provides the kickstart file.
dell-osp-pxe.template	PXE template that contains the PXE configuration..
interface_config.template	Snippet that provides a means to configure extra interfaces during installation. This template is called from the kickstart template.
bonding_snippet.template	Snippet that provides a means to bond interfaces during installation. This template is called from the kickstart template.

Create the templates using the **`hammer template create`** command.

```
# hammer template create --name "Dell OpenStack Kickstart Template" --type
provision \
  --operatingsystem-ids "OS_ID_RH7.0" --file /root/pilot/dell-osp-
ks.template

# hammer template create --name "Dell OpenStack PXE Template" --type
PXELinux \
  --operatingsystem-ids "OS_ID_RH7.0" --file /root/pilot/dell-osp-
pxe.template

# hammer template create --name "bond_interfaces" --type snippet \
  --file /root/pilot/bonding_snippet.template

# hammer template create --name "interface_config" --type snippet \
  --file /root/pilot/interface_config.template
```

After the templates are created, use the **`hammer template list`** command to determine the IDs of the templates.

The provisioning and PXE templates must be associated with the operating systems. Use the **`hammer os update`** command to update the template associations.

Execute the following command for the RedHat 7.0 operating system ID. This command also associates the installation medium to the operating system.

```
# hammer os update --config-template-ids "KS_ID, PXE_ID" \
  --medium-ids MEDIUM_ID --id OS_ID
```

The templates are now associated with the operating system, they must now be set as the default templates for the operating systems.

Execute the **`hammer os set-default template`** command for the provisioning and PXELinux templates. The command will be executed two times.

```
# hammer os set-default-template --config-template-id TMPLT_ID --id OS_ID
```

The **`hammer os info`** command can be used to check the configuration of the operating systems.

```
# hammer os info --id 1

Id:                 1
Full name:          RedHat 7.0
Release name:
Family:             Redhat
Name:               RedHat
Major version:      7
Minor version:      0
Partition tables:

Default templates:
    Dell OpenStack Kickstart Template (provision)
    Dell OpenStack PXE Template (PXELinux)
Architectures:

Installation media:
    Red Hat Satellite
Templates:
    Dell OpenStack Kickstart Template (provision)
    Dell OpenStack PXE Template (PXELinux)
Parameters:
```

1.11. Gather More Information

A few more IDs are required in order to install a host. Execute the following commands and take note of the appropriate IDs.

- Environments

```
# hammer environment list
```

- Domains

```
# hammer domain list
```

- Puppet Proxy

```
# hammer proxy list
```

- Architectures

```
# hammer architecture list
```

1.12. Configure facts updates

Foreman updates the host information using the Puppet facts. Foreman updates the provisioning information with the first interface returned from the Puppet facts. To prevent this, perform the following steps.

- Log into the Foreman UI.
- Select the **Administer** drop down on the top right of the window.
- Select **Settings**. Select the **Provisioning** tab.
- Edit the **ignore_puppet_facts_for_provisioning** setting and set it to ***true***.

1.13. Configure the Operating System for Updates.

Configure the Operating system definition with the parameters for registering the provisioned host for updates.

The **`hammer os set-parameter`** command is used to set the parameters.

The following parameters are set.

subscription_manager	Specifies that the hosts will register with Subscription Manager. (true or false)
subscription_manager_username	The username of the Subscription Manager account to register to.
subscription_manager_password	The password for the Subscription Manager account.

Define the ***`OS_ID`*** variable to the ID of the operating system then execute the remaining commands.

Make sure to specify the appropriate ***`username`***, ***`password`***, and ***`pool ID`*** by replacing the ***`CHANGEME's`*** and ***`POOL_ID`***.

```
# OS_ID=2

# hammer os set-parameter --operatingsystem-id ${OS_ID} \
  --name subscription_manager --value true

# hammer os set-parameter --operatingsystem-id ${OS_ID} \
  --name subscription_manager_username --value CHANGEME

# hammer os set-parameter --operatingsystem-id ${OS_ID} \
  --name subscription_manager_password --value 'CHANGEME'
```

1.13.1. Optional Proxy Settings

Proxy settings for the subscription-manager and yum commands can be set by defining the needed parameters. These parameters are completely optional if not needed.

Although defining and using the following parameters will work for most environments, they may not work for all. Setting the parameters gives the provisioning template the information to set the proxy information using the **`subscription-manager config`** command.

If these setting do not work in your environment, the kickstart file may need to be manually modified. This can be done using the Foreman user interface..

The following parameters can be set using the hammer os set-parameter command as above.

subscription_manager_proxy	The proxy server to use, if needed.
subscription_manager_proxy_port	The proxy port to use, if needed.
subscription_manager_proxy_user	The proxy username, if needed.
subscription_manager_proxy_password	The proxy password, if needed.

2. Provisioning the Nodes

Provision the nodes using the following command. Variables are being used to make it easier to use the hammer command.

Simply set the ***NAME***, ***PTABLE***, and ***MAC*** variables appropriately for a host, then execute the **`hammer host create`** command. Once the host is created, reset the variables for the next host and execute the same hammer command again.

Repeat this until all hosts are created. Make sure to change the root password on the command line as needed.

NAME	The hostname of the provisioned host.
PTABLE	The ID of the partition table that should be used when deploying this host. This ID is the same for all the compute nodes, but the controller uses a different partition tablei ID.
MAC	The hardware address of the provisioning interface for the node.

Change the remaining IDs in the command as appropriate.

```
# NAME=CHANGEME

# PTABLE=CHANGEME

# MAC=CHANGEME

# hammer host create --name "${NAME}" --root-password 'CHANGEME' \
    --build true --enabled true --managed true --environment-id 2 \
    --domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 2 \
    --subnet-id 1 --architecture-id 1 --medium-id 9 \
    --partition-table-id ${PTABLE} \
    --mac ${MAC}
```

2.1. Get host information

The IDs of the newly defined hosts are needed to finish their configuration.

Execute the **`hammer host list`** command to get the host IDs. Take note of these IDs.

```
# hammer host list
```

2.2. Controller Node

The controller nodes have two bonded interfaces, one with two vlans configured, and two remaining interfaces that are not bonded. The Public API network is on a pair of bonded interfaces and the Private API and Storage networks are on a separate pair of bonded interfaces.

The Private API and Storage networks are VLAN tagged networks on a bonded interface. The Provisioning and the Management interfaces are on individual non-bonded interfaces.

2.2.1. Non-Bonded Nic Configuration

The **nics** parameter can be set on the hosts to provide the information needed to allow the kickstart file to configure the non-bonded interfaces.

Set the **nics** parameter on the controller host to configure the non-bonded interfaces. The Provisioning interface is configured by Foreman, so it does not need to be configured again.

The value for the **nic** parameter consists of a space separated list of key=value pairs. Each pair contains the configuration information for a single nic. This list is entered in the same format a s a bash associative array. The entire value is enclosed within single tick marks and parentheses. '(…)'

Each key/value is in the following format:

- [IFACE]="parameters"

An example of defining a single interface:

```
# hammer host set-parameter --host-id 3  --name nics \
  --value '([em1]="onboot static aa:bb:cc:dd:ee:ff
192.168.0.110/255.255.255.0")'
```

The parameters consist of the following:

onboot	The interface is enabled when the system boots. Default is disabled.
dhcp | static | none	The interface gets its network configuration using DHCP,· the network configuration is statically configured, or the interface has no network configuration. If no option is specified, dhcp is assumed.
xx:xx:xx:xx:xx:xx	The hardware address of the interface.
x.x.x.x/y.y.y.y	The IP address and Network mask of the interface. Used only when static is specified. Must be in the format presented.

Execute the following command to set the **nic** parameters for the two other interfaces used by the controller node. Replace the ***HOST_ID***, ***IFACE***, ***MAC***, and ***IP/MASK*** parameters as appropriate.

```
# hammer host set-parameter --host-id HOST_ID --name nics \
  --value '([IFACE]="onboot static MAC IP/MASK" [IFACE]="onboot static MAC
IP/MASK")'
```

2.2.2. Bonded Nic Configuration

Three parameters can be set on the hosts to provide the information needed to allow the kickstart file to configure the bonded interfaces. These parameters are: **bonds**, **bond_ifaces**, and **bond_opts**.

The **bonds** parameter is similar to the **nics** parameter used earlier with the addition of the **vlan** option and the removal of the **mac address** option.

When creating a VLAN tagged bond, use the **vlan** option to let the **bonding_snippet** know this bond is vlan tagged. Also specify the tag number in the bond name.

For example:

```
'( [bond0]="onboot none" [bond0.301]="onboot static vlan
172.30.139.62/255.255.255.0" )'
```

Created a bond0 that is enabled at boot. It then creates a VLAN tagged bond on the bond called bond0.301.

See the documentation on the bonding_snippit for more information.

The **bond_ifaces** parameter is used to specify the interfaces for each bond.

For example:

```
'( [bond0]="em1 em2" )'
```

Bonds interfaces em1 and em2 into bond0.

The **bond_opts** parameter specifies the bonding options to use for each bond.

For example:

```
'( "[bond0]="mode=active-passive" )'
```

Create the three needed parameters using the **`hammer host set-parameter`** command. Replace the **HOST_ID**, **VLAN**, and **IP/MASK** information as appropriate to define the bonds.

```
# hammer host set-parameter --host-id HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.VLAN1]="onboot static vlan
IP/MASK"
  [bond0.VLAN2]="onboot static vlan IP/MASK" [bond1]="onboot static
IP/MASK")'

# hammer host set-parameter --host-id HOST_ID --name bond_ifaces \
  --value '( [bond0]="p3p1 p3p2" [bond1]="em1 em2")'

# hammer host set-parameter --host-id HOST_ID --name bond_opts \
  --value '( [bond0]="mode=active-backup" [bond1]="mode=active-backup")'
```

Repeat the parameter configuration for all the controller nodes.

2.2.3. Version Locking

Execute the following command to make the RPM version locking file available during provisioning. Replace ***HOST_ID*** with the host ID and ***FOREMAN_SERVER*** with the IP address of the Foreman server on the provisioning network.

```
# hammer host set-parameter --host-id HOST_ID --name yum_versionlock_file \
  --value 'http://FOREMAN_SERVER/vlock_files/controller.vlock'
```

2.3. Compute Nodes

The compute nodes have two separate bonds and a single non-bonded interface for its networking. The single interface connects to the Provisioning network and is already configured.

One bond connects to the Nova Public Network, while the other bond connects to the Nova Private, Private_API, and Storage networks. Each network on the second bond are VLAN tagged.

Set the **bonds**, **bond_ifaces**, and **bond_opts** parameters for each compute node.

Make sure the **bond_opts** sets the **MODE** to ***balance-tlb*** and **PROMISC** to ***yes***.

An example set of commands follows.

```
# hammer host set-parameter --host-id HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.300]="onboot static vlan
172.20.139.110/255.255.255.0"
  [bond0.301]="onboot static vlan 172.30.139.110/255.255.255.0"
  [bond0.302]="onboot static vlan 172.40.139.110/255.255.255.0"
  [bond1]="onboot static 172.10.139.61/255.255.255.0")'

# hammer host set-parameter --host-id HOST_ID --name bond_ifaces \
  --value '( [bond0]="p3p1 p3p2" [bond1]="em1 em2")'

# hammer host set-parameter --host-id HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb PROMISC=yes" [bond1]="mode=balance-
tlb PROMISC=yes")'
```

Execute the following command to make the RPM version locking file available during provisioning. Replace ***HOST_ID*** with the host ID and ***FOREMAN_SERVER*** with the IP address of the Foreman server on the provisioning network.

```
# hammer host set-parameter --host-id HOST_ID --name yum_versionlock_file \
  --value 'http://FOREMAN_SERVER/vlock_files/compute.vlock'
```

2.4. Ceph Storage Nodes

Execute the following command to make the RPM version locking file available during provisioning. Replace ***HOST_ID*** with the host ID and ***FOREMAN_SERVER*** with the IP address of the Foreman server on the provisioning network.

```
# hammer host set-parameter --host-id HOST_ID --name yum_versionlock_file \
  --value 'http://FOREMAN_SERVER/vlock_files/ceph.vlock'
```

2.5. Set Host Update Parameters

Each node can use a separate pool ID and require different repositories. These parameters are set on a per host basis instead of an operating system.

The following parameters need to be set on each host.

subscription_manager_pool	The ID of the pool to attach the host to.
subscription_manager_repos	The repositories that should be enabled after the host is registered.

2.5.1. Determine Pool ID

To determine the pool id, you must have an existing server that is registered to the RedHat Hosted Services. This server must also be registered using the same credentials as the ones being used in this environment.

Once the server is correctly registered, execute the **`subscription-manager list --all --available`** command to see the available subscription pools.

The command will output a list of available pools. Each section of information lists what the subscription provides, its pool ID, how many are available, the type of system it is for, as well as other information.

Determine the correct pool ID needed for this environment and take note of it. Place close attention to the **System Type**. The **System Type** can be ***Virtual*** or ***Physical***. You cannot use a pool marked as ***Virtual*** for a physical server.

```
# subscription-manager list --all --available

[OUTPUT ABBREVIATED]

Subscription Name: Red Hat Cloud Infrastructure, Standard (8-sockets)
Provides:          Red Hat Beta
                   Red Hat OpenStack Beta
                   JBoss Enterprise Application Platform
                   Red Hat Software Collections (for RHEL Server)
                   Red Hat Enterprise Virtualization
                   Oracle Java (for RHEL Server)
                   Red Hat OpenStack
                   Red Hat Enterprise MRG Messaging
                   Red Hat Enterprise Linux Server
                   Red Hat Enterprise Linux High Availability (for RHEL
Server)
                   Red Hat Software Collections Beta (for RHEL Server)
                   Red Hat Enterprise Linux Load Balancer (for RHEL Server)
                   Red Hat CloudForms
SKU:               MCT2861
Pool ID:           aaaa111bbb222ccc333ddd444eee5556
Available:         7
Suggested:         1
Service Level:     Standard
Service Type:      L1-L3
Multi-Entitlement: No
Ends:              09/23/2015
System Type:       Physical


[OUTPUT ABBREVIATED]
```

2.5.2. Configure the Pool ID

Execute the following command for each host. Substitute the **HOST_ID** and **POOL_ID** as appropriate.

```
# hammer host set-parameter --host-id-id HOST_ID \
  --name subscription_manager_pool --value POOL_ID
```

2.5.3. Configure the Repositories

The controller nodes and compute nodes both require the rhel-server-rhscl-7-rpms, rhel-7-server-rpms, and rhel-7-server-openstack-5.0-rpms, repositories.

Execute the following command on each controller node to enable the needed repositories.

```
# hammer os set-parameter --host-id HOST_ID --name
subscription_manager_repos \
    --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
    rhel-7-server-openstack-5.0-rpms,rhel-ha-for-rhel-7-server-rpms"
```

The controller nodes also require the rhel-ha-for-rhel-7-server-rpms repository.

Execute the following command on each compute node to enable the needed repositories.

```
# hammer os set-parameter --host-id HOST_ID --name
subscription_manager_repos \
    --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
    rhel-7-server-openstack-5.0-rpms"
```

2.6. Start Provisioning

PXE boot each of the nodes. After they are booted, make sure the networks are configured appropriately.

2.7. Ceph Deployment

If Ceph must be configured on these nodes, follow the Red Hat Openstack Platform Integration with Ceph document.

2.8. Next Steps

After the Ceph configuration is complete or if Ceph configuration is not needed, continue the configuration using the Dell Pilot Hostgroups Deployment document.

3. Appendix A - Updating RPMs on Version Locked Nodes

At a high level, updating RPMs on a version locked node (Foreman VM, Ceph ICE VM, OpenStack Controller nodes, OpenStack Compute nodes, or Ceph Storage nodes) is to identify the RPMs that need to be updated, remove them from the version lock list on that node, update the RPMs, and then add the updated RPMs back into the version lock list. Detailed instructions for accomplishing this follow.

Note: All of the following commands should be run as the root user.

To produce a list of RPMs that are version locked on a node, login to the node and execute the following command:

```
# yum versionlock list
```

Next, identify the RPMs to be updated from the output of the above command.

Remove the selected RPMs from the version lock list by executing the following command for each RPM, substituting VLockListEntry with an entry from the output of the versionlock list command above containing the RPM name:

```
# yum versionlock delete "VLockListEntry"
```

Note: The VLockListEntry must match an entry in the output of the "yum versionlock list" command exactly.

Update each of the selected RPMs by executing the following command for each RPM, substituting RPMName with the name of the RPM without the version number:

```
yum update RPMName
```

Finally, add each of the selected RPMs back into the version lock list by executing the following command again substituting RPMName with the name of the RPM without the version number:

```
yum versionlock add RPMName
```

4. Appendix B - Example Hammer Commands

hammer-list

```
hammer medium create --name "Dell OSP Pilot" --os-family RedHat \
  --path 'http://rh6fore.r5.lab/ks/dist/ks-rhel-$arch-server-$majo-$version'

hammer medium list

hammer partition-table create

hammer partition-table create --name dell-pilot --os-family Redhat --file
dell-pilo.partition

hammer partition-table create --name dell-pilot --os-family Redhat --file
dell-pilot.partition

hammer partition-table create --name dell-pilot --os-family Redhat --file
dell-pilot.partition

hammer os create --name "RedHat" --major 7 --minor 0 --family Redhat

hammer os list

hammer os add-architecture --architecture x86_64 --id 3

hammer os add-ptable --ptable-id 8 --id 3

hammer subnet list

hammer template create --name "Dell OpenStack Kickstart Template" --type
provision \

hammer template create --name "Dell OpenStack Kickstart Template" \
  --operatingsystem-ids "3" --file dell-osp-ks.template

hammer template create --name "Dell OpenStack Kickstart Template" type
provision \
  --operatingsystem-ids "3" --file dell-osp-ks.template

hammer template create --name "Dell OpenStack Kickstart Template" --type
provision \
  --operatingsystem-ids "3" --file dell-osp-ks.template

hammer template create --name "Dell OpenStack PXE Template" --type
PXELinux \
  --operatingsystem-ids "3" --file dell-osp-pxe.template

hammer template create --name "bond_interfaces" --type snippet \

hammer template create --name "bond_interfaces" --type snippet--file
bonding_snippet.template

hammer template create --name "bond_interfaces" --type snippet --file
bonding_snippet.template
```

```
hammer template create --name "interface_config" --type snippet --file
interface_config.template

hammer tempalte list

hammer template list

hammer  os update --config-template-ids "33,34" --medium-ids 8 --id 3

hammer os set-default-template --config-template-id 34 --id 3

hammer  os info --id 3

hammer domain list

hammer proxy  list

hammer architecture list

hammer os set-parameter

hammer os set-parameter --operatingsystem-id

hammer os list

hammer os set-parameter --operatingsystem-id ${OS_ID} --name
subscription_manager --value true

hammer os set-parameter --operatingsystem-id ${OS_ID} --name
subscription_manager --value true

hammer os set-parameter --operatingsystem-id ${OS_ID}  --name
subscription_manager --value true

hammer os set-parameter --operatingsystem-id 3  \
  --name subscription_manager --value true

hammer os set-parameter --operatingsystem-id 3  \
  --name subscription_manager_username --value dellcloudsol

hammer os set-parameter --operatingsystem-id 3  \
  --name subscription_manager_password --value cr0wBar!

hammer os list
```

hammer-nic-bond-cntl1

```
HOST_ID='15'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name nics \
  --value '([em2]="onboot static 192.168.110.127/255.255.255.0")'

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.130/255.255.255.0"
  [bond0]="onboot none" [bond0.140]="onboot static vlan
192.168.123.41/255.255.255.0"
  [bond1]="onboot static 10.9.244.130/255.255.254.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p5p2 p7p2" [bond1]="p5p1 p7p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-cntl2

```
HOST_ID='16'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name nics \
  --value '([em2]="onboot static 192.168.110.128/255.255.255.0")'

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.131/255.255.255.0"
  [bond0]="onboot none" [bond0.140]="onboot static vlan
192.168.123.42/255.255.255.0"
  [bond1]="onboot static 10.9.244.131/255.255.254.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p5p2 p7p2" [bond1]="p5p1 p7p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-cntl3

```
HOST_ID='21'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name nics \
  --value '([em2]="onboot static 192.168.110.129/255.255.255.0")'

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.132/255.255.255.0"
  [bond0]="onboot none" [bond0.140]="onboot static vlan
192.168.123.43/255.255.255.0"
  [bond1]="onboot static 10.9.244.132/255.255.254.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p5p2 p6p2" [bond1]="p5p1 p6p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-nova1

```
HOST_ID='24'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.133/255.255.255.0"
  [bond0]="onboot none" [bond0.130]="onboot static vlan
192.168.130.133/255.255.255.0"
  [bond0]="onboot none" [bond0.140]="onboot static vlan
192.168.123.44/255.255.255.0"
  [bond1]="onboot none" [bond1.207]="onboot static vlan
192.168.207.133/255.255.255.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p5p2 p6p2" [bond1]="p5p1 p6p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-nova2

```
HOST_ID='25'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.134/255.255.255.0"
  [bond0]="onboot none" [bond0.130]="onboot static vlan
192.168.130.134/255.255.255.0"
  [bond0]="onboot none" [bond0.140]="onboot static vlan
192.168.123.45/255.255.255.0"
  [bond1]="onboot none" [bond1.207]="onboot static vlan
192.168.207.134/255.255.255.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p5p2 p6p2" [bond1]="p5p1 p6p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-nova3

```
HOST_ID='26'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.135/255.255.255.0"
  [bond0]="onboot none" [bond0.130]="onboot static vlan
192.168.130.135/255.255.255.0"
  [bond0]="onboot none" [bond0.140]="onboot static vlan
192.168.123.46/255.255.255.0"
  [bond1]="onboot none" [bond1.207]="onboot static vlan
192.168.207.135/255.255.255.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p1p2 p5p2" [bond1]="p1p1 p5p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-ceph1

```
HOST_ID='28'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.140/255.255.255.0"
  [bond1]="onboot none" [bond1.191]="onboot static vlan
192.168.191.140/255.255.255.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p4p2 p6p2" [bond1]="p4p1 p6p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-ceph2

```
HOST_ID='29'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.141/255.255.255.0"
  [bond1]="onboot none" [bond1.191]="onboot static vlan
192.168.191.141/255.255.255.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p4p2 p6p2" [bond1]="p4p1 p6p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-nic-bond-ceph3

```
HOST_ID='30'

POOLID=8a85f98744091dea0144314ba24c726c

hammer host set-parameter --host-id  $HOST_ID --name bonds \
  --value '( [bond0]="onboot none" [bond0.190]="onboot static vlan
192.168.190.142/255.255.255.0"
  [bond1]="onboot none" [bond1.191]="onboot static vlan
192.168.191.142/255.255.255.0" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_opts \
  --value '( [bond0]="mode=balance-tlb miimon=100" [bond1]="mode=balance-tlb
miimon=100" )'

hammer host set-parameter --host-id  $HOST_ID --name bond_ifaces \
  --value '([bond0]="p4p2 p6p2" [bond1]="p4p1 p6p1" ) '

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy \
  --value "proxy.us.dell.com"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_proxy_port \
  --value "80"

hammer host set-parameter --host-id ${HOST_ID} --name
subscription_manager_pool \
  --value "${POOLID}"

hammer host set-parameter --host-id $HOST_ID --name
subscription_manager_repos \
  --value "rhel-server-rhscl-7-rpms, rhel-7-server-rpms,
  rhel-7-server-openstack-5.0-rpms, rhel-ha-for-rhel-7-server-rpms"
```

hammer-deploy-cntl1

```
NAME=rh7cntl1

PTABLE=12

MAC=B8:CA:3A:68:67:54

IP=192.168.119.130

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-cntl2

```
NAME=rh7cntl2

PTABLE=12

MAC=B8:CA:3A:68:67:68

IP=192.168.119.131

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-cntl3

```
NAME=rh7cntl3

PTABLE=12

MAC=B8:CA:3A:67:43:6C

IP=192.168.119.132

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-nova1

```
NAME=rh7nova1

PTABLE=12

MAC=B8:CA:3A:67:3C:D0

IP=192.168.119.133

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-nova2

```
NAME=rh7nova2

PTABLE=12

MAC=B8:CA:3A:67:3F:68

IP=192.168.119.134

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-nova3

```
NAME=rh7nova3

PTABLE=12

MAC=B8:CA:3A:67:3D:C8

IP=192.168.119.135

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-ceph1

```
NAME=rh7ss1

PTABLE=12

MAC=B8:CA:3A:67:17:4C

IP=192.168.119.140

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-ceph2

```
NAME=rh7ss2

PTABLE=12

MAC=B8:CA:3A:67:0C:7C

IP=192.168.119.141

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```

hammer-deploy-ceph3

```
NAME=rh7ss3

PTABLE=12

MAC=B8:CA:3A:67:0D:38

IP=192.168.119.142

hammer host create --name "${NAME}" --root-password 'cr0wBar!' \
--build true --enabled true --managed true --environment-id 2 \
--domain-id 1 --puppet-proxy-id 1 --operatingsystem-id 3 --ip ${IP} \
--subnet-id 1 --architecture-id 1 --medium-id 9 --partition-table-id $
{PTABLE} --mac ${MAC}

hammer host list |grep ${NAME}
```