Solution Admin Host Deployment Guide

1. Dell Admin Node Deployment

The deployment of the Dell Solution Admin Host is performed using a kickstart file. This kickstart file performs the following steps when properly configured.

- Partitions the system
- Sets SELinux to permissive mode
- Disables firewalld and uses iptables
- Disables NetworkManager
- Configures networking including the following:
  - bonding
  - bridges
  - static IP addresses
  - The gateway
  - Name resolution
  - NTP time service
- Registers the system using the Red Hat Subscription Manager

1.1.1. Determine Pool ID

To determine the pool id needed for registration using **`subscription-manager`**, 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's needed for this environment and take note of them. 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]
```

The above output shows a subscription that contains the OpenStack repositories. This subscription is for a physical system, so this pool ID will work for the controller and compute nodes. The Foreman virtual machine can use this same subscription even though the subscription is for a physical system and not a virtual machine. However, the physical servers cannot use a subscription type marked as ***Virtual***.

The Solution Admin Host could use this same subscription since it only needs the Red Hat Enterprise Server subscription and this one includes it. However, this would be wasteful. Look for a subscription that contains only the Red Hat Enterprise Server subscription to use for the SAH host.

1.2. Customize the kickstart file

The kickstart file must be customized for the environment it is being installed into.

All changes that usually need changed are between the lines marked **CHANGEME** and **END of CHANGEME**. No other edits should need to be made outside of these lines.

Set the following variables:

HostName	The FQDN of the server.
SystemPassword	The root user password for the system.
SubscriptionManagerUser	The user credential when registering with Subscription Manager.
SubscriptionManagerPassword	The user password when registering with Subscription Manager.
SubscriptionManagerPool	The pool ID used when attaching the system to an entitlement.
SubscriptionManagerProxy	Optional proxy server to use when attaching the system to an entitlement.
SubscriptionManagerProxyPort	Optional port for the proxy server.
SubscriptionManagerProxyUser	Optional username for the proxy server.
SubscriptionManagerProxyPassword	Optional password for the proxy server.
Gateway	The default gateway for the system.
NameServers	A comma separated list of nameserver IP addresses.
NTPServers	A comma separated list of time servers. This can be IP addresses or FQDNs.
TimeZone	The timezone the system is in.
public_bond	This line configures the public bridge, the bond it attaches to, and the interfaces used within the bond. The line is in the form: public_bond="BRIDGE_NAME BOND_NAME BRIDGE_IP BRIDGE_NETMASK INTERFACE1 INTERFACE2 …" • BRIDGE_NAME:: The name of the bridge. This must be “public” for the public bond. • BOND_NAME:: A name for the bond that is created for this bridge. bond0 is a good choice. • If only one interface is available

then you must configure a bond that contains the single interface.

- BRIDGE_IP:: The IP address used for this bridge.
- BRIDGE_NETMASK:: The network mask used for this bridge.
- INTERFACE*:: This is a space separated list of interfaces that are used in this bond.

provision_bond

This line configures the provisioning bridge, bond, and interfaces used within the bond.

The bridge name must be “provision”.

A good name to use for the BOND_NAME is bond1.

If only one interface is available then you must configure a bond that contains the single interface.

See the public_bond for a description of the parameters.

1.3. Make the kickstart file available for installation.

- Place the kickstart file in the top level directory of a usb key. The usb key must be formated as vfat or ext2.
    - A usb image can be created using the following steps. This is useful if you are using the Drac virtual media to install.
        - Create a usb image:
            - mkfs.vfat -C ks_usb.img 1024
        - Mount the image:
            - mount -o loop ks_usb.img /mnt
        - Place the osp-mgmg.ks file into the image:
            - cp osp-sah.ks /mnt
        - Unmount the image:
            - sync
            - umount /mnt
        - Map the image as Removable Media on the iDrac. The device name presented to the installer should be sdb if only one physical hard disk is presented to the server.
            - Boot the system using the Red Hat Enterpise Server 7 installation media.
            - At the installation menu, select the Install option, but do not press enter.
            - Press the Tab key.
            - Move the cursor to the end of the line beginning with vmlinuz.
            - Append of the following to the end of the line:
                - ks=hd:sdb:/osp-sah.ks
    - The device ***sdb*** can change depending on the quantity of disks being presented to the installation environment. These instructions assume a single disk is presented. Adjust accordingly.

Press the **Enter** key to start the installation.

It may take a few minutes before progress is seen on the screen.

1.4. Next Steps

After the Solution Admin Host is installed, copy the ISO of the **Red Hat Enterprise Server 6 installation DVD** to the */store/data/iso* directory. This ISO is used to install the Foreman virtual machine.

If the Ceph ICE virtual machine will be installed, also copy the ISO of the **Red Hat Enterprise Server 7 installation DVD** to the */store/data/iso* directory.

To set up the Foreman virtual machine, follow the **Foreman Virtual Machine Deployment Guide**.

To set up the Ceph ICE virtual machine, follow the **Ceph ICE Virtual Machine Deployment Guide**.

2. The Kickstart file

```
#version=RHEL7

install
cdrom
reboot

# Partitioning
ignoredisk --only-use=sda
zerombr
bootloader --boot-drive=sda

clearpart --all --initlabel

part biosboot --ondisk=sda --size=2
part /boot --fstype=ext4 --size=1024
part pv.01 --size=79872
part pv.02 --size=1024 --grow

volgroup VolGroup --pesize=4096 pv.01
volgroup vg_vms   --pesize=4096 pv.02

logvol / --fstype=ext4    --name=lv_root --vgname=VolGroup --size 30720
logvol /tmp --fstype=ext4 --name=lv_tmp  --vgname=VolGroup --size 10240
logvol /var --fstype=ext4 --name=lv_var  --vgname=VolGroup --size 20480
logvol swap               --name=lv_swap --vgname=VolGroup --size 16384

logvol /store/data --fstype=ext4 --name=data --vgname=vg_vms --size 1 --grow

keyboard --vckeymap=us --xlayouts='us'
lang en_US.UTF-8

auth --enableshadow --passalgo=sha512

%include /tmp/ks_include.txt

skipx
firstboot --disable
eula --agreed

%packages
@gnome-desktop
@internet-browser
@x11
@dns-server
@ftp-server
@file-server
@network-file-system-client
@performance
@remote-desktop-clients
@remote-system-management
@virtualization-client
@virtualization-hypervisor
@virtualization-tools
```

```
ntp
ntpdate
-chrony
-firewalld
system-config-firewall-base
%end



%pre --log /tmp/sah-pre.log

################## CHANGEME
#  These are the variables that need changed for the environment

# FQDN of server
HostName="sah.example.org"

# Root password of server
SystemPassword="CHANGEME"

# Subscription Manager credentials and pool to connect to.
# If the pool is not specified, the kickstart will try to subscribe to
# the first subcription specified as "Red Hat Enterprise Linux Server"
SubscriptionManagerUser="CHANGEME"
SubscriptionManagerPassword="CHANGEME"
SubscriptionManagerPool="8j45445948fg908090fs5681d2243969"
SubscriptionManagerProxy=""
SubscriptionManagerProxyPort=""
SubscriptionManagerProxyUser=""
SubscriptionManagerProxyPassword=""

# Network configuration
Gateway="10.19.143.254"
NameServers="10.19.143.247,10.19.143.248"
NTPServers="CHANGEME.CHANGEME"
TimeZone="America/Chicago"

# bridge and bonding configuration. The format of the value is
# a space seperated list containing:
# Bridge_Name Bond_Name Bridge_IP Bridge_Mask Slave_Interface1
Slave_Interface2 SlaveInterface3 ...
# The network configuration specified for the public_bond will be used by
the installation environment as well.
public_bond="public bond0 10.19.139.60 255.255.248.0 em1 em3"
provision_bond="provision bond1 172.44.139.60 255.255.255.0 em2 em4"

################## END of CHANGEME

# Create the files that will be used by the installation environment and
%post environment
read -a itmp <<< ${public_bond}

echo "network --activate --onboot=true --noipv6 --device=${itmp[4]}
--bootproto=static --ip=${itmp[2]}" \
     " --netmask=${itmp[3]} --hostname=${HostName} --gateway=${Gateway}
```

```
--nameserver=${NameServers}" \
     >> /tmp/ks_include.txt

echo "rootpw ${SystemPassword}" >> /tmp/ks_include.txt
echo "timezone ${TimeZone} --utc" >> /tmp/ks_include.txt

echo "HostName=\"${HostName}\"" >> /tmp/ks_post_include.txt
echo "Gateway=\"${Gateway}\"" >> /tmp/ks_post_include.txt
echo "NameServers=\"${NameServers}\"" >> /tmp/ks_post_include.txt
echo "NTPServers=\"${NTPServers}\"" >> /tmp/ks_post_include.txt

echo "public_bond=\"${public_bond}\"" >> /tmp/ks_post_include.txt
echo "provision_bond=\"${provision_bond}\"" >> /tmp/ks_post_include.txt
echo "SMUser=${SubscriptionManagerUser}" >> /tmp/ks_post_include.txt
echo "SMPassword=${SubscriptionManagerPassword}" >> /tmp/ks_post_include.txt
echo "SMPool=${SubscriptionManagerPool}" >> /tmp/ks_post_include.txt

[[ ${SubscriptionManagerProxy} ]] && {
  echo "SMProxy=\"${SubscriptionManagerProxy}\"" >> /tmp/ks_post_include.txt
  echo "SMProxyPort=\"${SubscriptionManagerProxyPort}\"" >>
/tmp/ks_post_include.txt
  echo "SMProxyUser=\"${SubscriptionManagerProxyUser}\"" >>
/tmp/ks_post_include.txt
  echo "SMProxyPassword=\"${SubscriptionManagerProxyPassword}\"" >>
/tmp/ks_post_include.txt
  }

# Remove all existing LVM configuration before the installation begins
echo "Determining LVM PVs"
pvscan

echo "Determining LVM VGs"
vgscan

echo "Determining LVM LVs"
lvscan

lvchange -a n
vgchange -a n

echo "Erasing LVM PVs"
for pv in $( pvs -o pv_name | grep -v "^\s*PV\s*$" )
do
  pvremove --force --force --yes ${pv}
done

echo "Checking LVM PVs do not exist"
pvscan

echo "Checking LVM VGs do not exist"
vgscan

echo "Checking LVM LVs do not exist"
lvscan
```

```
%end

%post --nochroot --log=/root/sah-ks.log
# Copy the files created during the %pre section to /root of the installed
system for later use.
  cp -v /tmp/sah-pre.log /mnt/sysimage/root
  cp -v /tmp/ks_include.txt /mnt/sysimage/root
  cp -v /tmp/ks_post_include.txt /mnt/sysimage/root
%end


%post --log=/root/sah-post-ks.log

exec < /dev/tty8 > /dev/tty8
chvt 8

# Source the variables from the %pre section
. /root/ks_post_include.txt


sed -i -e "s/^SELINUX=.*/SELINUX=permissive/" /etc/selinux/config

# Configure the system files
echo "HOSTNAME=${HostName}" >> /etc/sysconfig/network
echo "GATEWAY=${Gateway}" >> /etc/sysconfig/network

read -a htmp <<< ${public_bond}
echo "${htmp[2]}  ${HostName}" >> /etc/hosts

# Configure name resolution
for ns in ${NameServers//,/ }
do
  echo "nameserver ${ns}" >> /etc/resolv.conf
done

# Configure the ntp daemon
systemctl enable ntpd
sed -i -e "/^server /d" /etc/ntp.conf

for ntps in ${NTPServers//,/ }
do
  echo "server ${ntps}" >> /etc/ntp.conf
done


# Configure the interfaces, bonds, and bridges
for bond in "${public_bond}" "${provision_bond}"
do
  read -a itmp <<< ${bond}
  bridge=${itmp[0]}
  bname=${itmp[1]}
  ip=${itmp[2]}
  mask=${itmp[3]}

  itmp=${itmp[@]:4}
```

```
# Configure the interfaces
  for iface in ${itmp}
  do
    mac=$( ip addr sh dev ${iface} | awk '/link/ {print $2}' )

    cat <<EOBF > /etc/sysconfig/network-scripts/ifcfg-${iface}
NAME=${iface}
DEVICE=${iface}
TYPE=Ethernet
HWADDR=${mac}
NM_CONTROLLED=no
ONBOOT=yes
BOOTPROTO=none
SLAVE=yes
MASTER=${bname}
EOBF

  done

# Configure the bonds
  cat <<EOBF > /etc/sysconfig/network-scripts/ifcfg-${bname}
NAME=${bname}
DEVICE=${bname}
TYPE=Bond
NM_CONTROLLED=no
BOOTPROTO=none
ONBOOT=yes
BONDING_OPTS="mode=balance-tlb miimon=100"
BONDING_MASTER=yes
DEFROUTE=no
BRIDGE=${bridge}
EOBF

# Configure the bridges
  cat <<EOBF > /etc/sysconfig/network-scripts/ifcfg-${bridge}
NAME=${bridge}
DEVICE=${bridge}
TYPE=Bridge
NM_CONTROLLED=no
ONBOOT=yes
BOOTPROTO=static
IPADDR=${ip}
NETMASK=${mask}
EOBF

done

echo "--------------------------------"
ip addr
ip route


# Register the system using Subscription Manager
```

```
[[ "${SMProxy}" ]] && {
  ProxyCmd="--server.proxy_hostname ${SMProxy}"

  [[ "${SMProxyPort}" ]]     && ProxyCmd+=" --server.proxy_port $
{SMProxyPort}"
  [[ "${SMProxyUser}" ]]     && ProxyCmd+=" --server.proxy_user $
{SMProxyUser}"
  [[ "${SMProxyPassword}" ]] && ProxyCmd+=" --server.proxy_password $
{SMProxyPassword}"

  subscription-manager config ${ProxyCmd}
  }

SMPool=""

[[ x${SMPool} = x ]] \
  && SMPool=$( subscription-manager list --available \
  | awk '/Red Hat Enterprise Linux Server/,/Pool/ {pool = $3} END {print
pool}' )

[[ -n ${SMPool} ]] \
  && subscription-manager attach --pool ${SMPool} \
  || ( echo "Could not find an Red Hat Enterprise Linux pool to attach to. -
Auto-attaching to any pool." \
       subscription-manager attach --auto
       )

yum -y update


systemctl disable NetworkManager
systemctl disable firewalld

mkdir -p /store/data/images
mkdir -p /store/data/iso

chvt 6

%end
```