

ONAP on VMware Fusion or Workstation VM

Configuration

NAT configVMWare Fusion 8.5

```
$ sudo vi /Library/Preferences/VMware\ Fusion/vmnet8/nat.conf

[incomingtcp]

# Use these with care - anyone can enter into your VM through these...
# The format and example are as follows:
#<external port number> = <VM's IP address>:<VM's port number>
#8080 = 172.16.3.128:80

8880 = 192.168.241.134:8880

obrienbiometrics:onap michaelobrien$ sudo /Applications/VMware\ Fusion.app/Contents/Library/vmnet-cli --stop
Stopped DHCP service on vmnet1
Disabled hostonly virtual adapter on vmnet1
Stopped DHCP service on vmnet8
Stopped NAT service on vmnet8
Disabled hostonly virtual adapter on vmnet8
Stopped all configured services on all networks
$ sudo /Applications/VMware\ Fusion.app/Contents/Library/vmnet-cli --start
Enabled hostonly virtual adapter on vmnet1
Started DHCP service on vmnet1
Started NAT service on vmnet8
Enabled hostonly virtual adapter on vmnet8
Started DHCP service on vmnet8
Started all configured services on all networks
$ curl 127.0.0.1:8880

{"id":"v1","type":"apiVersion","links":{"accounts":"http://127.0.0.1:8880/v1/accounts","agents":"http://127.0.0.1:8880/v1/agents","apiKeys":"http://127.0.0.1:8880/v1/keys"}}
```

Bare RHEL 7.3 VM - Multi Node Cluster

In progress as of 20170701

<https://kubernetes.io/docs/getting-started-guides/scratch/>

<https://github.com/kubernetes/kubernetes/releases/latest>

<https://github.com/kubernetes/kubernetes/releases/tag/v1.7.0>

<https://github.com/kubernetes/kubernetes/releases/download/v1.7.0/kubernetes.tar.gz>

tar -xvf kubernetes.tar

optional build from source

cd kubernetes/

vi Vagrantfile

cat [README.md](#)

ls client/

git clone <https://github.com/kubernetes/kubernetes>

systemctl start docker

docker ps

cd kubernetes/

make quick-release

go directly to binaries

/run/media/root/sec/onap_kub/kubernetes/cluster

./get-kube-binaries.sh

export Path=/run/media/root/sec/onap_kub/kubernetes/client/bin:\$PATH

[root@obrien-b2 server]# pwd

/run/media/root/sec/onap_kub/kubernetes/server

kubernetes-manifests.tar.gz kubernetes-salt.tar.gz kubernetes-server-linux-amd64.tar.gz README

tar -xvf kubernetes-server-linux-amd64.tar.gz

/run/media/root/sec/onap_kub/kubernetes/server/kubernetes/server/bin

build images

[root@obrien-b2 etcd]# make

[root@obrien-b2 etcd]# pwd

/run/media/root/sec/onap_kub/kubernetes/cluster/images/etcd

/go/src/github.com/golang/glog (from \$GOPATH)
src/k8s.io/kubernetes/cluster/images/etcd/attachlease/attachlease.go:26:2: cannot find package "golang.org/x/net/context" in any of:
/usr/local/go/src/golang.org/x/net/context (from \$GOROOT)
/go/src/golang.org/x/net/context (from \$GOPATH)

(go lang required - adjust google docs)

<https://golang.org/doc/install?download=go1.8.3.linux-amd64.tar.gz>

CoreOS on Vagrant on RHEL/OSX

(Yves alerted me to this) - currently blocked by the 19g VM size (changing the HD of the VM is unsupported in the VirtualBox driver)

<https://coreos.com/kubernetes/docs/latest/kubernetes-on-vagrant-single.html>

Implement OSX fix for Vagrant 1.9.6 <https://github.com/mitchellh/vagrant/issues/7747>

Adjust the VagrantFile for your system

```
NODE_VCPUS = 1
NODE_MEMORY_SIZE = 2048
```

to (for a 5820K on 64G for example)

```
NODE_VCPUS = 8
NODE_MEMORY_SIZE = 32768
```

```
curl -O https://storage.googleapis.com/kubernetes-release/release/v1.6.1/bin/darwin/amd64/kubectl
chmod +x kubectl
skipped (mv kubectl /usr/local/bin/kubectl) - already there
ls /usr/local/bin/kubectl
git clone https://github.com/coreos/coreos-kubernetes.git
cd coreos-kubernetes/single-node/
vagrant box update
sudo ln -sf /usr/local/bin/openssl /opt/vagrant/embedded/bin/openssl
vagrant up
Wait at least 5 min (Yves is good)
(rerun from here)
export KUBECONFIG="${KUBECONFIG}:(pwd)/kubeconfig"
kubectl config use-context vagrant-single
obrienbiometrics:single-node michaelobrien$ export KUBECONFIG="${KUBECONFIG}:(pwd)/kubeconfig"
obrienbiometrics:single-node michaelobrien$ kubectl config use-context vagrant-single
Switched to context "vagrant-single".
obrienbiometrics:single-node michaelobrien$ kubectl proxy &
[1] 4079
obrienbiometrics:single-node michaelobrien$ Starting to serve on 127.0.0.1:8001
goto
http://localhost:8001/ui

$ kubectl get nodes
$ kubectl get service --all-namespaces
$ kubectl cluster-info
git clone ssh://michaelobrien@gerrit.onap.org:29418/oom
cd oom/kubernetes/oneclick/
obrienbiometrics:oneclick michaelobrien$ ./createAll.bash -n onap
**** Done ****obrienbiometrics:oneclick michaelobrien$ kubectl get service --all-namespaces
...
onap-vid          vid-server          10.3.0.31  <nodes>      8080:30200/TCP
32s
obrienbiometrics:oneclick michaelobrien$ kubectl get pods --all-namespaces
NAMESPACE          NAME                READY  STATUS      RESTARTS  AGE
```

kube-system	heapster-v1.2.0-4088228293-3k7j1	2/2	Running	2	4h
kube-system	kube-apiserver-172.17.4.99	1/1	Running	1	4h
kube-system	kube-controller-manager-172.17.4.99	1/1	Running	1	4h
kube-system	kube-dns-782804071-jg3nl	4/4	Running	4	4h
kube-system	kube-dns-autoscaler-2715466192-k45qg	1/1	Running	1	4h
kube-system	kube-proxy-172.17.4.99	1/1	Running	1	4h
kube-system	kube-scheduler-172.17.4.99	1/1	Running	1	4h
kube-system	kubernetes-dashboard-3543765157-qtnnj	1/1	Running	1	4h
onap-aai	aai-service-346921785-w3r22	0/1	Init:0/1	0	1m
...					
reset					
obrienbiometrics:single-node michaelobrien\$ rm -rf ~/.vagrant.d/boxes/coreos-alpha/					

OSX Minikube

```
curl -LO https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com/kubernetes-release/release/stable.txt)/bin/darwin/amd64/kubectl

chmod +x ./kubectl

sudo mv ./kubectl /usr/local/bin/kubectl

kubectl cluster-info

kubectl completion -h

brew install bash-completion

curl -Lo minikube https://storage.googleapis.com/minikube/releases/v0.19.0/minikube-darwin-amd64 && chmod +x minikube && sudo mv minikube /usr/local/bin/

minikube start --vm-driver=vmwarefusion

kubectl run hello-minikube --image=gcr.io/google_containers/echoserver:1.4 --port=8080

kubectl expose deployment hello-minikube --type=NodePort

kubectl get pod

curl $(minikube service hello-minikube --url)

minikube stop
```

When upgrading from 0.19 to 0.20 - do a minikube delete

RHEL Kubernetes - Redhat 7.3 Enterprise Linux Host

Running onap kubernetes services in a single VM using [Redhat Kubernetes for 7.3](#)

Redhat provides 2 docker containers for the scheduler and nbi components and spins up 2 (# is scalable) pod containers for use by onap.

```
[root@obrien-mbp oneclick]# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
ee02bbab2037 rhel7/kubernetes-scheduler "/usr/bin/kube-schedu" 40 hours ago Up 40 hours k8s_kube-scheduler.4e069b78_kube-
scheduler-127.0.0.1_default_78147ee23cd674839c926daaa58595e5_f4ada53e
f5031b2923ca rhel7/kubernetes-apiserver "/usr/bin/kube-apiser" 40 hours ago Up 40 hours k8s_kube-apiserver.41e368d_kube-apiserver-
127.0.0.1_default_ab6617fd8366917b3d6b8c7bb6cbcf_8d671f6c
4c5e96ea1074 registry.access.redhat.com/rhel7/pod-infrastructure:latest "/pod" 40 hours ago Up 40 hours k8s_POD.ae8ee9ac_kube-
scheduler-127.0.0.1_default_78147ee23cd674839c926daaa58595e5_0ce93fa0
3316c73036fc registry.access.redhat.com/rhel7/pod-infrastructure:latest "/pod" 40 hours ago Up 40 hours k8s_POD.ae8ee9ac_kube-
apiserver-127.0.0.1_default_ab6617fd8366917b3d6b8c7bb6cbcf_8c0dda0f
```

```
rhel73_onap

root@obrien-mbp:~/kubernetes/oom/kubernetes/oneclick

[root@obrien-mbp oneclick]# kubectl get pods --all-namespaces=true
NAMESPACE   NAME                                     READY   STATUS    RESTARTS   AGE
default     kube-apiserver-127.0.0.1               1/1     Running   0          1d
default     kube-scheduler-127.0.0.1              1/1     Running   0          1d
[root@obrien-mbp oneclick]# kubectl get service --all-namespaces=true
NAMESPACE   NAME                                     CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
default     kubernetes                                   10.254.0.1       <none>           443/TCP          1d
onap-aai     aai-service                               10.254.172.161   <nodes>          8443:30233/TCP, 8080:30232/TCP 20h
onap-aai     hbase                                     None             <none>           8020/TCP          20h
onap-aai     model-loader-service                     10.254.138.128   <nodes>          8443:30229/TCP, 8080:30210/TCP 20h
onap-appc    dbhost                                   None             <none>           3306/TCP          20h
onap-appc    dgbuilder                                10.254.89.166    <nodes>          3000:30228/TCP    20h
onap-appc    sdncldb01                               None             <none>           3306/TCP          20h
onap-appc    sdncldb02                               None             <none>           3306/TCP          20h
onap-appc    sdnhost                                 10.254.68.235    <nodes>          8282:30230/TCP, 1830:30231/TCP 20h
onap-message-router dmap                                     10.254.149.48    <nodes>          3904:30227/TCP, 3905:30226/TCP 20h
onap-message-router global-kafka                             None             <none>           9092/TCP          20h
onap-message-router zookeeper                               None             <none>           2181/TCP          20h
onap-mso     mariadb                                  10.254.254.189    <nodes>          3306:30252/TCP    20h
onap-mso     mso                                      10.254.32.65      <nodes>          8080:30223/TCP, 3904:30225/TCP, 3905:30224/TCP, 9990:30222/TCP, 8787:30250/TCP 20h
onap-policy  brmsgw                                  10.254.207.78     <nodes>          9989:30216/TCP    20h
onap-policy  drools                                  10.254.114.125    <nodes>          6969:30217/TCP    20h
onap-policy  mariadb                                  None             <none>           3306/TCP          20h
onap-policy  nexus                                   None             <none>           8081/TCP          20h
onap-policy  pap                                      10.254.126.231    <nodes>          8443:30219/TCP, 9091:30218/TCP 20h
onap-policy  pop                                      10.254.244.112    <nodes>          9091:30220/TCP    20h
onap-policy  pydpd                                    10.254.176.200    <nodes>          9480:30221/TCP    20h
onap-portal  portalapps                              10.254.198.12     <nodes>          8006:30213/TCP, 8010:30214/TCP, 8989:30215/TCP 20h
onap-portal  portaldb                                None             <none>           3306/TCP          20h
onap-portal  vnc-portal                              10.254.0.129      <nodes>          6080:30211/TCP, 5900:30212/TCP 20h
onap-robot   robot                                    10.254.255.97     <nodes>          88:30209/TCP      1d
onap-sdc     sdc-be                                   10.254.109.11     <nodes>          8443:30204/TCP, 8080:30205/TCP 20h
onap-sdc     sdc-cs                                   None             <none>           9042/TCP, 9160/TCP 20h
onap-sdc     sdc-es                                   None             <none>           9200/TCP, 9300/TCP 20h
onap-sdc     sdc-fe                                   10.254.219.219    <nodes>          9443:30207/TCP, 8181:30206/TCP 20h
onap-sdc     sdc-kb                                   None             <none>           5601/TCP          20h
onap-sdnc    dbhost                                   None             <none>           3306/TCP          20h
onap-sdnc    sdnc-dgbuilder                           10.254.79.74      <nodes>          3000:30203/TCP    20h
onap-sdnc    sdnc-portal                             10.254.162.50     <nodes>          8843:30201/TCP    20h
onap-sdnc    sdncldb01                               None             <none>           3306/TCP          20h
onap-sdnc    sdncldb02                               None             <none>           3306/TCP          20h
onap-sdnc    sdnhost                                 10.254.233.66     <nodes>          8282:30202/TCP    20h
onap-vid     vid-mariadb                             None             <none>           3306/TCP          20h
onap-vid     vid-server                               10.254.83.194     <nodes>          8080:30200/TCP    20h
[root@obrien-mbp oneclick]#
```

Kubernetes setup

Uninstall docker-se (we installed earlier)

Follow https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux_atomic_host/7/html-single/getting_started_with_kubernetes/

```
subscription-manager repos --enable=rhel-7-server-optional-rpms
sudo yum remove docker-ce
sudo yum remove docker-ce-selinux
yum install docker kubernetes-client kubernetes-node etcd
docker ps
systemctl disable firewalld
systemctl stop firewalld
yum install docker-distribution
systemctl start docker-distribution
systemctl enable docker-distribution
systemctl is-active docker-distribution
docker images
systemctl start docker
docker ps
docker images
docker pull registry.access.redhat.com/rhel7/kubernetes-apiserver
docker pull registry.access.redhat.com/rhel7/kubernetes-controller-mgr
docker pull registry.access.redhat.com/rhel7/kubernetes-scheduler
mkdir /etc/kubernetes/manifests
vi /etc/kubernetes/manifests/apiserver-pod.json
vi /etc/kubernetes/manifests/controller-mgr-pod.json
vi /etc/kubernetes/manifests/scheduler-pod.json
vi /etc/kubernetes/kubelet
vi kubestart.sh
chmod 777 kubestart.sh
```

```
[root@obrien-mbp opt]# ./kubestart.sh
```

```
[root@obrien-mbp opt]# ss -tulnp | grep -E "(kube)|(etcd)"
```

```
[root@obrien-mbp opt]# curl -s -L http://localhost:2379/version
{"etcdserver":"3.1.7","etcdcluster":"3.1.0"}[root@obrien-mbp opt]#
```

Upgrading Fusion 8 to 10 - do <https://kb.vmware.com/s/article/2009642>

Dont use caps in OSX under Fusion 10 for now - <https://communities.vmware.com/thread/575567>