ONAP on Kubernetes on Rancher - deprecated

20180616 this page is deprecated - use Cloud Native Deployment

This page details the Rancher RI installation independent of the deployment target (Openstack, AWS, Azure, GCD, Bare-metal, VMware)

see ONAP on Kubernetes#HardwareRequirements

Pre-requisite

The supported versions are as follows:

ONAP Release	Rancher	Kubernetes	Helm	Kubectl	Docker
Amsterdam	1.6.10	1.7.7	2.3.0	1.7.7	1.12.x
Beijing	1.6.14	1.8.10	2.8.2	1.8.10	17.03-ce

Rancher 1.6 Installation

The following is for amsterdam or master branches

Scenario: installing Rancher on clean Ubuntu 16.04 128g VM (single collocated server/host)

Note: amsterdam will require a different onap-parameters.yaml

`Cloud Native Deployment#UndercloudInstall-Rancher/Kubernetes/Helm/Docker`

```
wget https://git.onap.org/logging-analytics/plain/deploy/rancher/oom_rancher_setup.sh
```

clone continuous deployment script - until it is merged

```
wget https://git.onap.org/logging-analytics/plain/deploy/cd.sh
chmod 777 cd.sh
wget https://jira.onap.org/secure/attachment/ID/aaiapisimpledemoopenecomporg.cer
wget https://jira.onap.org/secure/attachment/1ID/onap-parameters.yaml
wget https://jira.onap.org/secure/attachment/ID/aai-cloud-region-put.json
./cd.sh -b master -n onap
# wait about 25-120 min depending on the speed of your network pulling docker images
```

Config

Rancher Host IP or FQDN

When running the oom_rancher_setup.sh script or manually installing rancher - which IP/FQDN to use

OOM-715 - Getting issue details... STATUS

You can also edit your /etc/hosts with a hostname linked to an ip and use this name as the server - I do this for Azure.

If you cannot ping your ip then rancher will not be able to either.

do an ifconfig and pick the non-docker ip there - I have also used the 172 docker ip in public facing subnets to work around the lockdown of the 10250 port in public for crypto miners - but in a private subnet you can use the real IP.

for example

```
obrienbiometrics:logging-analytics michaelobrien$ dig beijing.onap.cloud
;; ANSWER SECTION:
beijing.onap.cloud.        299        IN        A        13.72.107.69


ubuntu@a-ons-auto-beijing:~$ ifconfig
docker0   Link encap:Ethernet  HWaddr 02:42:8b:f4:74:95
          inet addr:172.17.0.1  Bcast:0.0.0.0  Mask:255.255.0.0
eth0      Link encap:Ethernet  HWaddr 00:0d:3a:1b:5e:03
          inet addr:10.0.0.4  Bcast:10.0.0.255  Mask:255.255.255.0


# i could use 172.17.0.1 only for a single collocated host
# but 10.0.0.4 is the correct IP (my public facing subnet)
# In my case I use -b beijing.onap.cloud
# but in all other cases I could use the hostname
ubuntu@a-ons-auto-beijing:~$ sudo cat /etc/hosts
127.0.0.1 a-ons-auto-beijing
```

Experimental Installation

Rancher 2.0

see https://gerrit.onap.org/r/#/c/32037/1/install/rancher/oom_rancher2_setup.sh

```
./oom_rancher2_setup.sh -s amsterdam.onap.info
```

Run above script on a clean Ubuntu 16.04 VM (you may need to set your hostname in /etc/hosts)

The cluster will be created and registered for you.

Login to port 80 and wait for the cluster to be green - then hit the kubectl button, copy paste the contents to ~/.kube/config

Result

```
root@ip-172-31-84-230:~# docker ps
CONTAINER ID
IMAGE
COMMAND                  CREATED             STATUS              PORTS
NAMES
66e823e8ebb8        gcr.io/google_containers/defaultbackend@sha256:
865b0c35e6da393b8e80b7e3799f777572399a4cff047eb02a81fa6e7a48ed4b         "/server"                3 minutes
ago       Up 3 minutes                                          k8s_default-http-backend_default-http-
backend-66b447d9cf-t4qxx_ingress-nginx_54afe3f8-1455-11e8-b142-169c5ae1104e_0
7c9a6eeeb557        rancher/k8s-dns-sidecar-amd64@sha256:
4581bf85bd1acf6120256bb5923ec209c0a8cfb0cbe68e2c2397b30a30f3d98c                   "/sidecar --v=2 --..."   3
minutes ago       Up 3 minutes                                                k8s_sidecar_kube-dns-
6f7666d48c-9zmtf_kube-system_51b35ec8-1455-11e8-b142-169c5ae1104e_0
72487327e65b        rancher/pause-amd64:
3.0                                                                                                          "
/pause"                 3 minutes ago       Up 3 minutes
k8s_POD_default-http-backend-66b447d9cf-t4qxx_ingress-nginx_54afe3f8-1455-11e8-b142-169c5ae1104e_0
d824193e7404        rancher/k8s-dns-dnsmasq-nanny-amd64@sha256:
bd1764fed413eea950842c951f266fae84723c0894d402a3c86f56cc89124b1d             "/dnsmasq-nanny -v..."   3 minutes
ago       Up 3 minutes                                          k8s_dnsmasq_kube-dns-6f7666d48c-
9zmtf_kube-system_51b35ec8-1455-11e8-b142-169c5ae1104e_0
89bdd61a99a3        rancher/k8s-dns-kube-dns-amd64@sha256:
9c7906c0222ad6541d24a18a0faf3b920ddf66136f45acd2788e1a2612e62331                  "/kube-dns --domai..."   3
minutes ago       Up 3 minutes                                                k8s_kubedns_kube-dns-
6f7666d48c-9zmtf_kube-system_51b35ec8-1455-11e8-b142-169c5ae1104e_0
7c17fc57aef9        rancher/cluster-proportional-autoscaler-amd64@sha256:
77d2544c9dfcdfcf23fa2fcf4351b43bf3a124c54f2da1f7d611ac54669e3336   "/cluster-proporti..."   3 minutes ago
Up 3 minutes                                              k8s_autoscaler_kube-dns-autoscaler-54fd4c549b-
6bm5b_kube-system_51afa75f-1455-11e8-b142-169c5ae1104e_0
024269154b8b        rancher/pause-amd64:
3.0                                                                                                          "
/pause"                 3 minutes ago       Up 3 minutes
k8s_POD_kube-dns-6f7666d48c-9zmtf_kube-system_51b35ec8-1455-11e8-b142-169c5ae1104e_0
48e039d15a90        rancher/pause-amd64:
3.0                                                                                                          "
/pause"                 3 minutes ago       Up 3 minutes
k8s_POD_kube-dns-autoscaler-54fd4c549b-6bm5b_kube-system_51afa75f-1455-11e8-b142-169c5ae1104e_0
13bec6fda756        rancher/pause-amd64:
3.0                                                                                                          "
/pause"                 3 minutes ago       Up 3 minutes
k8s_POD_nginx-ingress-controller-vchhb_ingress-nginx_54aede27-1455-11e8-b142-169c5ae1104e_0
332073b160c9        rancher/coreos-flannel-cni@sha256:
3cf93562b936004cbe13ed7d22d1b13a273ac2b5092f87264eb77ac9c009e47f                     "/install-cni.sh"
3 minutes ago       Up 3 minutes                                              k8s_install-cni_kube-flannel-
jgx9x_kube-system_4fb9b39b-1455-11e8-b142-169c5ae1104e_0
79ef0da922c5        rancher/coreos-flannel@sha256:
93952a105b4576e8f09ab8c4e00483131b862c24180b0b7d342fb360bbe44f3d                          "/opt/bin
/flanneld..."   3 minutes ago       Up 3 minutes                                                   k8s_kube-
flannel_kube-flannel-jgx9x_kube-system_4fb9b39b-1455-11e8-b142-169c5ae1104e_0
300eab7db4bc        rancher/pause-amd64:
3.0                                                                                                          "
/pause"                 3 minutes ago       Up 3 minutes
k8s_POD_kube-flannel-jgx9x_kube-system_4fb9b39b-1455-11e8-b142-169c5ae1104e_0
1597f8ba9087        rancher/k8s:v1.8.7-rancher1-
1                                                                                                      "/opt/rke
/entrypoi..."   3 minutes ago       Up 3 minutes                                                           kube-proxy
523034c75c0e        rancher/k8s:v1.8.7-rancher1-
1                                                                                                      "/opt/rke
/entrypoi..."   4 minutes ago       Up 4 minutes                                                           kubelet
788d572d313e        rancher/k8s:v1.8.7-rancher1-
1                                                                                                      "/opt/rke
/entrypoi..."   4 minutes ago       Up 4 minutes                                                           scheduler
9e520f4e5b01        rancher/k8s:v1.8.7-rancher1-
1                                                                                                      "/opt/rke
/entrypoi..."   4 minutes ago       Up 4 minutes                                                           kube-
controller
```

```
29bdb59c9164        rancher/k8s:v1.8.7-rancher1-
1                                                                                                                    "/opt/rke
/entrypoi..."   4 minutes ago       Up 4 minutes                                                                            kube-api
2686cc1c904a        rancher/coreos-etcd:v3.
0.17                                                                                                                     "/usr/local/bin
/et..."   4 minutes ago       Up 4 minutes                                                                          etcd
a1fccc20c8e7        rancher/agent:v2.
0.2                                                                                                                          "run.sh
--etcd --c..."   5 minutes ago       Up 5 minutes
unruffled_pike
6b01cf361a52        rancher/server:
preview
"rancher --k8s-mod..."   5 minutes ago       Up 5 minutes        0.0.0.0:80->80/tcp, 0.0.0.0:443->443/tcp
rancher-server
```

OOM ONAP Deployment Script

OOM-716 - Getting issue details... STATUS

https://gerrit.onap.org/r/32653

Helm DevOps

https://docs.helm.sh/chart_best_practices/#requirements

Kubernetes DevOps

From original ONAP on Kubernetes page

Kubernetes specific config

https://kubernetes.io/docs/user-guide/kubectl-cheatsheet/

Deleting All Containers

Delete all the containers (and services)

```
./deleteAll.bash -n onap -y
# in amsterdam only
./deleteAll.bash -n onap
```

Delete/Rerun config-init container for /dockerdata-nfs refresh

refer to the procedure as part of https://github.com/obrienlabs/onap-root/blob/master/cd.sh

Delete the config-init container and its generated /dockerdata-nfs share

There may be cases where new configuration content needs to be deployed after a pull of a new version of ONAP.

for example after pull brings in files like the following (20170902)

```
root@ip-172-31-93-160:~/oom/kubernetes/oneclick# git pull

Resolving deltas: 100% (135/135), completed with 24 local objects.

From http://gerrit.onap.org/r/oom

   bf928c5..da59ee4  master     -> origin/master

Updating bf928c5..da59ee4

kubernetes/config/docker/init/src/config/aai/aai-config/cookbooks/aai-resources/aai-resources-auth/metadata.rb                    |    7 +

 kubernetes/config/docker/init/src/config/aai/aai-config/cookbooks/aai-resources/aai-resources-auth/recipes/aai-resources-aai-keystore.rb      |    8 +

 kubernetes/config/docker/init/src/config/aai/aai-config/cookbooks/{ajsc-aai-config => aai-resources/aai-resources-config}/CHANGELOG.md        |    2 +-

 kubernetes/config/docker/init/src/config/aai/aai-config/cookbooks/{ajsc-aai-config => aai-resources/aai-resources-config}/README.md           |    4 +-
```

see (worked with Zoran) blocked URLOOM-257 - DevOps: OOM config reset procedure for new /dockerdata-nfs content CLOSED

```
# check for the pod
kubectl get pods --all-namespaces -a
# delete all the pod/services
# master
./deleteAll.bash -n onap -y
# amsterdam
./deleteAll.bash -n onap
# delete the fs
rm -rf /dockerdata-nfs/onap
At this moment, its empty env
#Pull the repo
git pull
# rerun the config
cd ../config
./createConfig.bash -n onap
If you get an error saying release onap-config is already exists then please run :- helm del --purge onap-config


example 20170907
root@kube0:~/oom/kubernetes/oneclick# rm -rf /dockerdata-nfs/
root@kube0:~/oom/kubernetes/oneclick# cd ../config/
root@kube0:~/oom/kubernetes/config# ./createConfig.sh -n onap
**** Creating configuration for ONAP instance: onap
Error from server (AlreadyExists): namespaces "onap" already exists
Error: a release named "onap-config" already exists.
Please run: helm ls --all "onap-config"; helm del --help
**** Done ****
root@kube0:~/oom/kubernetes/config# helm del --purge onap-config
release "onap-config" deleted
# rerun createAll.bash -n onap
```

Container Endpoint access

Check the services view in the Kuberntes API under robot

robot.onap-robot:88 TCP

robot.onap-robot:30209 TCP

```
kubectl get services --all-namespaces -o wide

onap-vid     vid-mariadb     None          <none>     3306/TCP       1h     app=vid-mariadb

onap-vid     vid-server      10.43.14.244  <nodes>    8080:30200/TCP 1h     app=vid-server
```

Container Logs

```
kubectl --namespace onap-vid logs -f vid-server-248645937-8tt6p

16-Jul-2017 02:46:48.707 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in 22520 ms

kubectl --namespace onap-portal logs portalapps-2799319019-22mzl -f

root@obriensystemskub0:~/oom/kubernetes/oneclick# kubectl get pods --all-namespaces -o wide

NAMESPACE     NAME                          READY     STATUS    RESTARTS   AGE       IP           NODE

onap-robot    robot-44708506-dgv8j            1/1       Running   0          36m       10.42.240.80   obriensystemskub0

root@obriensystemskub0:~/oom/kubernetes/oneclick# kubectl --namespace onap-robot logs -f robot-44708506-dgv8j

2017-07-16 01:55:54: (log.c.164) server started
```

A pods may be setup to log to a volume which can be inspected outside of a container. If you cannot connect to the container you could inspect the backing volume instead. This is how you find the backing directory for a pod which is using a volume which is an empty directory type, the log files can be found on the kubernetes node hosting the pod. More details can be found here https://kubernetes.io/docs/concepts/storage/volumes/#emptydir

here is an example of finding SDNC logs on a VM hosting a kubernetes node.

```
#find the sdnc pod name and which kubernetes node its running on.
kubectl -n onap-sdnc get all -o wide
#describe the pod to see the empty dir volume names and the pod uid
kubectl -n onap-sdnc describe po/sdnc-5b5b7bf89c-97qkx
#ssh to the VM hosting the kubernetes node if you are not alredy on the vm
ssh root@vm-host
#search the /var/lib/kubelet/pods/ directory for the log file
sudo find /var/lib/kubelet/pods/ | grep sdnc-logs
#The result is path that has the format /var/lib/kubelet/pods/<pod-uid>/volumes/kubernetes.io~empty-dir/<volume-
name>

/var/lib/kubelet/pods/d6041229-d614-11e7-9516-fa163e6ff8e8/volumes/kubernetes.io~empty-dir/sdnc-logs
/var/lib/kubelet/pods/d6041229-d614-11e7-9516-fa163e6ff8e8/volumes/kubernetes.io~empty-dir/sdnc-logs/sdnc
/var/lib/kubelet/pods/d6041229-d614-11e7-9516-fa163e6ff8e8/volumes/kubernetes.io~empty-dir/sdnc-logs/sdnc/karaf.
log
/var/lib/kubelet/pods/d6041229-d614-11e7-9516-fa163e6ff8e8/plugins/kubernetes.io~empty-dir/sdnc-logs
/var/lib/kubelet/pods/d6041229-d614-11e7-9516-fa163e6ff8e8/plugins/kubernetes.io~empty-dir/sdnc-logs/ready
```

Robot Logs

Yogini and I needed the logs in OOM Kubernetes - they were already there and with a robot:robot auth

http://<your_dns_name>:30209/logs/demo/InitDistribution/report.html

for example after a

oom/kubernetes/robot$./demo-k8s.sh distribute

find your path to the logs by using for example

root@ip-172-31-57-55:/dockerdata-nfs/onap/robot# kubectl --namespace onap-robot exec -it robot-4251390084-lmdbb bash

root@robot-4251390084-lmdbb:/# ls /var/opt/OpenECOMP_ETE/html/logs/demo/InitD

InitDemo/ InitDistribution/

path is

http://<your_dns_name>:30209/logs/demo/InitDemo/log.html#s1-s1-s1-s1-t1

SSH into ONAP containers

Normally I would via https://kubernetes.io/docs/tasks/debug-application-cluster/get-shell-running-container/

```
Get the pod name via

kubectl get pods --all-namespaces -o wide

bash into the pod via

kubectl -n onap-mso exec -it  mso-1648770403-8hwcf /bin/bash
```

Push Files to Pods

Trying to get an authorization file into the robot pod

```
root@obriensystemskub0:~/oom/kubernetes/oneclick# kubectl cp authorization onap-robot/robot-44708506-nhm0n:/home/ubuntu

above works?
root@obriensystemskub0:~/oom/kubernetes/oneclick# kubectl cp authorization onap-robot/robot-44708506-nhm0n:/etc/lighttpd
/authorization
tar: authorization: Cannot open: File exists
tar: Exiting with failure status due to previous errors
```

Redeploying Code war/jar in a docker container

see building the docker image - use your own local repo or a repo on dockerhub - modify the values.yaml and delete/create your pod to switch images

Docker DevOps#DockerBuild

example in blocked URLLOG-136 - Logging RI: Code/build/tag microservice docker image IN PROGRESS

Turn on Debugging

via URL

http://cd.onap.info:30223/mso/logging/debug

via logback.xml

Attaching a debugger to a docker container

Running ONAP Portal UI Operations

Running ONAP using the vnc-portal

see (Optional) Tutorial: Onboarding and Distributing a Vendor Software Product (VSP)

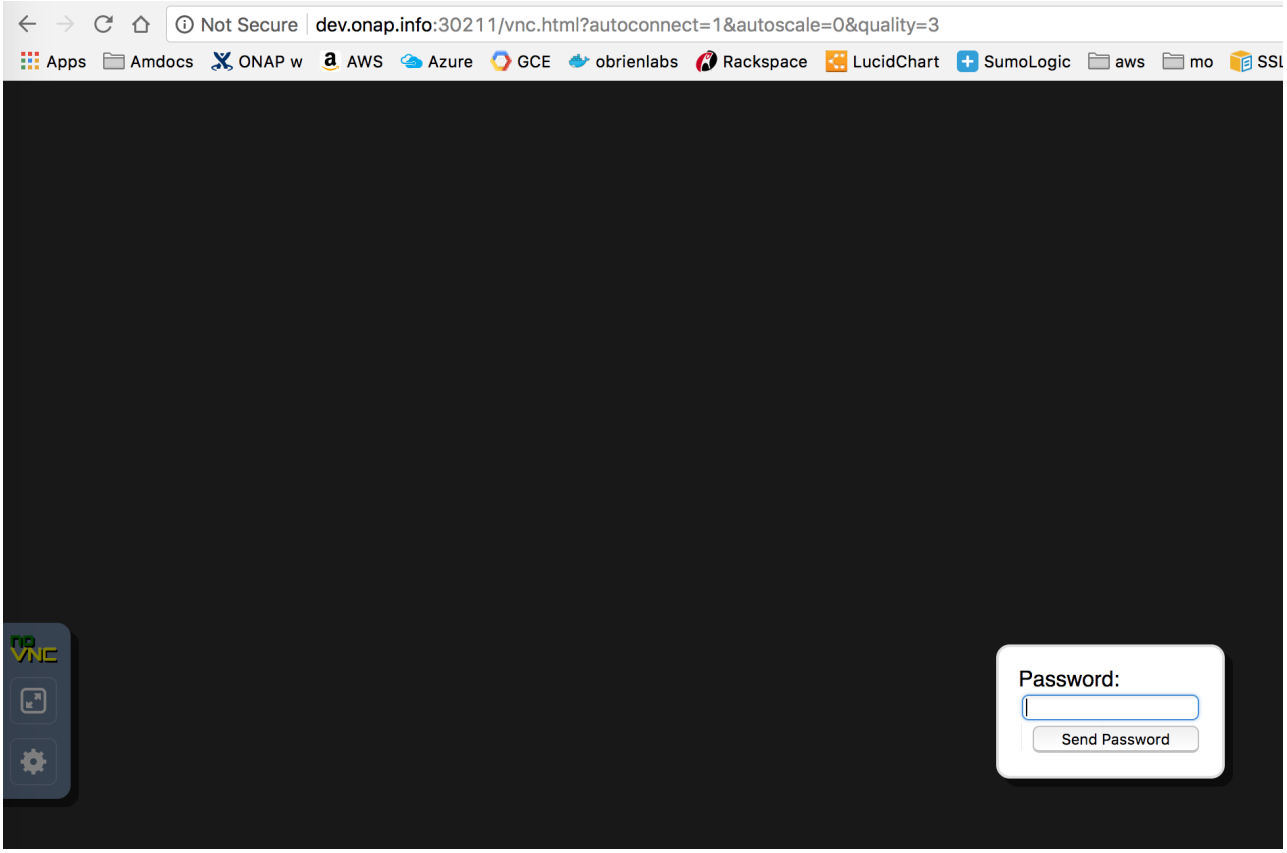
or run the vnc-portal container to access ONAP using the traditional port mappings. See the following recorded video by Mike Elliot of the OOM team for a audio-visual reference

https://wiki.onap.org/download/attachments/13598723/zoom_0.mp4?version=1&modificationDate=1502986268000&api=v2

Check for the vnc-portal port via (it is always 30211)

```
obrienbiometrics:onap michaelobrien$ ssh ubuntu@dev.onap.info
ubuntu@ip-172-31-93-122:~$ sudo su -
root@ip-172-31-93-122:~# kubectl get services --all-namespaces -o wide
NAMESPACE             NAME                          CLUSTER-IP      EXTERNAL-IP   PORT
(S)                                                                     AGE       SELECTOR
onap-portal           vnc-portal                    10.43.78.204  <nodes>       6080:30211/TCP,5900:30212/TCP
                                             4d        app=vnc-portal
```

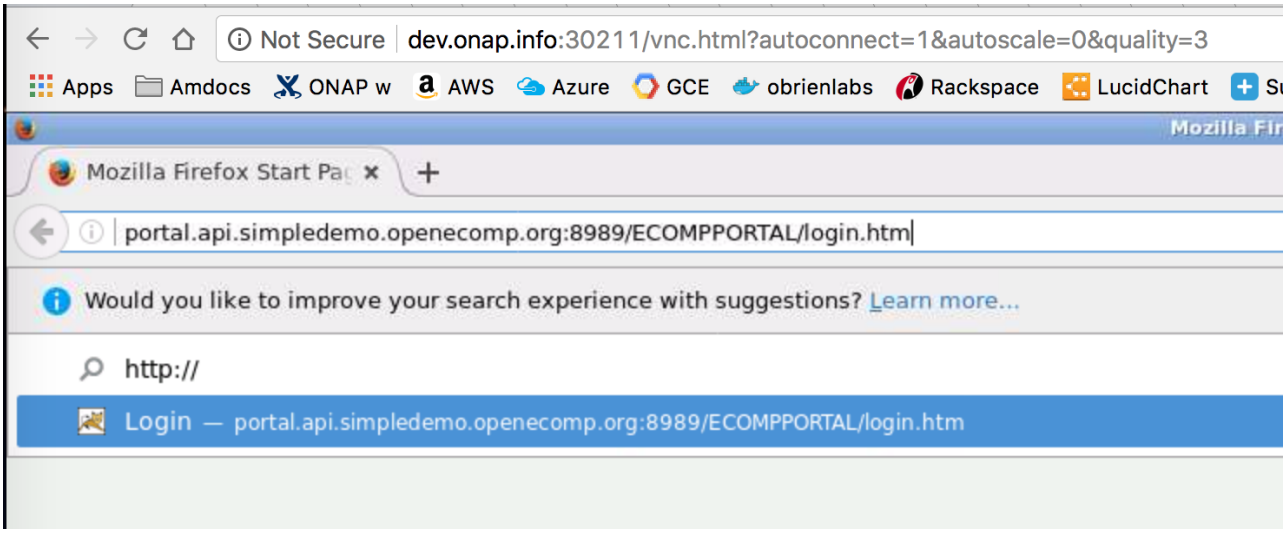
launch the vnc-portal in a browser



http://dev.onap.info:30211/

password is "password"

Open firefox inside the VNC vm - launch portal normally



http://portal.api.simpledemo.onap.org:8989/ONAPPORTAL/login.htm

For login details to get into ONAPportal, see Tutorial: Accessing the ONAP Portal

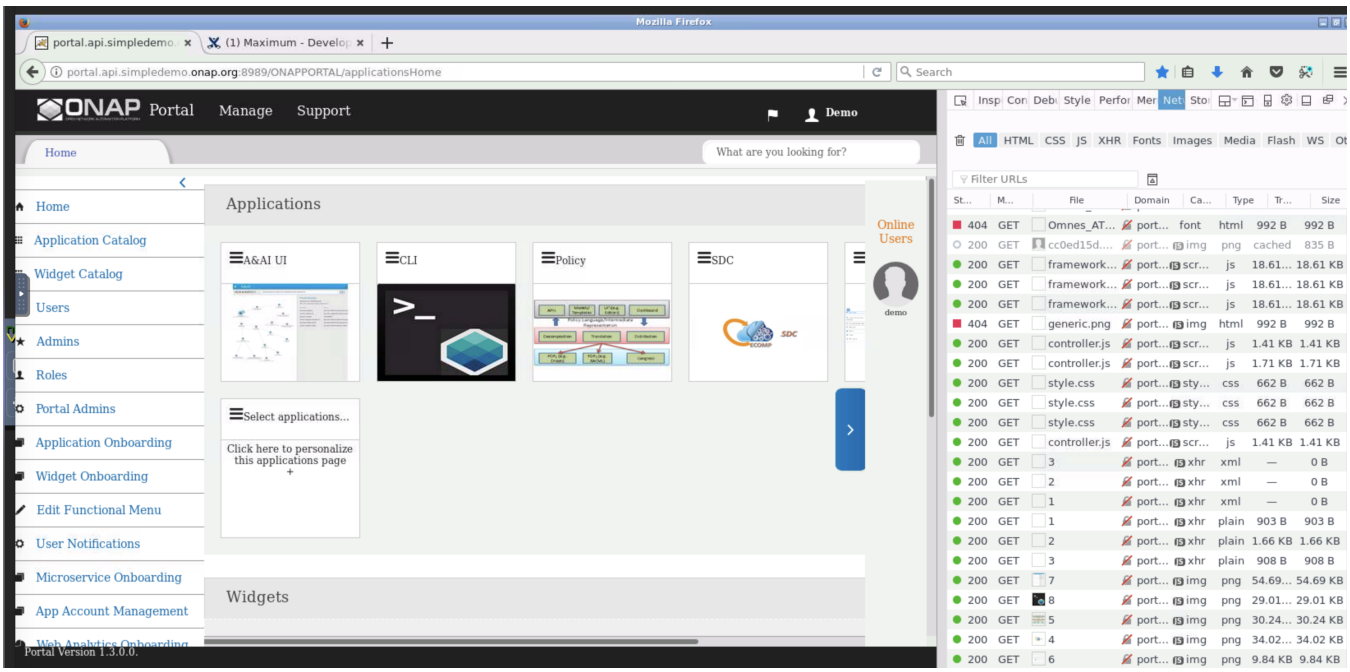
(20170906) Before running SDC - fix the /etc/hosts (thanks Yogini for catching this) - edit your /etc/hosts as follows

(change sdc.ui to sdc.api)

blocked URLOOM-282 - vnc-portal requires /etc/hosts url fix for SDC sdc.ui should be sdc.api CLOSED

before	after
hosts File Edit Search Options Help # Kubernetes-managed hosts file. 127.0.0.1 localhost ::1 localhost ip6-localhost ip6-loopback fe00::0 ip6-localnet fe00::0 ip6-mcastprefix fe00::1 ip6-allnodes fe00::2 ip6-allrouters 10.42.198.115 vnc-portal-700404418-vb17h 10.43.104.206 sdc.api.be.simpledemo.openecomp.org 10.43.231.64 portal.api.simpledemo.openecomp.org 10.43.95.181 policy.api.simpledemo.openecomp.org 10.43.252.119 sdc.ui.simpledemo.openecomp.org 10.43.36.63 vid.api.simpledemo.openecomp.org found: aai.api.simpledemo.openecomp.org	*hosts File Edit Search Options Help # Kubernetes-managed hosts file. 127.0.0.1 localhost ::1 localhost ip6-localhost ip6-loopback fe00::0 ip6-localnet fe00::0 ip6-mcastprefix fe00::1 ip6-allnodes fe00::2 ip6-allrouters 10.42.198.115 vnc-portal-700404418-vb17h 10.43.104.206 sdc.api.be.simpledemo.openecomp.org 10.43.231.64 portal.api.simpledemo.openecomp.org 10.43.61.185 policy.api.simpledemo.openecomp.org 10.43.252.119 sdc.api.simpledemo.openecomp.org 10.43.36.63 vid.api.simpledemo.openecomp.org found: aai.api.simpledemo.openecomp.org

login and run SDC



Continue with the normal ONAP demo flow at (Optional) Tutorial: Onboarding and Distributing a Vendor Software Product (VSP)

Running Multiple ONAP namespaces

Run multiple environments on the same machine - TODO

Troubleshooting

Rancher fails to restart on server reboot

Having issues after a reboot of a colocated server/agent

Installing Clean Ubuntu

```
apt-get install ssh

apt-get install ubuntu-desktop
```

DNS resolution

ignore - not relevant

Search Line limits were exceeded, some dns names have been omitted, the applied search line is: default.svc.cluster.local svc.cluster.local cluster.local kubelet.kubernetes.rancher.internal kubernetes.rancher.internal rancher.internal

https://github.com/rancher/rancher/issues/9303

Config Pod fails to start with Error

Make sure your Openstack parameters are set if you get the following starting up the config pod

```
root@obriensystemsu0:~# kubectl get pods --all-namespaces -a
NAMESPACE     NAME                                    READY     STATUS    RESTARTS   AGE
kube-system   heapster-4285517626-l9wjp               1/1   Running   4     22d
kube-system   kube-dns-2514474280-4411x               3/3   Running   9     22d
kube-system   kubernetes-dashboard-716739405-fq507    1/1   Running   4     22d
kube-system   monitoring-grafana-3552275057-w3xml     1/1   Running   4     22d
kube-system   monitoring-influxdb-4110454889-bwqgm    1/1   Running   4     22d
kube-system   tiller-deploy-737598192-841l1           1/1   Running   4     22d
onap          config                                  0/1   Error     0     1d
root@obriensystemsu0:~# vi /etc/hosts
root@obriensystemsu0:~# kubectl logs -n onap config
Validating onap-parameters.yaml has been populated
Error: OPENSTACK_UBUNTU_14_IMAGE must be set in onap-parameters.yaml
+ echo 'Validating onap-parameters.yaml has been populated'
+ [[ -z '' ]]
+ echo 'Error: OPENSTACK_UBUNTU_14_IMAGE must be set in onap-parameters.yaml'
+ exit 1

fix
root@obriensystemsu0:~/onap_1007/oom/kubernetes/config# helm delete --purge onap-config
release "onap-config" deleted
root@obriensystemsu0:~/onap_1007/oom/kubernetes/config# ./createConfig.sh -n onap

**** Creating configuration for ONAP instance: onap
Error from server (AlreadyExists): namespaces "onap" already exists
NAME:   onap-config
LAST DEPLOYED: Mon Oct  9 21:35:27 2017
NAMESPACE: onap
STATUS: DEPLOYED

RESOURCES:
==> v1/ConfigMap
NAME                   DATA  AGE
global-onap-configmap  15  0s

==> v1/Pod
NAME    READY  STATUS             RESTARTS  AGE
config  0/1  ContainerCreating  0    0s

**** Done ****
root@obriensystemsu0:~/onap_1007/oom/kubernetes/config# kubectl get pods --all-namespaces -a
NAMESPACE     NAME                                    READY     STATUS    RESTARTS   AGE
kube-system   heapster-4285517626-l9wjp               1/1   Running   4     22d
kube-system   kube-dns-2514474280-4411x               3/3   Running   9     22d
kube-system   kubernetes-dashboard-716739405-fq507    1/1   Running   4     22d
kube-system   monitoring-grafana-3552275057-w3xml     1/1   Running   4     22d
kube-system   monitoring-influxdb-4110454889-bwqgm    1/1   Running   4     22d
kube-system   tiller-deploy-737598192-841l1           1/1   Running   4     22d
onap          config                                  1/1   Running   0     25s
root@obriensystemsu0:~/onap_1007/oom/kubernetes/config# kubectl get pods --all-namespaces -a
NAMESPACE     NAME                                    READY     STATUS      RESTARTS   AGE
kube-system   heapster-4285517626-l9wjp               1/1   Running     4     22d
kube-system   kube-dns-2514474280-4411x               3/3   Running     9     22d
kube-system   kubernetes-dashboard-716739405-fq507    1/1   Running     4     22d
kube-system   monitoring-grafana-3552275057-w3xml     1/1   Running     4     22d
kube-system   monitoring-influxdb-4110454889-bwqgm    1/1   Running     4     22d
kube-system   tiller-deploy-737598192-841l1           1/1   Running     4     22d
onap          config                                  0/1   Completed   0     1m
```