ONAP/DCAE setup on single node using RKE

Note: Wiki in progress (added draft notes)

- Infra Setup
- ONAP Installation
- Other command references
- External reference

Infra Setup

1. Create a VM (VCPU:12, RAM: 64 GB, Storage: 160 GB)
    a. Size is based on minimum ONAP components (AAF, Consul, Dmaap, DCAE)
2. Download RKE version (For k8s compatibility - check https://github.com/rancher/rke/releases?page=1)
    a. wget https://github.com/rancher/rke/releases/download/v1.2.5/rke_linux-amd64 (https://rancher.com/docs/rke/latest/en/installation/)
    b. OR https://github.com/rancher/rke/releases/download/v1.2.8/rke_linux-amd64 (https://github.com/rancher/rke/releases/tag/v1.2.8)
    c. OR https://github.com/rancher/rke/releases/download/v1.3.7/rke_linux-amd64 (Note: `nameserver 8.8.8.8` to the **first line** of `/etc/resolv.conf`)
    d. OR wget https://github.com/rancher/rke/releases/download/v1.3.11/rke_linux-amd64 (https://github.com/rancher/rke/releases/tag/v1.3.11)
3. mv rke_linux-amd64 rke
4. chmod +x rke
5. export PATH=$PATH:.
6. rke config (to specifiy cluster config)
    a. copy ssh_key_path: /home/ubuntu/onap_dev (chmod 644 onap_dev)
    b. optionally attached file can be edited; change VM/IP and key

cluster.yml - v1.20

```
# If you intened to deploy Kubernetes in an air-gapped environment,
# please consult the documentation on how to configure custom RKE images.
nodes:
- address: localhost
  port: "22"
  internal_address: ""
  role:
  - controlplane
  - worker
  - etcd
  hostname_override: onap6-vv
  user: ubuntu
  docker_socket: /var/run/docker.sock
  ssh_key: ""
  ssh_key_path: /home/ubuntu/setup/onap_dev
  ssh_cert: ""
  ssh_cert_path: ""
  labels: {}
  taints: []
services:
  etcd:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    external_urls: []
    ca_cert: ""
    cert: ""
    key: ""
    path: ""
    uid: 0
    gid: 0
    snapshot: null
    retention: ""
    creation: ""
    backup_config: null
```

```
  kube-api:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    service_cluster_ip_range: 10.43.0.0/16
    service_node_port_range: ""
    pod_security_policy: false
    always_pull_images: false
    secrets_encryption_config: null
    audit_log: null
    admission_configuration: null
    event_rate_limit: null
  kube-controller:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    cluster_cidr: 10.42.0.0/16
    service_cluster_ip_range: 10.43.0.0/16
  scheduler:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
  kubelet:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    cluster_domain: cluster.local
    infra_container_image: ""
    cluster_dns_server: 10.43.0.10
    fail_swap_on: false
    generate_serving_certificate: false
  kubeproxy:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
network:
  plugin: canal
  options: {}
  mtu: 0
  node_selector: {}
  update_strategy: null
  tolerations: []
authentication:
  strategy: x509
  sans: []
  webhook: null
addons: ""
addons_include: []
system_images:
  etcd: rancher/mirrored-coreos-etcd:v3.4.15-rancher1
  alpine: rancher/rke-tools:v0.1.74
```

```
  nginx_proxy: rancher/rke-tools:v0.1.74
  cert_downloader: rancher/rke-tools:v0.1.74
  kubernetes_services_sidecar: rancher/rke-tools:v0.1.74
  kubedns: rancher/mirrored-k8s-dns-kube-dns:1.15.10
  dnsmasq: rancher/mirrored-k8s-dns-dnsmasq-nanny:1.15.10
  kubedns_sidecar: rancher/mirrored-k8s-dns-sidecar:1.15.10
  kubedns_autoscaler: rancher/mirrored-cluster-proportional-autoscaler:1.8.1
  coredns: rancher/mirrored-coredns-coredns:1.8.0
  coredns_autoscaler: rancher/mirrored-cluster-proportional-autoscaler:1.8.1
  nodelocal: rancher/mirrored-k8s-dns-node-cache:1.15.13
  kubernetes: rancher/hyperkube:v1.20.6-rancher1
  flannel: rancher/coreos-flannel:v0.13.0-rancher1
  flannel_cni: rancher/flannel-cni:v0.3.0-rancher6
  calico_node: rancher/mirrored-calico-node:v3.17.2
  calico_cni: rancher/mirrored-calico-cni:v3.17.2
  calico_controllers: rancher/mirrored-calico-kube-controllers:v3.17.2
  calico_ctl: rancher/mirrored-calico-ctl:v3.17.2
  calico_flexvol: rancher/mirrored-calico-pod2daemon-flexvol:v3.17.2
  canal_node: rancher/mirrored-calico-node:v3.17.2
  canal_cni: rancher/mirrored-calico-cni:v3.17.2
  canal_controllers: rancher/mirrored-calico-kube-controllers:v3.17.2
  canal_flannel: rancher/coreos-flannel:v0.13.0-rancher1
  canal_flexvol: rancher/mirrored-calico-pod2daemon-flexvol:v3.17.2
  weave_node: weaveworks/weave-kube:2.8.1
  weave_cni: weaveworks/weave-npc:2.8.1
  pod_infra_container: rancher/mirrored-pause:3.2
  ingress: rancher/nginx-ingress-controller:nginx-0.43.0-rancher3
  ingress_backend: rancher/mirrored-nginx-ingress-controller-defaultbackend:1.5-rancher1
  metrics_server: rancher/mirrored-metrics-server:v0.4.1
  windows_pod_infra_container: rancher/kubelet-pause:v0.1.6
  aci_cni_deploy_container: noiro/cnideploy:5.1.1.0.1ae238a
  aci_host_container: noiro/aci-containers-host:5.1.1.0.1ae238a
  aci_opflex_container: noiro/opflex:5.1.1.0.1ae238a
  aci_mcast_container: noiro/opflex:5.1.1.0.1ae238a
  aci_ovs_container: noiro/openvswitch:5.1.1.0.1ae238a
  aci_controller_container: noiro/aci-containers-controller:5.1.1.0.1ae238a
  aci_gbp_server_container: noiro/gbp-server:5.1.1.0.1ae238a
  aci_opflex_server_container: noiro/opflex-server:5.1.1.0.1ae238a
ssh_key_path: /home/ubuntu/onap_dev
ssh_cert_path: ""
ssh_agent_auth: false
authorization:
  mode: rbac
  options: {}
ignore_docker_version: null
kubernetes_version: ""
private_registries: []
ingress:
  provider: ""
  options: {}
  node_selector: {}
  extra_args: {}
  dns_policy: ""
  extra_envs: []
  extra_volumes: []
  extra_volume_mounts: []
  update_strategy: null
  http_port: 0
  https_port: 0
  network_mode: ""
  tolerations: []
  default_backend: null
  default_http_backend_priority_class_name: ""
  nginx_ingress_controller_priority_class_name: ""
cluster_name: ""
cloud_provider:
  name: ""
prefix_path: ""
win_prefix_path: ""
addon_job_timeout: 0
bastion_host:
```

```
  address: ""
  port: ""
  user: ""
  ssh_key: ""
  ssh_key_path: ""
  ssh_cert: ""
  ssh_cert_path: ""
monitoring:
  provider: ""
  options: {}
  node_selector: {}
  update_strategy: null
  replicas: null
  tolerations: []
  metrics_server_priority_class_name: ""
restore:
  restore: false
  snapshot_name: ""
rotate_encryption_key: false
dns: null
```

cluster.yml - v1.22

```
# If you intended to deploy Kubernetes in an air-gapped environment,
# please consult the documentation on how to configure custom RKE images.
nodes:
- address: localhost
  port: "22"
  internal_address: ""
  role:
  - controlplane
  - worker
  - etcd
  hostname_override: ""
  user: ubuntu
  docker_socket: /var/run/docker.sock
  ssh_key: ""
  ssh_key_path: /home/ubuntu/onap_dev
  ssh_cert: ""
  ssh_cert_path: ""
  labels: {}
  taints: []
services:
  etcd:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    external_urls: []
    ca_cert: ""
    cert: ""
    key: ""
    path: ""
    uid: 0
    gid: 0
    snapshot: null
    retention: ""
    creation: ""
    backup_config: null
  kube-api:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
```

```
    win_extra_binds: []
    win_extra_env: []
    service_cluster_ip_range: 10.43.0.0/16
    service_node_port_range: ""
    pod_security_policy: false
    always_pull_images: false
    secrets_encryption_config: null
    audit_log: null
    admission_configuration: null
    event_rate_limit: null
  kube-controller:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    cluster_cidr: 10.42.0.0/16
    service_cluster_ip_range: 10.43.0.0/16
  scheduler:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
  kubelet:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    cluster_domain: cluster.local
    infra_container_image: ""
    cluster_dns_server: 10.43.0.10
    fail_swap_on: false
    generate_serving_certificate: false
  kubeproxy:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
network:
  plugin: canal
  options: {}
  mtu: 0
  node_selector: {}
  update_strategy: null
  tolerations: []
authentication:
  strategy: x509
  sans: []
  webhook: null
addons: ""
addons_include: []
system_images:
  etcd: rancher/mirrored-coreos-etcd:v3.5.0
  alpine: rancher/rke-tools:v0.1.78
  nginx_proxy: rancher/rke-tools:v0.1.78
  cert_downloader: rancher/rke-tools:v0.1.78
  kubernetes_services_sidecar: rancher/rke-tools:v0.1.78
  kubedns: rancher/mirrored-k8s-dns-kube-dns:1.17.4
  dnsmasq: rancher/mirrored-k8s-dns-dnsmasq-nanny:1.17.4
  kubedns_sidecar: rancher/mirrored-k8s-dns-sidecar:1.17.4
```

```
  kubedns_autoscaler: rancher/mirrored-cluster-proportional-autoscaler:1.8.3
  coredns: rancher/mirrored-coredns-coredns:1.8.6
  coredns_autoscaler: rancher/mirrored-cluster-proportional-autoscaler:1.8.5
  nodelocal: rancher/mirrored-k8s-dns-node-cache:1.21.1
  kubernetes: rancher/hyperkube:v1.22.6-rancher1
  flannel: rancher/mirrored-coreos-flannel:v0.15.1
  flannel_cni: rancher/flannel-cni:v0.3.0-rancher6
  calico_node: rancher/mirrored-calico-node:v3.21.1
  calico_cni: rancher/mirrored-calico-cni:v3.21.1
  calico_controllers: rancher/mirrored-calico-kube-controllers:v3.21.1
  calico_ctl: rancher/mirrored-calico-ctl:v3.21.1
  calico_flexvol: rancher/mirrored-calico-pod2daemon-flexvol:v3.21.1
  canal_node: rancher/mirrored-calico-node:v3.21.1
  canal_cni: rancher/mirrored-calico-cni:v3.21.1
  canal_controllers: rancher/mirrored-calico-kube-controllers:v3.21.1
  canal_flannel: rancher/mirrored-coreos-flannel:v0.15.1
  canal_flexvol: rancher/mirrored-calico-pod2daemon-flexvol:v3.21.1
  weave_node: weaveworks/weave-kube:2.8.1
  weave_cni: weaveworks/weave-npc:2.8.1
  pod_infra_container: rancher/mirrored-pause:3.5
  ingress: rancher/nginx-ingress-controller:nginx-1.1.0-rancher1
  ingress_backend: rancher/mirrored-nginx-ingress-controller-defaultbackend:1.5-rancher1
  ingress_webhook: rancher/mirrored-ingress-nginx-kube-webhook-certgen:v1.1.1
  metrics_server: rancher/mirrored-metrics-server:v0.5.1
  windows_pod_infra_container: rancher/kubelet-pause:v0.1.6
  aci_cni_deploy_container: noiro/cnideploy:5.1.1.0.1ae238a
  aci_host_container: noiro/aci-containers-host:5.1.1.0.1ae238a
  aci_opflex_container: noiro/opflex:5.1.1.0.1ae238a
  aci_mcast_container: noiro/opflex:5.1.1.0.1ae238a
  aci_ovs_container: noiro/openvswitch:5.1.1.0.1ae238a
  aci_controller_container: noiro/aci-containers-controller:5.1.1.0.1ae238a
  aci_gbp_server_container: noiro/gbp-server:5.1.1.0.1ae238a
  aci_opflex_server_container: noiro/opflex-server:5.1.1.0.1ae238a
ssh_key_path: ~/.ssh/id_rsa
ssh_cert_path: ""
ssh_agent_auth: false
authorization:
  mode: rbac
  options: {}
ignore_docker_version: null
enable_cri_dockerd: null
kubernetes_version: ""
private_registries: []
ingress:
  provider: ""
  options: {}
  node_selector: {}
  extra_args: {}
  dns_policy: ""
  extra_envs: []
  extra_volumes: []
  extra_volume_mounts: []
  update_strategy: null
  http_port: 0
  https_port: 0
  network_mode: ""
  tolerations: []
  default_backend: null
  default_http_backend_priority_class_name: ""
  nginx_ingress_controller_priority_class_name: ""
  default_ingress_class: null
cluster_name: ""
cloud_provider:
  name: ""
prefix_path: ""
win_prefix_path: ""
addon_job_timeout: 0
bastion_host:
  address: ""
  port: ""
  user: ""
```

```
  ssh_key: ""
  ssh_key_path: ""
  ssh_cert: ""
  ssh_cert_path: ""
  ignore_proxy_env_vars: false
monitoring:
  provider: ""
  options: {}
  node_selector: {}
  update_strategy: null
  replicas: null
  tolerations: []
  metrics_server_priority_class_name: ""
restore:
  restore: false
  snapshot_name: ""
rotate_encryption_key: false
dns: null
```

cluster.yml - v1.23.6

```
# If you intended to deploy Kubernetes in an air-gapped environment,
# please consult the documentation on how to configure custom RKE images.
nodes:
- address: 10.15.100.108
  port: "22"
  internal_address: ""
  role:
  - controlplane
  - worker
  - etcd
  hostname_override: ""
  user: ubuntu
  docker_socket: /var/run/docker.sock
  ssh_key: ""
  ssh_key_path: /home/ubuntu/onap_dev
  ssh_cert: ""
  ssh_cert_path: ""
  labels: {}
  taints: []
services:
  etcd:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    external_urls: []
    ca_cert: ""
    cert: ""
    key: ""
    path: ""
    uid: 0
    gid: 0
    snapshot: null
    retention: ""
    creation: ""
    backup_config: null
  kube-api:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
```

```
    service_cluster_ip_range: 10.43.0.0/16
    service_node_port_range: ""
    pod_security_policy: false
    always_pull_images: false
    secrets_encryption_config: null
    audit_log: null
    admission_configuration: null
    event_rate_limit: null
  kube-controller:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    cluster_cidr: 10.42.0.0/16
    service_cluster_ip_range: 10.43.0.0/16
  scheduler:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
  kubelet:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
    cluster_domain: cluster.local
    infra_container_image: ""
    cluster_dns_server: 10.43.0.10
    fail_swap_on: false
    generate_serving_certificate: false
  kubeproxy:
    image: ""
    extra_args: {}
    extra_binds: []
    extra_env: []
    win_extra_args: {}
    win_extra_binds: []
    win_extra_env: []
network:
  plugin: canal
  options: {}
  mtu: 0
  node_selector: {}
  update_strategy: null
  tolerations: []
authentication:
  strategy: x509
  sans: []
  webhook: null
addons: ""
addons_include: []
system_images:
  etcd: rancher/mirrored-coreos-etcd:v3.5.3
  alpine: rancher/rke-tools:v0.1.80
  nginx_proxy: rancher/rke-tools:v0.1.80
  cert_downloader: rancher/rke-tools:v0.1.80
  kubernetes_services_sidecar: rancher/rke-tools:v0.1.80
  kubedns: rancher/mirrored-k8s-dns-node-cache:1.21.1
  dnsmasq: rancher/mirrored-k8s-dns-dnsmasq-nanny:1.21.1
  kubedns_sidecar: rancher/mirrored-k8s-dns-sidecar:1.21.1
  kubedns_autoscaler: rancher/mirrored-cluster-proportional-autoscaler:1.8.5
  coredns: rancher/mirrored-coredns-coredns:1.9.0
```

```
  coredns_autoscaler: rancher/mirrored-cluster-proportional-autoscaler:1.8.5
  nodelocal: rancher/mirrored-k8s-dns-node-cache:1.21.1
  kubernetes: rancher/hyperkube:v1.23.6-rancher1
  flannel: rancher/mirrored-coreos-flannel:v0.15.1
  flannel_cni: rancher/flannel-cni:v0.3.0-rancher6
  calico_node: rancher/mirrored-calico-node:v3.22.0
  calico_cni: rancher/mirrored-calico-cni:v3.22.0
  calico_controllers: rancher/mirrored-calico-kube-controllers:v3.22.0
  calico_ctl: rancher/mirrored-calico-ctl:v3.22.0
  calico_flexvol: rancher/mirrored-calico-pod2daemon-flexvol:v3.22.0
  canal_node: rancher/mirrored-calico-node:v3.22.0
  canal_cni: rancher/mirrored-calico-cni:v3.22.0
  canal_controllers: rancher/mirrored-calico-kube-controllers:v3.22.0
  canal_flannel: rancher/mirrored-flannelcni-flannel:v0.17.0
  canal_flexvol: rancher/mirrored-calico-pod2daemon-flexvol:v3.22.0
  weave_node: weaveworks/weave-kube:2.8.1
  weave_cni: weaveworks/weave-npc:2.8.1
  pod_infra_container: rancher/mirrored-pause:3.6
  ingress: rancher/nginx-ingress-controller:nginx-1.2.0-rancher1
  ingress_backend: rancher/mirrored-nginx-ingress-controller-defaultbackend:1.5-rancher1
  ingress_webhook: rancher/mirrored-ingress-nginx-kube-webhook-certgen:v1.1.1
  metrics_server: rancher/mirrored-metrics-server:v0.6.1
  windows_pod_infra_container: rancher/mirrored-pause:3.6
  aci_cni_deploy_container: noiro/cnideploy:5.1.1.0.1ae238a
  aci_host_container: noiro/aci-containers-host:5.1.1.0.1ae238a
  aci_opflex_container: noiro/opflex:5.1.1.0.1ae238a
  aci_mcast_container: noiro/opflex:5.1.1.0.1ae238a
  aci_ovs_container: noiro/openvswitch:5.1.1.0.1ae238a
  aci_controller_container: noiro/aci-containers-controller:5.1.1.0.1ae238a
  aci_gbp_server_container: noiro/gbp-server:5.1.1.0.1ae238a
  aci_opflex_server_container: noiro/opflex-server:5.1.1.0.1ae238a
ssh_key_path: /home/ubuntu/onap_dev
ssh_cert_path: ""
ssh_agent_auth: false
authorization:
  mode: rbac
  options: {}
ignore_docker_version: null
enable_cri_dockerd: null
kubernetes_version: ""
private_registries: []
ingress:
  provider: ""
  options: {}
  node_selector: {}
  extra_args: {}
  dns_policy: ""
  extra_envs: []
  extra_volumes: []
  extra_volume_mounts: []
  update_strategy: null
  http_port: 0
  https_port: 0
  network_mode: ""
  tolerations: []
  default_backend: null
  default_http_backend_priority_class_name: ""
  nginx_ingress_controller_priority_class_name: ""
  default_ingress_class: null
cluster_name: ""
cloud_provider:
  name: ""
prefix_path: ""
win_prefix_path: ""
addon_job_timeout: 0
bastion_host:
  address: ""
  port: ""
  user: ""
  ssh_key: ""
  ssh_key_path: ""
```

```
  ssh_cert: ""
  ssh_cert_path: ""
  ignore_proxy_env_vars: false
monitoring:
  provider: ""
  options: {}
  node_selector: {}
  update_strategy: null
  replicas: null
  tolerations: []
  metrics_server_priority_class_name: ""
restore:
  restore: false
  snapshot_name: ""
rotate_encryption_key: false
dns: null
```

7. sudo apt-get update; sudo apt install docker.io
8. sudo usermod -a -G docker ubuntu
9. rke up
10. docker ps
11. Switch to root (sudo su -)
12. Install helm - https://wiki.onap.org/display/DW/Setup+helm3+for+oom
    a. Export required helm version
        i. export HELM_VERSION=v3.5.2 # Honolulu
        ii. export HELM_VERSION=v3.5.4 # Istanbul - wget https://get.helm.sh/helm-v3.5.4-linux-amd64.tar.gz
        iii. export HELM_VERSION=v3.6.3 # Jakarta - wget https://get.helm.sh/helm-v3.6.3-linux-amd64.tar.gz
        iv. export HELM_VERSION=v3.8.2 # Kohn- wget https://get.helm.sh/helm-v3.8.2-linux-amd64.tar.gz
    b. wget https://get.helm.sh/helm-$HELM_VERSION-linux-amd64.tar.gz
    c. tar -zxvf helm-$HELM_VERSION-linux-amd64.tar.gz
    d. sudo mv linux-amd64/helm /usr/local/bin/helm-$HELM_VERSION
    e. sudo rm /usr/local/bin/helm
    f. sudo ln -s /usr/local/bin/helm-$HELM_VERSION /usr/local/bin/helm
13. Setup kubectl
    a. cd
    b. curl -LO "https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com/kubernetes-release/release/stable.txt)/bin/linux/amd64/kubectl"
    c. chmod +x ./kubectl
    d. sudo mv ./kubectl /usr/local/bin/kubectl
    e. mkdir .kube
    f. cp /home/ubuntu/kube_config_cluster.yml .kube/config
14. helm list
15. chmod 700 /root/.kube/config

ONAP Installation

(Extract from https://docs.onap.org/projects/onap-oom/en/latest/oom_quickstart_guide.html)

(as root user)

1. git clone -b <BRANCH> http://gerrit.onap.org/r/oom --recurse-submodules <oom.yymmdd>
    a. ln -s <oom.yymmdd> oom
2. Helm plugin install
    a. Jakarta - helm plugin install https://github.com/chartmuseum/helm-push.git --version 0.9.0
    b. Kohn - helm plugin install https://github.com/chartmuseum/helm-push.git --version v0.10.3
3. cp -R ~/oom/kubernetes/helm/plugins/* ~/.local/share/helm/plugins/
4. curl -LO https://s3.amazonaws.com/chartmuseum/release/latest/bin/linux/amd64/chartmuseum; chmod +x ./chartmuseum ; mv ./chartmuseum /usr/local/bin
5. chartmuseum --storage local --storage-local-rootdir ~/helm3-storage -port 8879 &
6. helm repo add local http://127.0.0.1:8879
7. helm repo list
8. apt install make
9. cd oom/kubernetes/
10. make SKIP_LINT=TRUE all; make SKIP_LINT=TRUE onap
11. Install Strimzi Kafka operator (from **Step 4.1** - https://docs.onap.org/projects/onap-oom/en/latest/oom_quickstart_guide.html)

```
helm repo add strimzi https://strimzi.io/charts/
helm install strimzi-kafka-operator strimzi/strimzi-kafka-operator --namespace strimzi-system --version 0.28.0 --set watchAnyNamespace=true --create-namespace
(use  version 0.35.0 for London)
```

12. helm deploy dev local/onap --namespace onap --create-namespace -f ~/onap6-override.yaml --set global.masterPassword=test1 --set global.pullPolicy=IfNotPresent

    a. Following needed for MOD
    helm install -name dev-chartmuseum local/chartmuseum -n onap --create-namespace -f ~/UNH-onap2-override.yaml --set global.masterPassword=test1 --set global.pullPolicy=IfNotPresent
    Complete MOD deploy - DCAE MOD Flow for Helm Flow (Jakarta)

Other command references

1. helm install -name onap-dcaemod local/dcaemod -n onap -f ~/UNH-onap2-override.yaml --set global.masterPassword=test1 --set global.pullPolicy=IfNotPresent
2. helm delete onap-dcaemod --namespace onap
3. helm undeploy onap --namespace onap
4. helm install -name dev-slice-analysis -n onap . -f ~/onap-1-override.yaml --set global.masterPassword=test1 --set global.pullPolicy=IfNotPresent

External reference

https://docs.onap.org/projects/onap-oom/en/latest/oom_quickstart_guide.html

https://docs.onap.org/projects/onap-oom/en/latest/oom_cloud_setup_guide.html#cloud-setup-guide-label

https://kifarunix.com/make-permanent-dns-changes-on-resolv-conf-in-linux/

Deploy OOM and SDC (or ONAP) on a single VM with microk8s - Honolulu Setup

Setup helm3 for oom

https://docs.onap.org/projects/onap-oom/en/latest/oom_user_guide_helm3.html