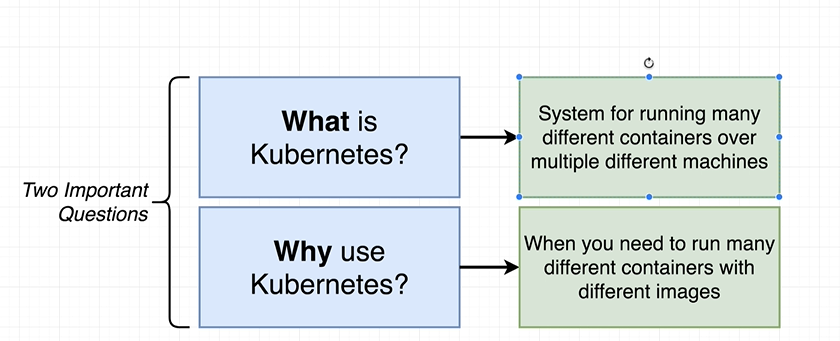
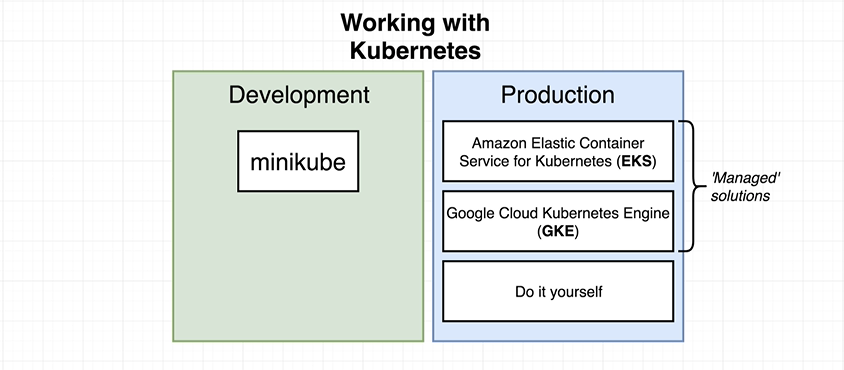
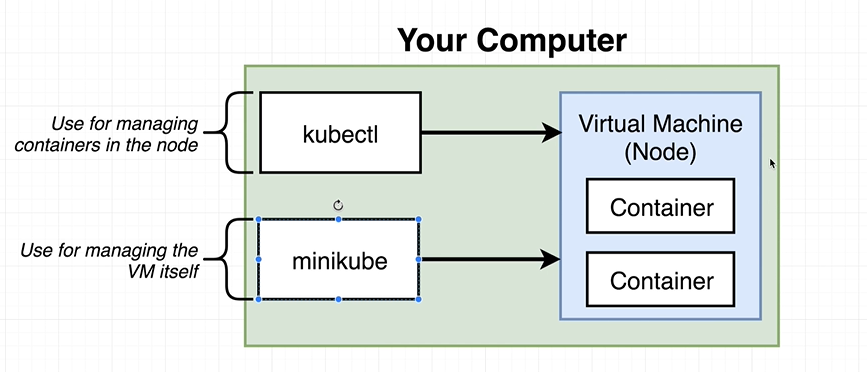
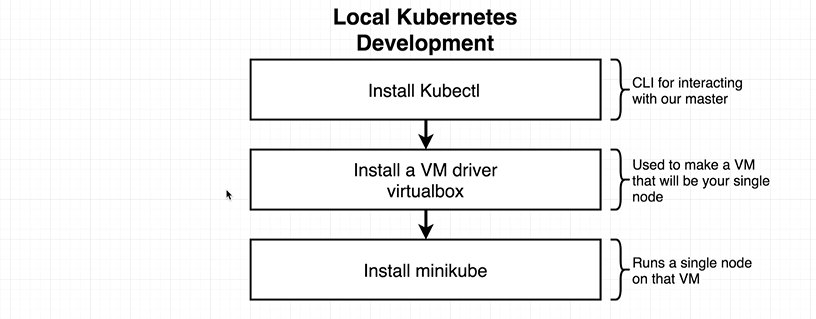
# 1. Basic









## 1.1 Install Kubernetes - Master on Linux

References: <https://www.devopsschool.com/blog/setting-up-kubernetes-clusters-using-kubeadm-manual-way-in-rhel-7-centos7/>

Pre-requisite – [Installing Docker](https://www.devopsschool.com/tutorial/docker/install-config/) [ This need to be there in Master and Worker Node. Both]

As part of the installation, every node (master and minions) needs:

* kubeadm: the command to bootstrap the cluster.
* kubelet: the component that runs on all of the machines in your cluster and does things like starting pods and containers.
* kubectl: the command line util to talk to your cluster.
* Docker: Container Enginer.
* CNI: Container Network interface.

### 1.1.1 **Change Mac Adress [Optional]**

**Virtual box -> Setting -> Network ->Advance**

### 1.1.2 **Change Host Name**

hostnamectl set-hostname basava.master.com

### 1.1.3 **Stop and Disable Firewall**

1. systemctl stop firewalld
2. systemctl disable firewalld

### 1.1.4 **Disable swap**

* 1. sudo swapoff -a
  2. sudo sed -i '/ swap / s/^/#/' /etc/fstab

# Reboot a machine after that.

### 1.1.5 **Setup yum repo for kubelet kubeadm kubectl**

**Sudo -s**

* cat <<EOF > /etc/yum.repos.d/kubernetes.repo

[kubernetes]

name=Kubernetes

baseurl=https://packages.cloud.google.com/yum/repos/kubernetes-el7-x86\_64

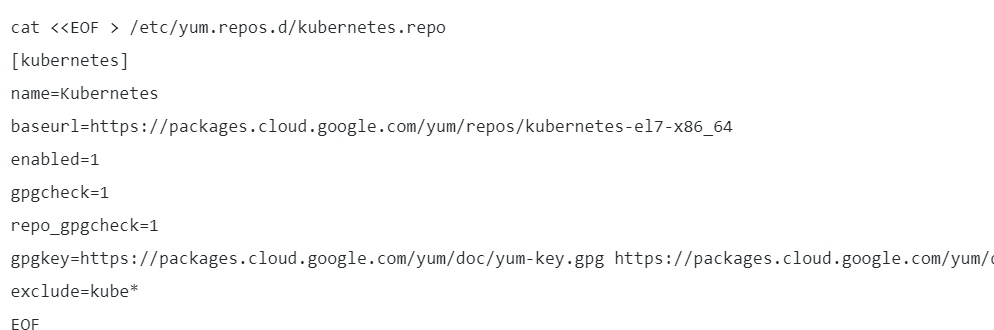
enabled=1

gpgcheck=1

repo\_gpgcheck=1

gpgkey=https://packages.cloud.google.com/yum/doc/yum-key.gpg <https://packages.cloud.google.com/yum/doc/rpm-package-key.gpg>

exclude=kube\*



### 1.1.6 **Set SELinux in permissive mode (effectively disabling it)**

* setenforce 0
* sed -i 's/^SELINUX=enforcing$/SELINUX=permissive/' /etc/selinux/config

### 1.1.7 **Install kubelet kubeadm kubectl and enable kubelet**

* yum install -y kubelet kubeadm kubectl --disableexcludes=Kubernetes
* systemctl enable --now kubelet
* # Reboot a machine after that.

### 1.1.8 **Finally, initialize a kubernetes clusters**

* **kubeadm init --ignore-preflight-errors all**

**Copy text : starts with “kubeadm join ……….” 🡪 Master Adress**

### 1.1.9 **Setup Workstation in the Master node only. You can be regular user for it.**

* mkdir -p $HOME/.kube
* sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
* sudo chown $(id -u):$(id -g) $HOME/.kube/config

### 1.1.10 **Verify Clustors**

* + kubectl get nodes
  + kubectl get pods --all-namespaces

## 1.2 Install Kubernetes - Nodes On Linux

### 1.2.1 **Install Kubernetes pod networking**

kubectl apply -f [https://cloud.weave.works/k8s/net?k8s-version=$(kubectl version | base64 | tr -d '\n')](https://cloud.weave.works/k8s/net?k8s-version=$(kubectl%20version%20|%20base64%20|%20tr%20-d%20'\n'))

### 1.2.2 **Setup nodes [ In the node aka worker ]**

#Follow [1.1.1 Change Mac Adress [Optional]](#_1.1.1__Change)

#Follow [1.1.2 Change Host Name](#_1.1.2__Change)

#Follow [1.1.3 Stop and Disable Firewall](#_1.1.3_Stop_and)

#Follow [1.1.4 Disable swap](#_1.1.4_Disable_swap)

#Follow [1.1.5 Setup yum repo for kubelet kubeadm kubectl](#_1.1.5_Setup_yum)

#Follow [1.1.6 Set SELinux in permissive mode (effectively disabling it)](#_1.1.6_Set_SELinux)

#Follow [1.1.7 Install kubelet kubeadm kubectl and enable kubelet](#_1.1.7_Install_kubelet)

**CMD** : kubeadm join 10.50.52.137:6443 --token hnkkcw.w5wqlpyss6uu4wwf

--discovery-token-ca-cert-hash sha256:e27cb08d4dec1e2f74840286491f46f55825a09c818bdba8d0d228c2991e23ed --ignore-preflight-errors all

**IMPORTANT NOTE:**

1. MASTER stores all images.

2. we need atleast one Slave to run . 🡪 join slaves to master

**START NODES :**

kubectl apply -f "https://cloud.weave.works/k8s/net?k8s-version=$(kubectl version | base64 | tr -d '\n')"

**OTHER COMMANDS:**

kubectl get nodes

vi pod\_yaml.yaml

kubectl create -f pod\_yaml.yaml

kubectl get pods

check image is running or not in slave.

## 1.3 Cluster Info

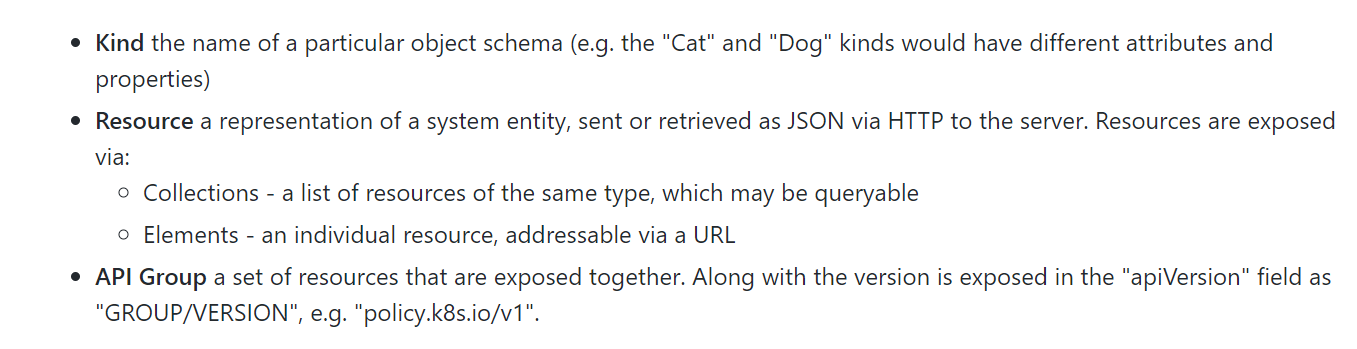
* kubectl cluster-info
* kubectl cluster-info dump 🡪 resolve cluster related problem.

## 1.4 Node info

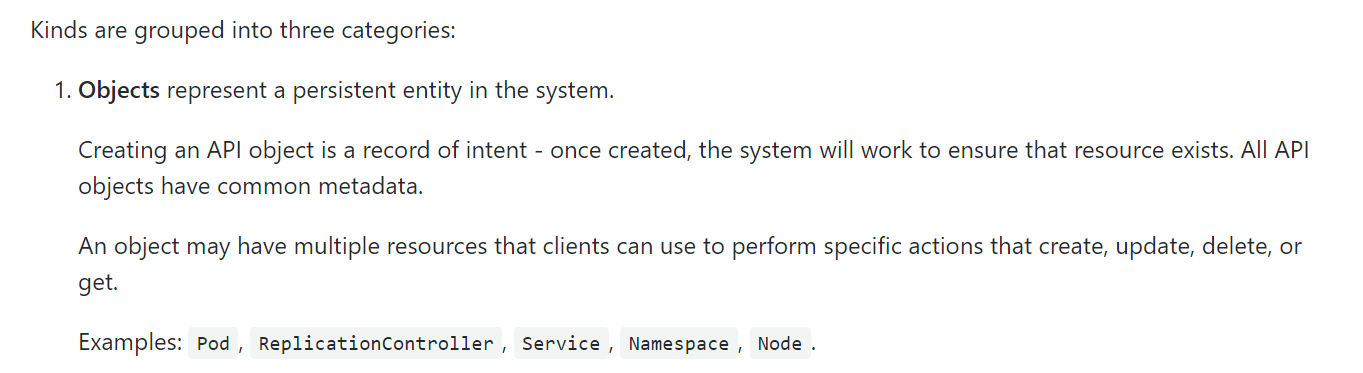
<https://kubernetes.io/docs/concepts/architecture/nodes/>

s

# 2. API - Kinds or Types



## 2.1 Objects



<https://github.com/kubernetes/community/blob/master/contributors/devel/sig-architecture/api-conventions.md#resources>

### 2.1.1 Pod exmaples

==========

apiVersion: v1

kind: Pod

metadata:

  name: test-pd

spec:

  containers:

  - image: scmgalaxy/nginx-devopsschoolv1

    name: test-container

    volumeMounts:

    - mountPath: /cache

      name: cache-volume

  volumes:

  - name: cache-volume

    emptyDir: {}

==========

apiVersion: v1

kind: Pod

metadata:

  name: test-pd

spec:

  containers:

  - image: scmgalaxy/nginx-devopsschoolv1

    name: test-container

    volumeMounts:

    - mountPath: /cache

      name: cache-volume

  volumes:

  - name: cache-volume

    emptyDir: {}

==========

apiVersion: v1

kind: Pod

metadata:

  name: hello-pod

  labels:

    app: webserver

spec:

  containers:

  - name: hello-ctr

    image: nginx

    ports:

    - containerPort: 80

### 2.2.2 working with labels

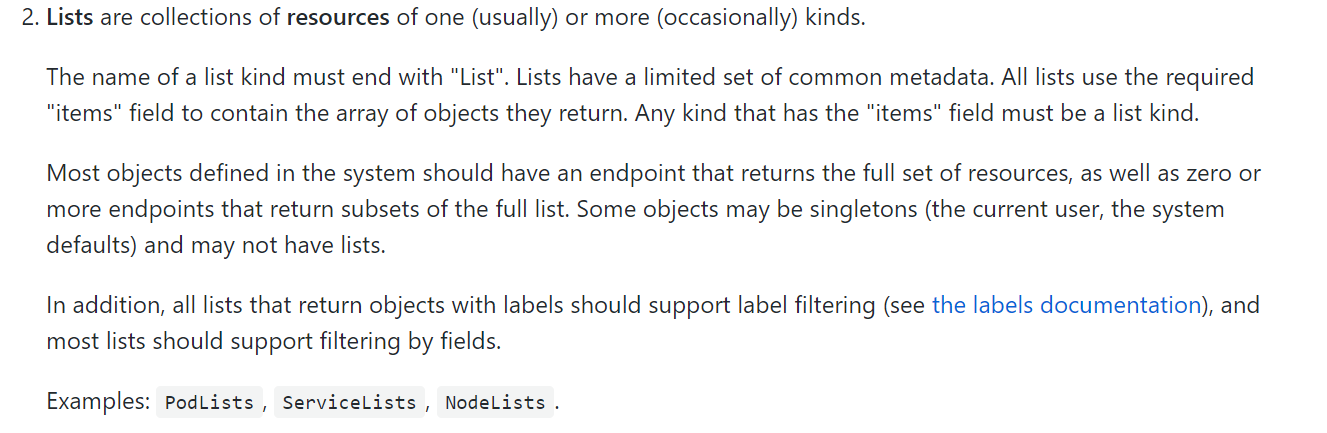
kubectl get pods --show-labels

kubectl label pods labelex owner=Michael

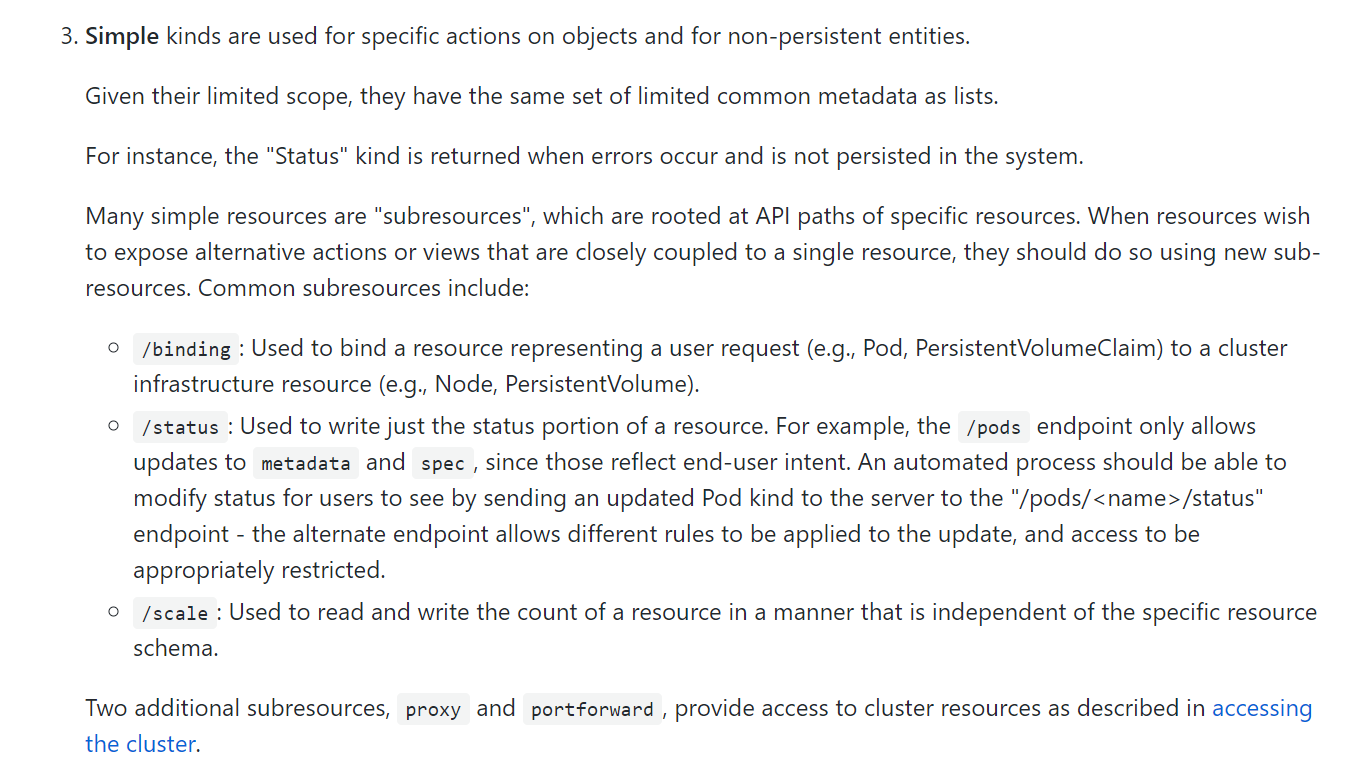
kubectl get pods -l env=development

kubectl delete pods label

## 2.2 Lists



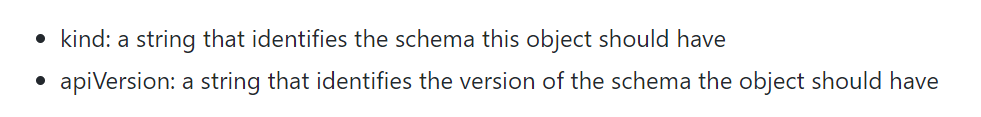
## 2.3 Simple



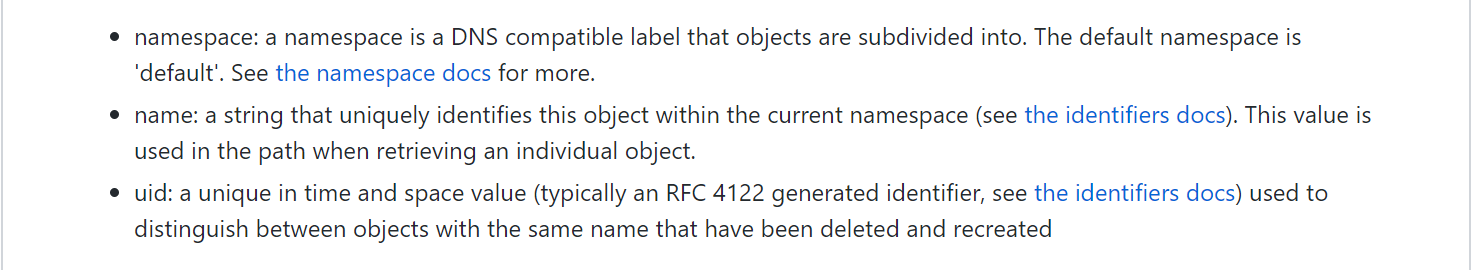
# 3. YAML – keys

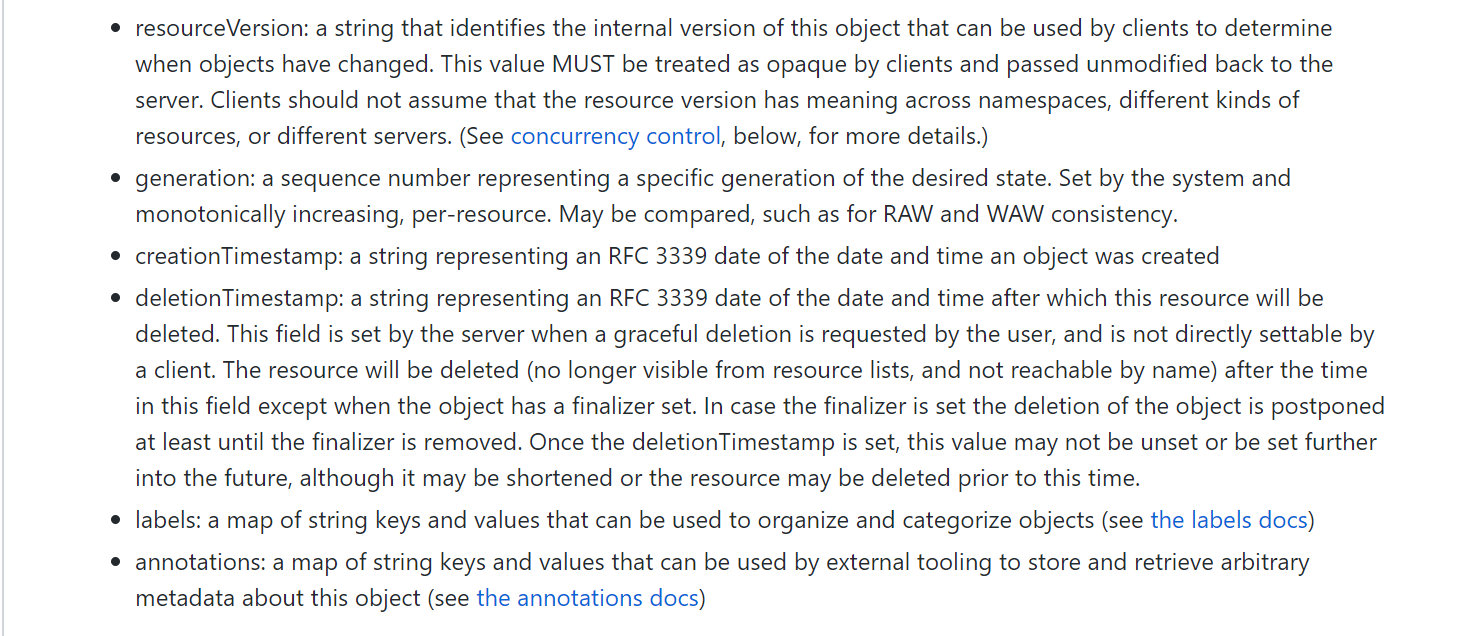
* 1. apiVersion
  2. kind
  3. metadata
  4. spec
  5. status

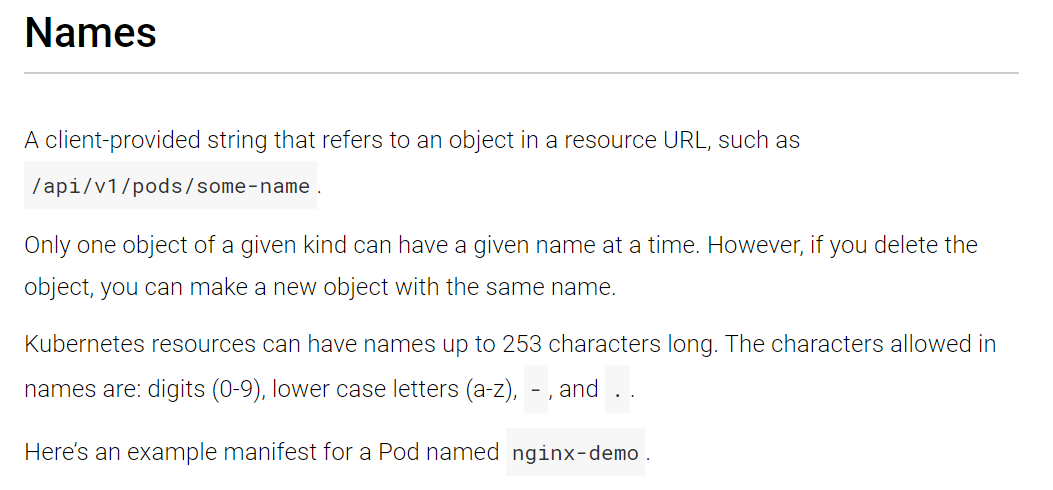
## 3.1 apiVersion and Kind

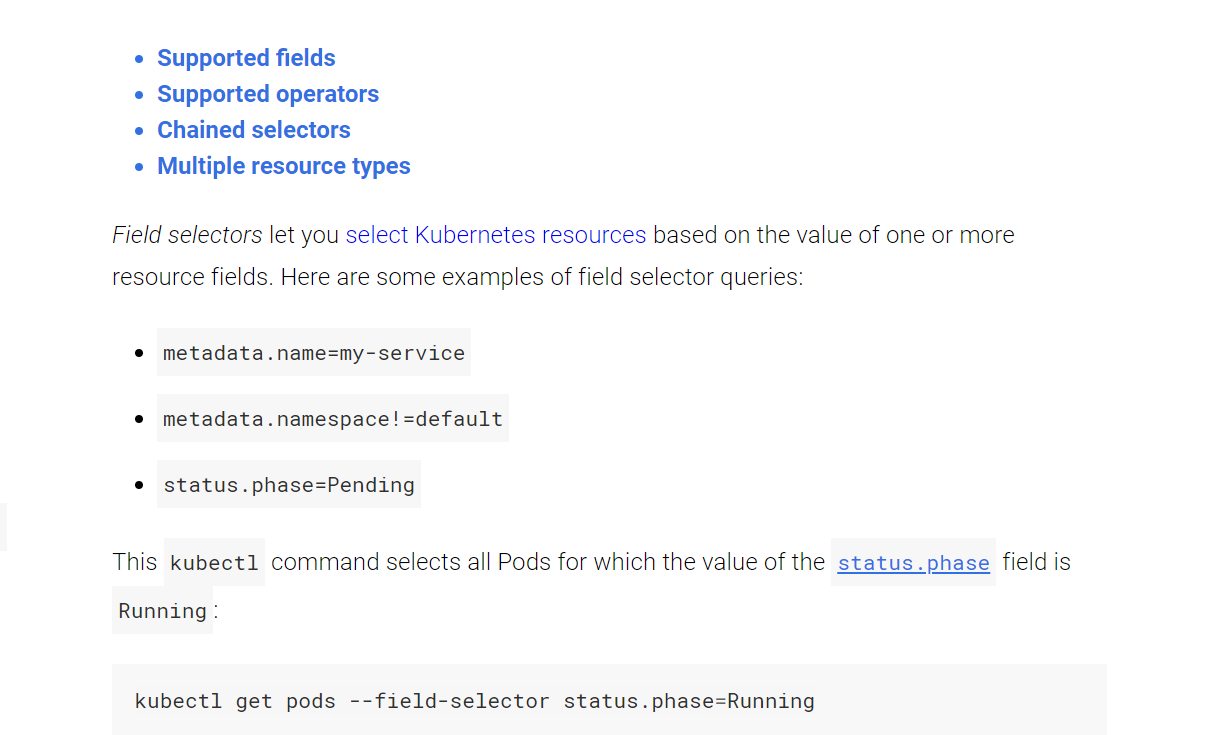
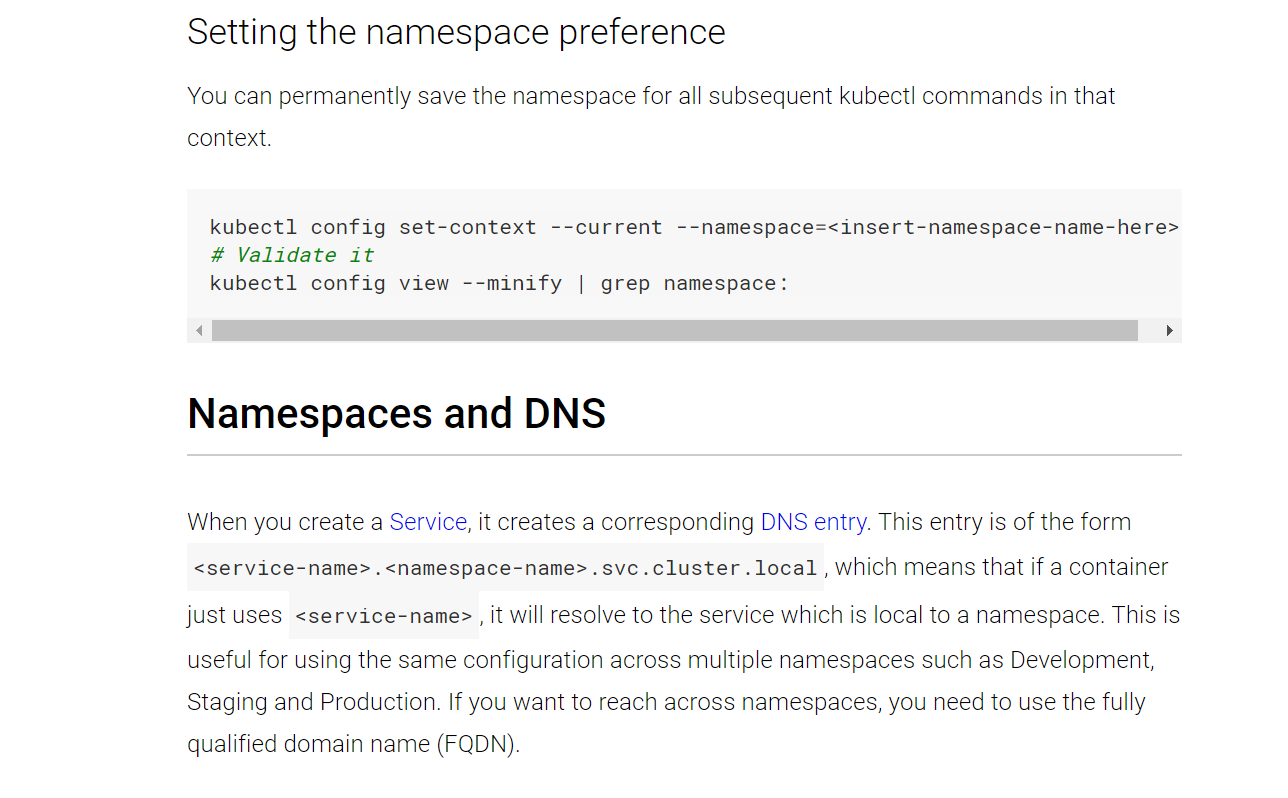
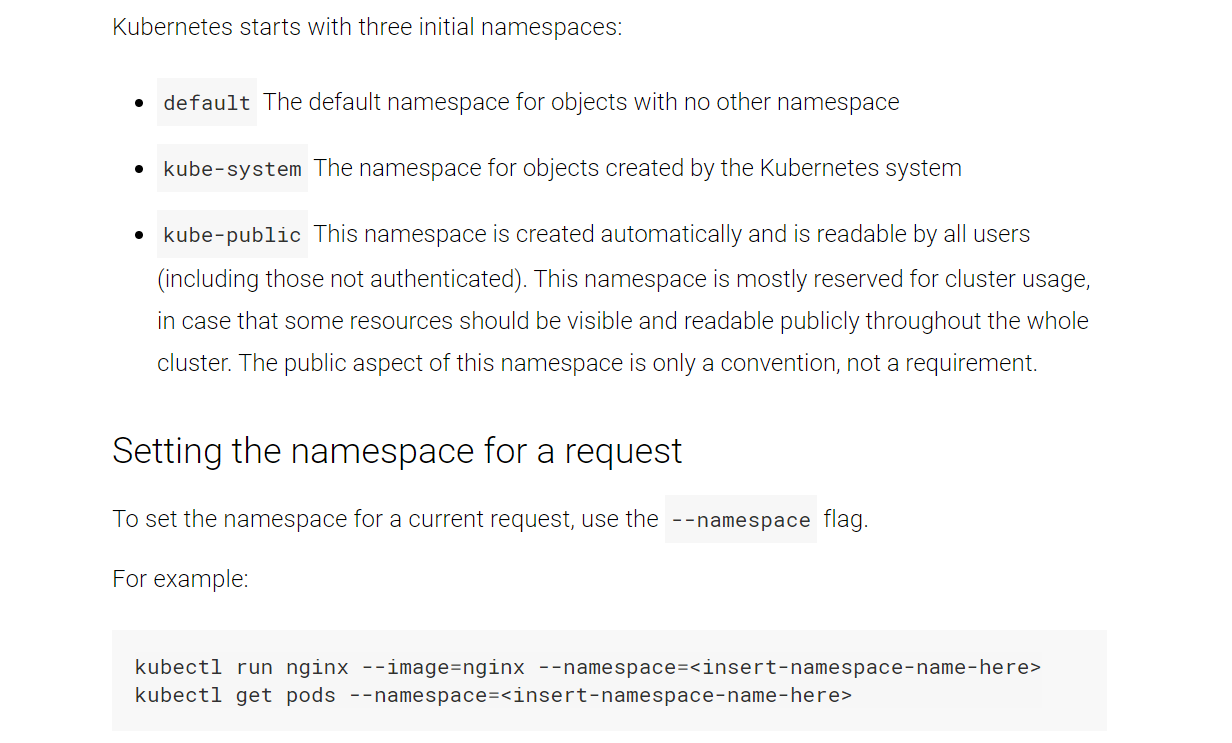
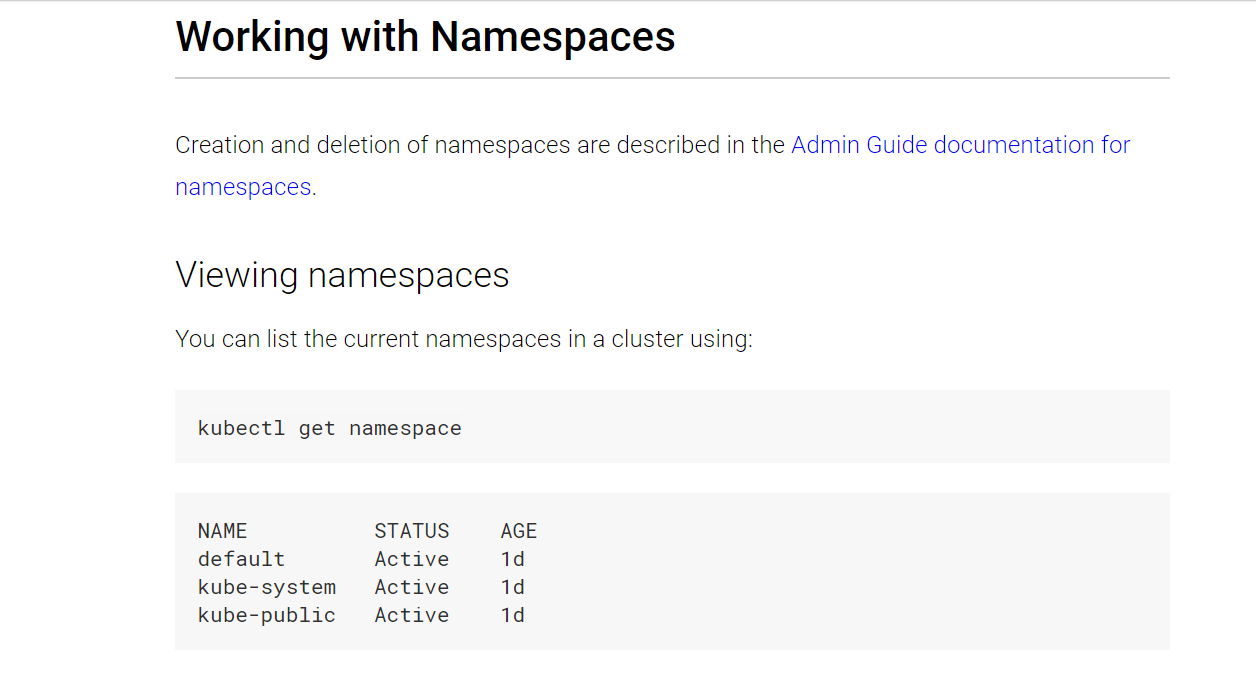
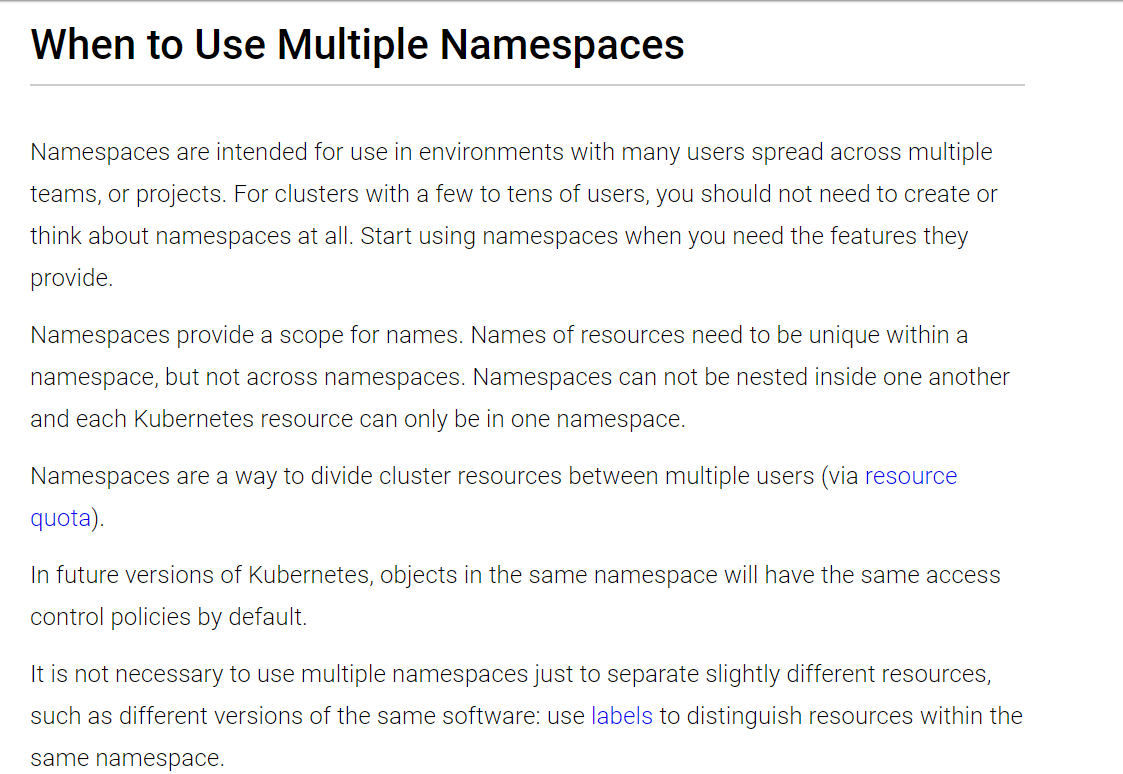


## 3.2 Meatadata









## 3.3 Spec and Status

# References

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https://www.devopsschool.com/blog/kubernetes-volume-emptydir-explained-with-examples/

https://www.thegeekdiary.com/centos-rhel-7-configuring-an-nfs-server-and-nfs-client/

https://www.devopsschool.com/blog/working-with-kubernetes-cluster-using-kubectl-part-7-labels/