



# **Linux-Foundation**

## **Exam Questions CKA**

Certified Kubernetes Administrator (CKA) Program



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Create a pod with environment variables as var1=value1. Check the environment variable in pod

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

kubectl run nginx --image=nginx --restart=Never --env=var1=value1

# then

kubectl exec -it nginx -- env

# or

kubectl exec -it nginx -- sh -c 'echo \$var1'

# or

kubectl describe po nginx | grep value1

#### **NEW QUESTION 2**

Given a partially-functioningKubernetes cluster, identifysymptoms of failure on the cluster.

Determine the node, the failingservice, and take actions to bring upthe failed service and restore thehealth of the cluster. Ensure that anychanges are made permanently.

You cansshto the relevant Inodes (bk8s-master-0orbk8s-node-0) using:

[student@node-1] \$ ssh<nodename>

You can assume elevatedprivileges on any node in thecluster with the followingcommand:

[student@nodename] \$ | sudo ?Ci

A. Mastered

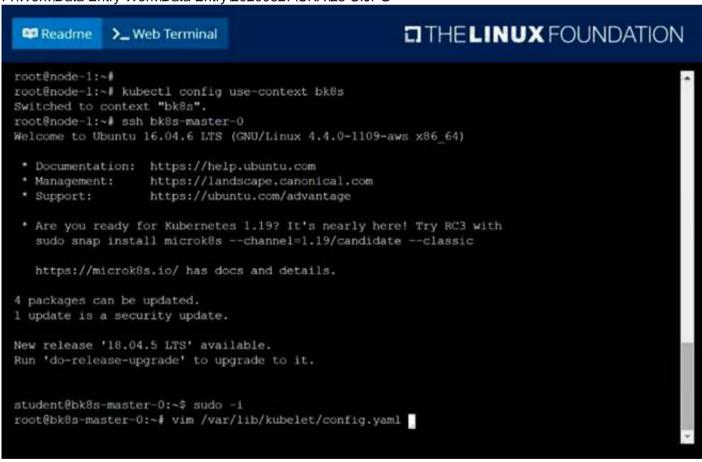
B. Not Mastered

Answer: A

#### **Explanation:**

solution

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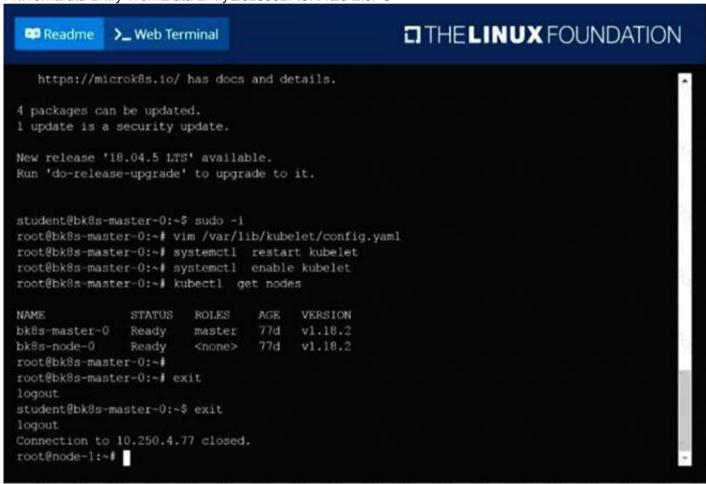


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```
THE LINUX FOUNDATION
Readme
            >_ Web Terminal
 mode: Webhook
   cacheAuthorizedTTL: Os
   cacheUnauthorizedTTL: 0s
 10.96.0.10
clusterDomain: cluster.local
cpuManagerReconcilereriod: Os
evictionPressureTransitionPeriod: Os
fileCheckFrequency: Os
healthaBindAddress: 127.0.0.1
httpCheckFrequency: 0s
lmageMinimumGCAge: Os
kind: KubeletConfiguration
nodeStatusReportFrequency: 0s
nodeStatusDpdateFrequency: Os
runtimeRequestTimeout: 0s
staticPodFath: /etc/kubernetes/manifests
streamingConnectionIdleTimeout: Os
syncFrequency: 0s
     StatsaggFeriod: 0s
```

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#### **NEW QUESTION 3**

Create a deployment spec file thatwill:

- Launch 7 replicas of thenginxImage with the labelapp\_runtime\_stage=dev
- deployment name:kual00201

Save a copy of this spec file to/opt/KUAL00201/spec\_deployment.yaml (or/opt/KUAL00201/spec\_deployment.json). When you are done, clean up (delete)any new Kubernetes API object thatyou produced during this task.

A. Mastered

B. Not Mastered

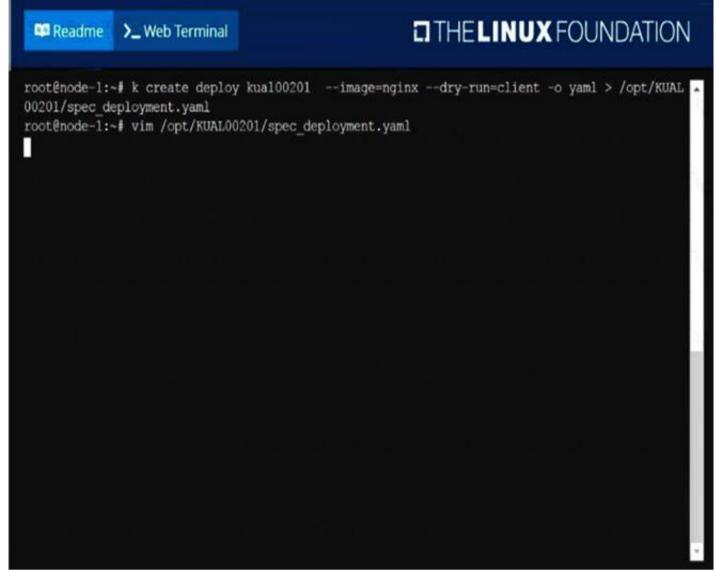
Answer: A

#### **Explanation:**

solution

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### **NEW QUESTION 4**

List the nginx pod with custom columns POD\_NAME and POD\_STATUS

A. Mastered B. Not Mastered

Answer: A

## Explanation:

kubectl get po -o=custom-columns="POD\_NAME:.metadata.name, POD\_STATUS:.status.containerStatuses[].state"



Create a pod as follows:

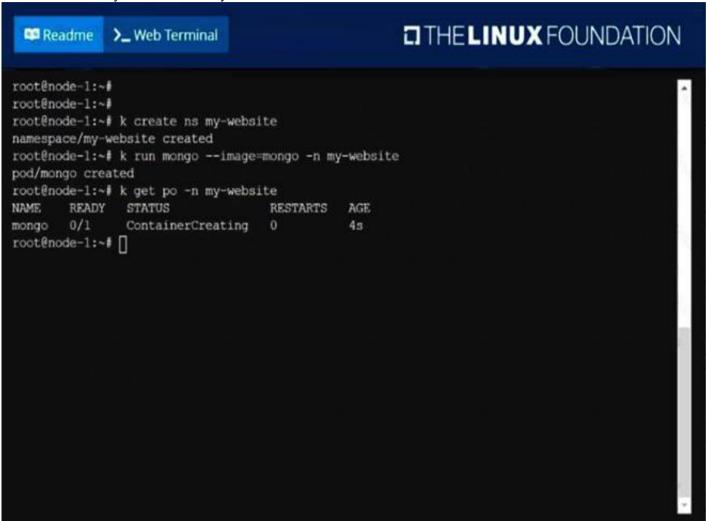
- Name:mongo
- Using Image:mongo
- In anew Kubernetes namespacenamed:my-website
- A. Mastered
- B. Not Mastered

Answer: A

#### **Explanation:**

solution

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#### **NEW QUESTION 6**

Create a deployment as follows:

- Name:nginx-app
- Using containernginxwithversion 1.11.10-alpine
- The deployment should contain3replicas

Next, deploy the application with newversion1.11.13-alpine, byperforming a rolling update.

Finally, rollback that update to the previous version 1.11.10-alpine.

A. Mastered

B. Not Mastered

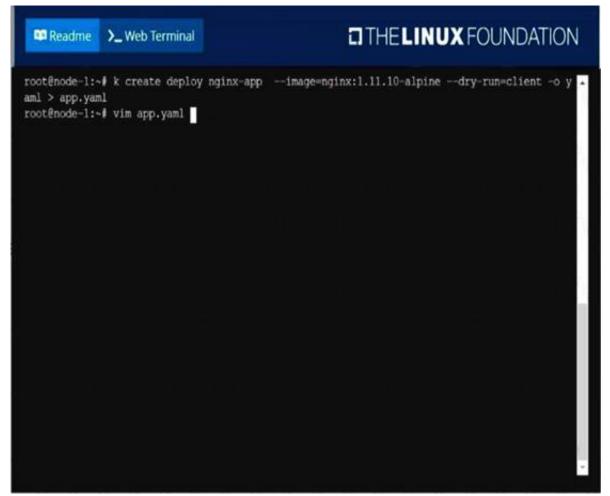
Answer: A

### Explanation:

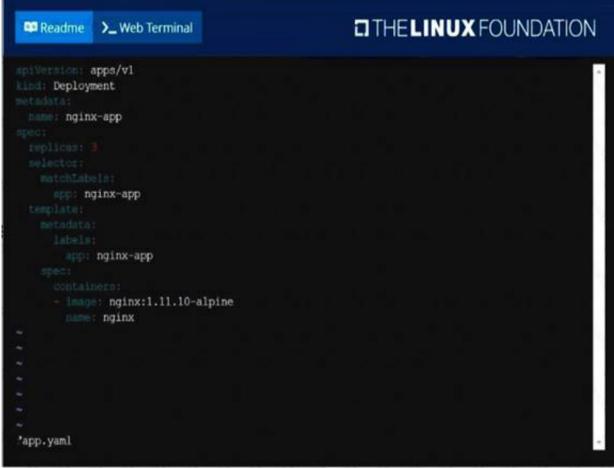
solution

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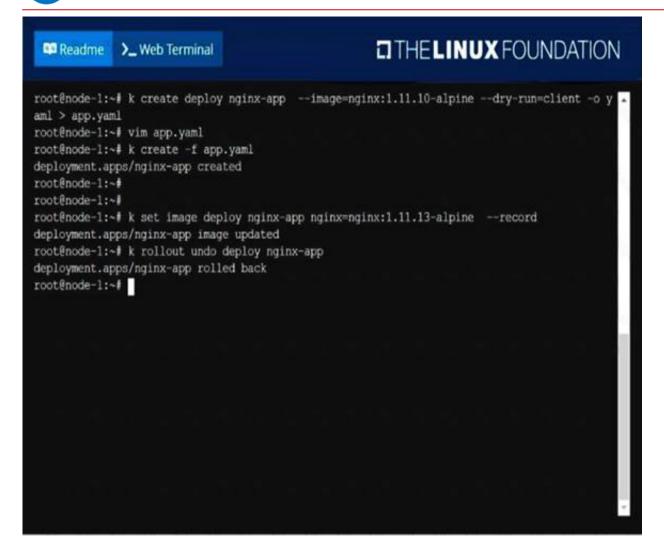


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List ??nginx-dev?? and ??nginx-prod?? pod and delete those pods

A. Mastered

B. Not Mastered

Answer: A

### **Explanation:**

kubect1 get pods -o wide

kubectl delete po ??nginx-dev??kubectl delete po ??nginx-prod??

#### **NEW QUESTION 8**

Create a pod namedkucc8with asingle app container for each of the following images running inside(there may be between 1 and 4images specified): nginx + redis + memcached.

A. Mastered

B. Not Mastered

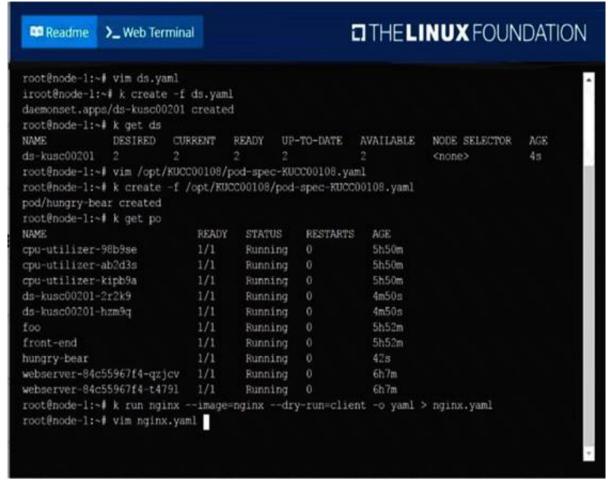
Answer: A

#### **Explanation:**

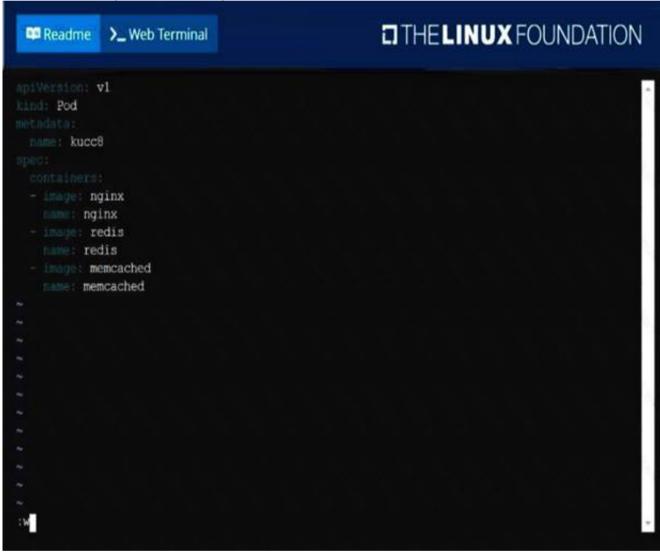
solution

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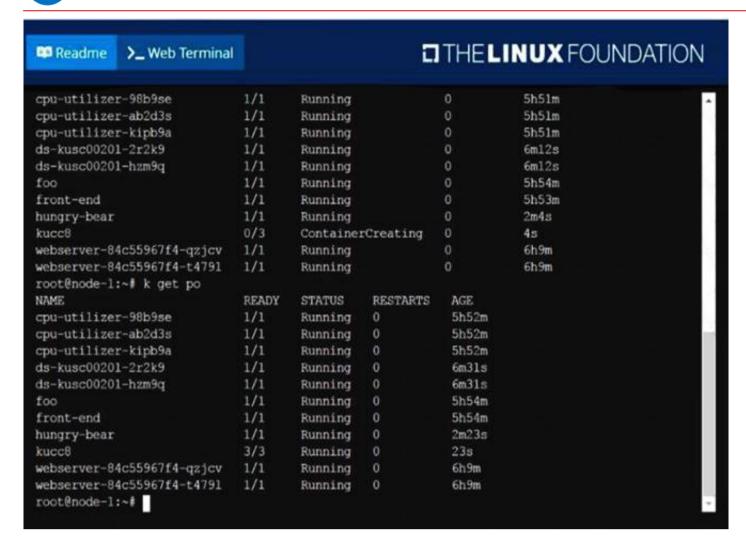


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Create a persistent volume with nameapp-data, of capacity2Giandaccess modeReadWriteMany. Thetype of volume ishostPathand itslocation is/srv/app-data.

A. Mastered

B. Not Mastered

Answer: A

#### Explanation:

solution

Persistent Volume

A persistent volume is a piece of storage in aKubernetes cluster. PersistentVolumes are a cluster-level resource like nodes, which don??t belong to any namespace. It is provisioned by the administrator and has a particular file size. This way, a developer deploying their app on Kubernetes need not knowthe underlying infrastructure. When the developer needs a certain amount of persistent storage for their application, the system administrator configures the cluster so that they consume the PersistentVolume provisioned in an easy way.

Creating PersistentVolume

kind: PersistentVolumeapiVersion: v1metadata:name:app-dataspec:capacity: # defines the capacity of PV we are creatingstorage:2Gi#the amount of storage we are tying to claimaccessModes: # defines the rights of the volumewe are creating-ReadWriteManyhostPath:path: "/srv/app-data" # path to which we are creating the volume

Challenge

Create a Persistent Volume namedapp-data, with access modeReadWriteMany, storage classname shared,2Giof storage capacity and the host path/srv/app-data.



\* 2. Save the file and create the persistent volume. Image for post

```
njerry191@cloudshell:~ (extreme-clone-265411)$ kubectl create -f pv.yaml persistentvolume/pv created
```

\* 3. View the persistent volume.

```
njerry191@cloudshell:~ (extreme-clone-265411)$ kubectl get pv
                                                                         STORAGECLASS
       CAPACITY
                  ACCESS MODES
                                  RECLAIM POLICY
                                                    STATUS
                                                                CLAIM
                                                                                        REASON
                                                                                                  AGE
app-data
      2Gi
                                                                                                  31s
                  RWX
                                  Retain
                                                    Available
                                                                         shared
```

Our persistent volume status is available meaning it is available and it has not been mounted yet. This status willchange when we mount the persistentVolume to a persistentVolumeClaim.

PersistentVolumeClaim

In a real ecosystem, a system admin will create the PersistentVolume then a developer will create a PersistentVolumeClaim which will be referenced in a pod. A PersistentVolumeClaim is created by specifying the minimum size and the access mode they require from the persistentVolume. Challenge

Create a Persistent Volume Claim that requests the Persistent Volume we had created above. The claim should request 2Gi. Ensurethat the Persistent Volume Claim has the same storageClassName as the persistentVolume you had previously created.

kind: PersistentVolumeapiVersion: v1metadata:name:app-data spec:

access Modes: -Read Write Many resources:

requests:storage:2Gi storageClassName:shared

\* 2. Save and create the pvc

njerry191@cloudshell:~(extreme-clone-2654111)\$ kubect1 create -f app-data.yaml persistentvolumeclaim/app-data created

\* 3. View the pvc Image for post

```
njerry191@cloudshell:~ (extreme-clone-265411)$ kubectl get pvc
NAME STATUS VOLUME CAPACITY ACCESS MODES STORAGECLASS
pv Bound pv 512m RWX shared
```

\* 4. Let??s see what has changed in the pv we had initially created.

```
njerry191@cloudshell:~ (extreme-clone-265411)$ kubectl get pv

NAME CAPACITY ACCESS MODES RECLAIM POLICY STATUS CLAIM STORAGECLASS REASON AGE

pv 512m RWX Retain Bound default/pv shared 16m
```

Our status has now changed from available to bound.

\* 5. Create a new pod named myapp with image nginx that will be used to Mount the Persistent Volume Claim with the path /var/app/config. Mounting a Claim

apiVersion: v1kind: Podmetadata:creationTimestamp: nullname: app-dataspec:volumes:- name:congigpvcpersistenVolumeClaim:claimName: app-datacontainers:- image: nginxname: appvolumeMounts:- mountPath: "/srv/app-data"name: configpvc

#### **NEW QUESTION 10**

List pod logs named ??frontend?? and search for the pattern ??started?? and write it to a file ??/opt/error-logs??

A. Mastered

B. Not Mastered



Answer: A

#### **Explanation:**

Kubectl logs frontend | grep -i ??started?? > /opt/error-logs

#### **NEW QUESTION 10**

List all persistent volumes sorted bycapacity, saving the fullkubectloutput to /opt/KUCC00102/volume\_list. Usekubectl 's own functionality forsorting the output, and do not manipulate it any further.

A. Mastered

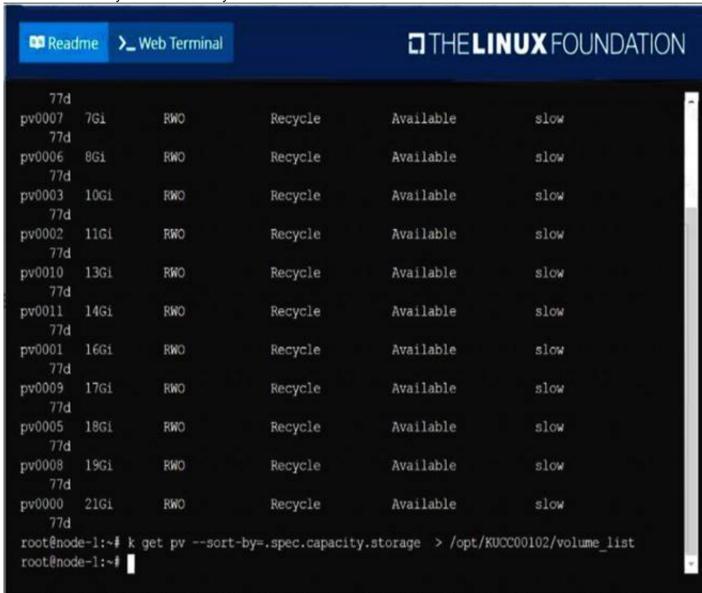
B. Not Mastered

Answer: A

#### **Explanation:**

solution

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#### **NEW QUESTION 15**

Create a namespace called 'development' and a pod with image nginx called nginx on this namespace.

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

kubectl create namespace development

kubectl run nginx --image=nginx --restart=Never -n development

#### **NEW QUESTION 18**

Create a pod as follows:

- Name:non-persistent-redis
- container Image:redis
- Volume with name:cache-control
- Mount path:/data/redis

The pod should launch in the staging names pace and the volumemust not be persistent.

A. Mastered

B. Not Mastered

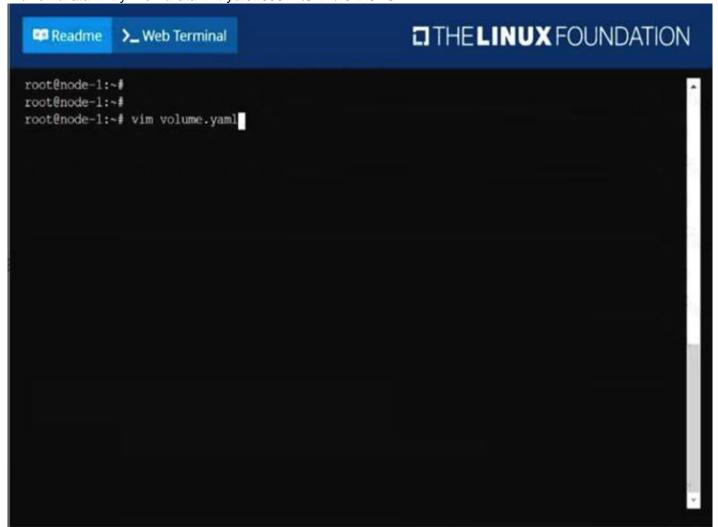
Answer: A

Explanation:

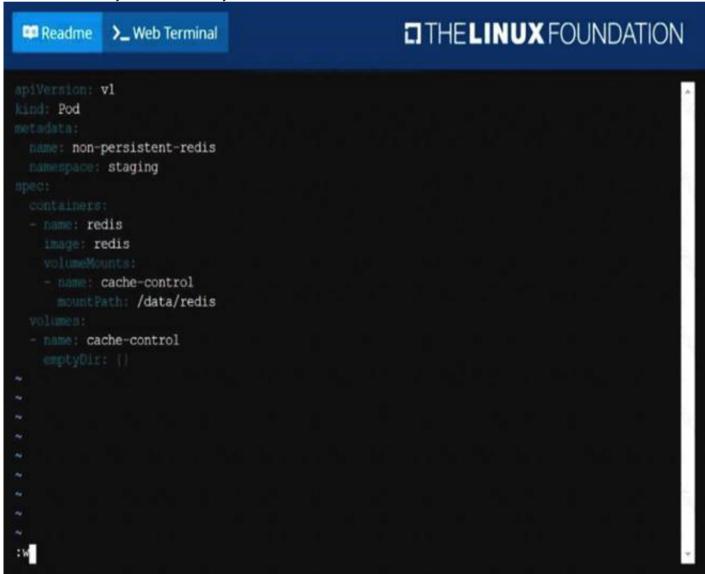


solution

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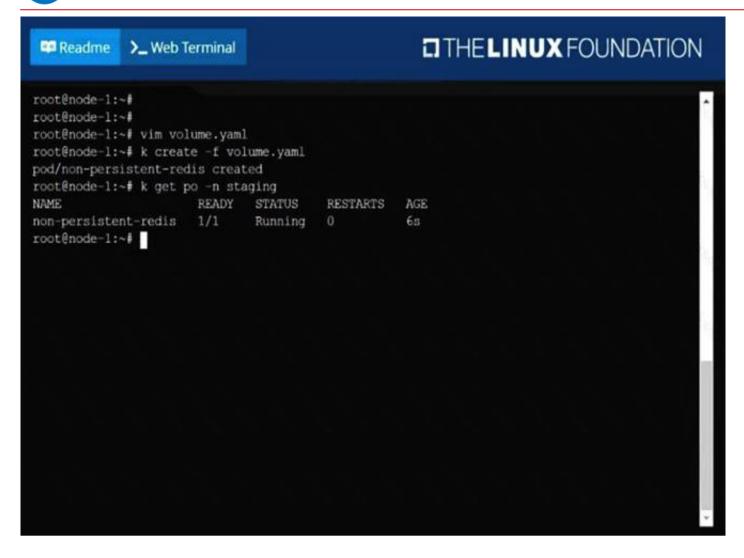


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Check the image version in pod without the describe command

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

kubectl get po nginx -o jsonpath='{.spec.containers[].image}{"\n"}'

## **NEW QUESTION 25**

Configure the kubelet systemd-managed service, on the nodelabelled withname=wk8s-node-1, tolaunch a pod containing a singlecontainer of Imagehttpdnamedwebtoolautomatically. Any spec filesrequired should be placed in the/etc/kubernetes/manifestsdirectoryon the node. You canssh to theappropriate node using:

[student@node-1] \$ sshwk8s-node-1

You can assume elevatedprivileges on the node with thefollowing command: [student@wk8s-node-1] \$ |sudo ?Ci

A. Mastered

B. Not Mastered

Answer: A

### **Explanation:**

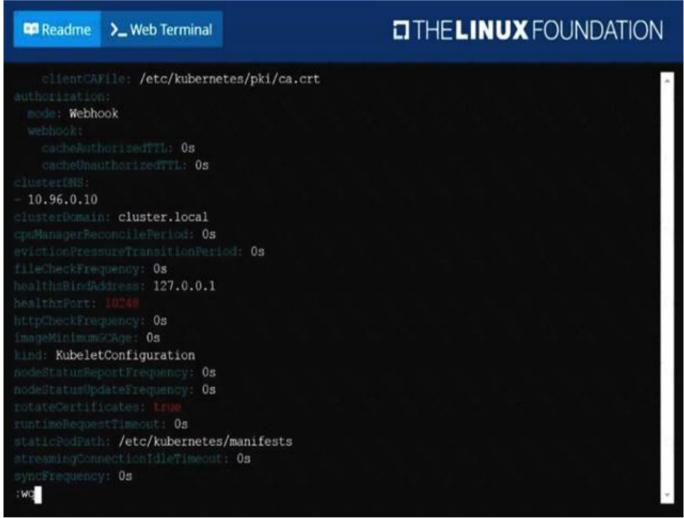
solution

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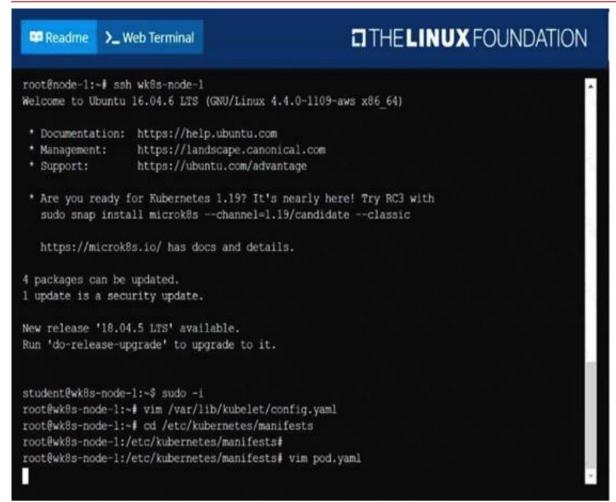


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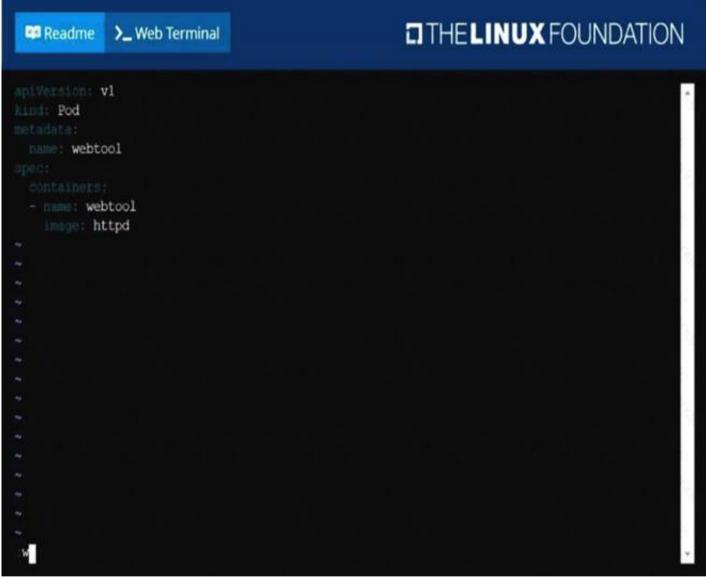


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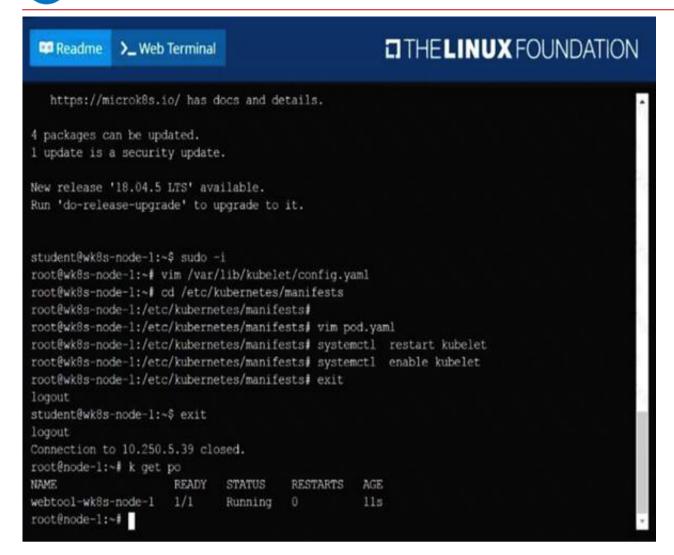


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Perform the following tasks:

- Add an init container tohungry-bear(which has beendefined in spec file /opt/KUCC00108/pod-spec-KUCC00108.yaml)
- The init container should createan empty file named/workdir/calm.txt
- If/workdir/calm.txtis notdetected, the pod should exit
- Once the spec file has beenupdatedwith the init containerdefinition, the pod should becreated
- A. Mastered
- B. Not Mastered

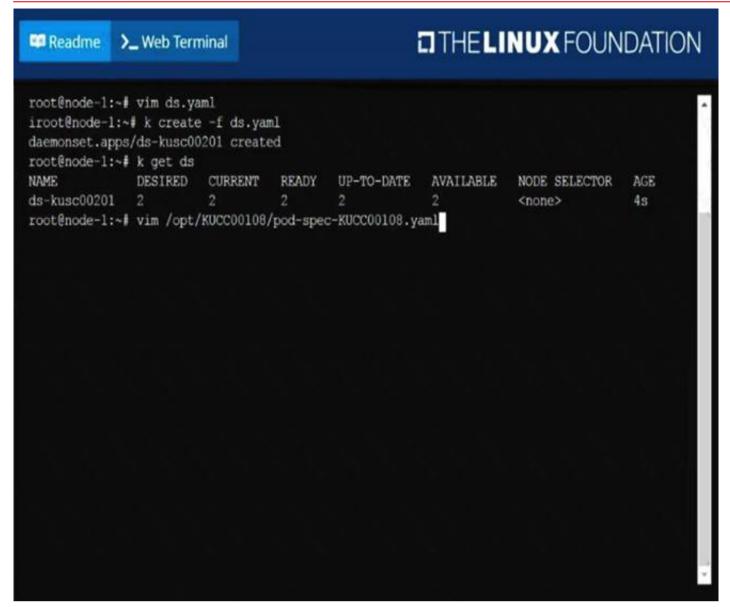
Answer: A

### **Explanation:**

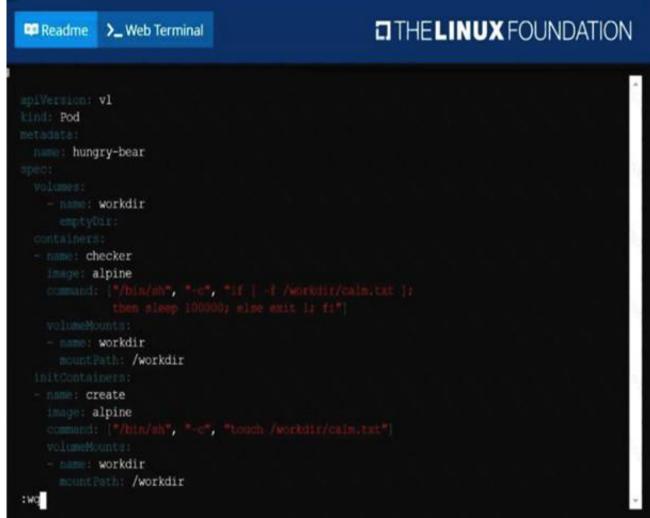
solution

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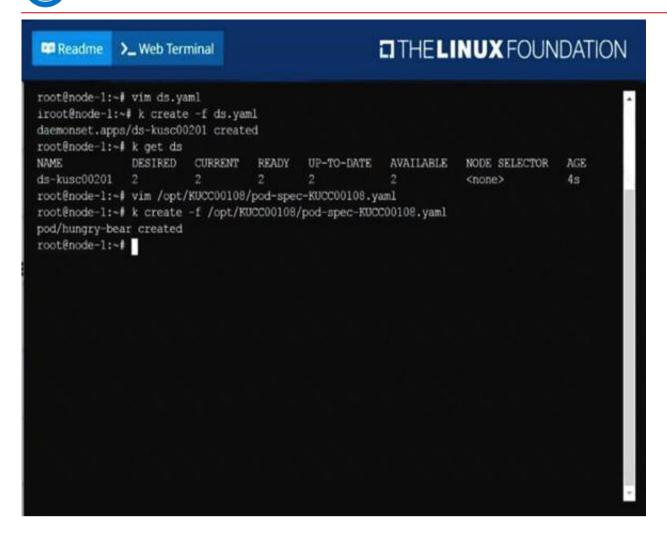




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Check the Image version of nginx-dev pod using jsonpath

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

kubect1 get po nginx-dev -o jsonpath='{.spec.containers[].image}{"\n"}'

#### **NEW QUESTION 35**

For this item, you will havetosshto the nodesik8s-master-0andik8s-node-0and complete all tasks on thesenodes. Ensure that you return to the base node (hostname:node-1) when you havecompleted this item.

Context

As an administrator of a smalldevelopment team, you have beenasked to set up a Kubernetes clusterto test the viability of a newapplication. Task

- You must usekubeadmto performthis task. Anykubeadminvocationswill require the use of the --ignore-preflight-errors=alloption.
- Configure thenodeik8s-master-Oas a masternode. .
- Join the nodeik8s-node-otothe cluster.

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

solution

You must use thekubeadmconfiguration file located at/etc/kubeadm.confwhen initializingyour cluster.

You may use any CNI pluginto complete this task, but ifyou don't have your favouriteCNI plugin's manifest URL athand, Calico is one popularoption:https://docs.projectcalico.org/v3.14/manifests/calico.yaml

Docker is already installedon both nodes and apthasbeen configured so that you can install the required tools.

#### **NEW QUESTION 39**

Get IP address of the pod ?C ??nginx-dev??

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

Kubect1 get po -o wide Using JsonPath

kubect1 get pods -o=jsonpath='{range items[\*]}{.metadata.name}{"\t"}{.status.podIP}{"\n"}{end}'

#### **NEW QUESTION 42**

List all the pods sorted by created timestamp



A. MasteredB. Not Mastered

Answer: A

#### **Explanation:**

kubect1 get pods--sort-by=.metadata.creationTimestamp

#### **NEW QUESTION 47**

Create a pod that having 3 containers in it? (Multi-Container)

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

image=nginx, image=redis, image=consul Name nginx container as ??nginx-container?? Name redis container as ??redis-container?? Name consul container as ??consul-container??

Create a pod manifest file for a container and append container section for rest of the images

kubectl run multi-container --generator=run-pod/v1 --image=nginx -- dry-run -o yaml > multi-container.yaml

# then

vim multi-container.yaml apiVersion: v1

kind: Pod metadata: labels:

run: multi-container name: multi-container spec:

containers:

- image: nginx

name: nginx-container

- image: redis

name: redis-container - image: consul

- image. consu

name: consul-container restartPolicy: Always

#### **NEW QUESTION 48**

Create an nginx pod and list the pod with different levels of verbosity

A. Mastered

B. Not Mastered

Answer: A

#### **Explanation:**

// create a pod

kubectl run nginx --image=nginx --restart=Never --port=80 // List the pod with different verbosity kubectl get po nginx --v=7

kubectl get po nginx --v=8 kubectl get po nginx --v=9

#### **NEW QUESTION 52**

Check to see how many worker nodes are ready (not including nodes taintedNoSchedule) and write the number to/opt/KUCC00104/kucc00104.txt.

A. Mastered

B. Not Mastered

Answer: A

## Explanation:

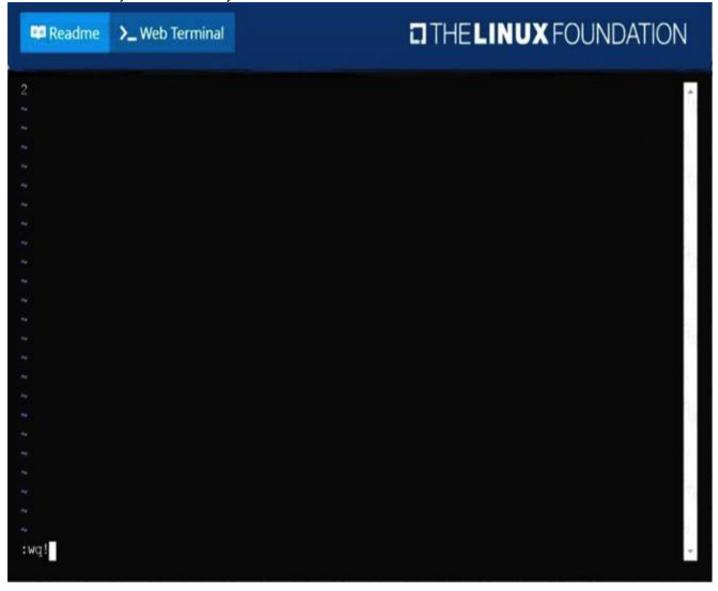
solution

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```
THE LINUX FOUNDATION
Readme >_ Web Terminal
root@node-1:~# k scale deploy webserver --replicas=6
deployment.apps/webserver scaled
root@node-1:~# k get deploy
          READY UP-TO-DATE AVAILABLE AGE
                                        29m
nginx-app 3/3
                                        6h50m
webserver 6/6
root@node-1:~#
root@node-1:~# k get nodes
             STATUS ROLES
                             AGE VERSION
k8s-master-O Ready
                             77d v1.18.2
                     master
k8s-node-0
                             77d v1.18.2
             Ready
                     <none>
                             77d v1.18.2
k8s-node-1
             Ready
                     <none>
root@node-1:~# vim /opt/KUCC00104/kucc00104.txt
```

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#### **NEW QUESTION 53**

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