

Linux Foundation

CKAD

Exam Name:

Linux Foundation Certified Kubernetes Application Developer Exam



Questions & Answers (Demo Version – Limited Content)

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Version: 5.0

Question: 1

Exhibit:



Context

A web application requires a specific version of redis to be used as a cache.

Task

Create a pod with the following characteristics, and leave it running when complete:

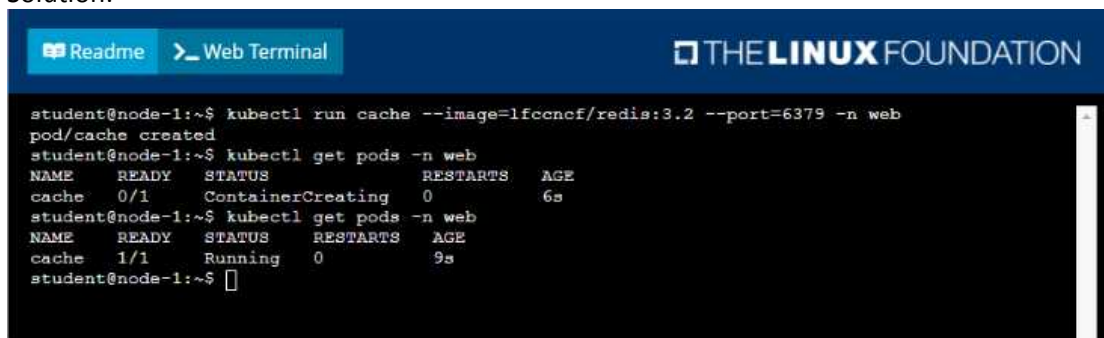
- The pod must run in the web namespace.

The namespace has already been created

- The name of the pod should be cache
- Use the lfcncf/redis image with the 3.2 tag
- Expose port 6379

Solution

Solution:



Question: 2

Exhibit:

Set configuration context:

```
[student@node-1] $ kubectl config  
use-context k8s
```

Context

You are tasked to create a secret and consume the secret in a pod using environment variables as follow:

Task

- Create a secret named `another-secret` with a key/value pair; `key1/value4`
- Start an `nginx` pod named `nginx-secret` using container image `nginx`, and add an environment variable exposing the value of the secret key `key 1`, using `COOL_VARIABLE` as the name for the environment variable inside the pod

Solution

Solution:

```
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4
secret/some-secret created
student@node-1:~$ kubectl get secret
NAME                                TYPE                                DATA  AGE
default-token-4kvr5                kubernetes.io/service-account-token 3      2d11h
some-secret                        Opaque                              1      5s
student@node-1:~$ kubectl run nginx-secret --image=nginx --dry-run=client -o yaml > nginx_secret.yaml
student@node-1:~$ vim nginx_secret.yaml
```

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```
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-secret
  name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    resources: {}
    dnsPolicy: ClusterFirst
    restartPolicy: Always
status: {}
```

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All

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THE LINUX FOUNDATION

```

apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-secret
    name: nginx-secret
spec:
  containers:
  - image: nginx
    name: nginx-secret
    env:
    - name: COOL_VARIABLE
      valueFrom:
        secretKeyRef:
          name: some-secret
          key: key1

```

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THE LINUX FOUNDATION

```

student@node-1:~$ kubectl get pods -n web
NAME      READY   STATUS    RESTARTS   AGE
cache     1/1     Running   0           9s
student@node-1:~$ kubectl create secret generic some-secret --from-literal=key1=value4
secret/some-secret created
student@node-1:~$ kubectl get secret
NAME                TYPE                               DATA   AGE
default-token-4kvr5  kubernetes.io/service-account-token 3       2d11h
some-secret          Opaque                               1       5s
student@node-1:~$ kubectl run nginx-secret --image=nginx --dry-run=client -o yaml > nginx_secret.yaml
student@node-1:~$ vim nginx_secret.yaml
student@node-1:~$ kubectl create -f nginx_secret.yaml
pod/nginx-secret created
student@node-1:~$ kubectl get pods
NAME                READY   STATUS             RESTARTS   AGE
liveness-http       1/1     Running            0           6h38m
nginx-101            1/1     Running            0           6h39m
nginx-secret         0/1     ContainerCreating  0           4s
poller              1/1     Running            0           6h39m
student@node-1:~$ kubectl get pods
NAME                READY   STATUS    RESTARTS   AGE
liveness-http       1/1     Running   0           6h38m
nginx-101            1/1     Running   0           6h39m
nginx-secret         1/1     Running   0           8s
poller              1/1     Running   0           6h39m
student@node-1:~$

```

Question: 3

Exhibit:



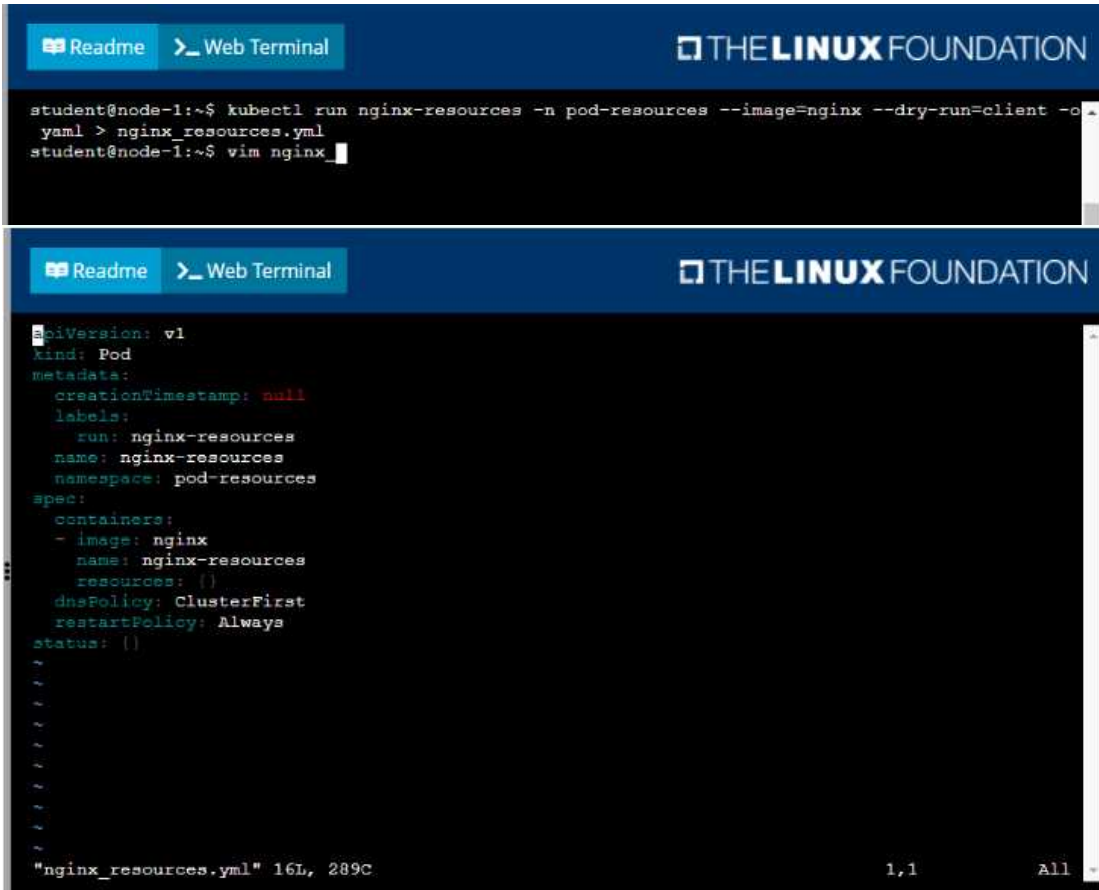
Task

You are required to create a pod that requests a certain amount of CPU and memory, so it gets scheduled to a node that has those resources available.

- Create a pod named nginx-resources in the pod-resources namespace that requests a minimum of 200m CPU and 1Gi memory for its container
- The pod should use the nginx image
- The pod-resources namespace has already been created

Solution

Solution:



```
student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
yaml > nginx_resources.yml
student@node-1:~$ vim nginx_

apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: nginx-resources
  name: nginx-resources
  namespace: pod-resources
spec:
  containers:
  - image: nginx
    name: nginx-resources
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}

"nginx_resources.yml" 16L, 289C  1,1  All
```


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```

apiVersion: v1
kind: Pod
metadata:
  labels:
    run: nginx-resources
    name: nginx-resources
    namespace: pod-resources
spec:
  containers:
  - image: nginx
    name: nginx-resources
    resources:
      requests:
        cpu: 200m
        memory: "1Gi"
  
```

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```

student@node-1:~$ kubectl run nginx-resources -n pod-resources --image=nginx --dry-run=client -o
yaml > nginx_resources.yml
student@node-1:~$ vim nginx_resources.yml
student@node-1:~$ kubectl create -g nginx_resources.yml
Error: unknown shorthand flag: 'g' in -g
See 'kubectl create --help' for usage.
student@node-1:~$ kubectl create -f nginx_resources.yml
pod/nginx-resources created
student@node-1:~$ kubectl get pods -n pod-re

```

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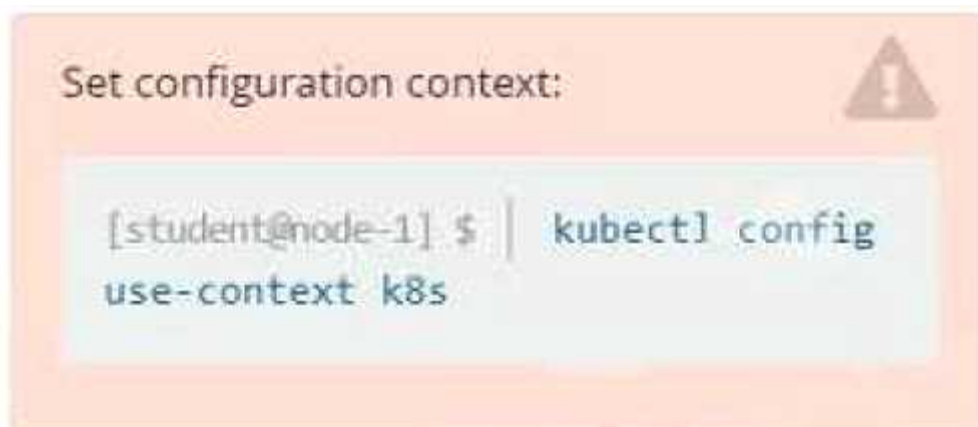
```

student@node-1:~$ kubectl get pods -n pod-resources
NAME          READY   STATUS    RESTARTS   AGE
nginx-resources 1/1     Running   0           8s
student@node-1:~$

```

Question: 4

Exhibit:



Context

You are tasked to create a ConfigMap and consume the ConfigMap in a pod using a volume mount.

Task

Please complete the following:

- Create a ConfigMap named another-config containing the key/value pair: key4/value3

Solution:

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All

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THE **LINUX** FOUNDATION

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All

```
student@node-1:~$ kubectl create configmap another-config --from-literal=key4=value3
configmap/another-config created
student@node-1:~$ kubectl get configmap
NAME          DATA  AGE
another-config 1      5s
student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml > nginx_configmap.yaml
student@node-1:~$ vim nginx_configmap.yaml ^C
student@node-1:~$ mv nginx_configmap.yaml nginx_configmap.yaml
student@node-1:~$ vim nginx_configmap.yaml
student@node-1:~$

student@node-1:~$ kubectl run nginx-configmap --image=nginx --dry-run=client -o yaml > nginx_configmap.yaml
student@node-1:~$ vim nginx_configmap.yaml ^C
student@node-1:~$ mv nginx_configmap.yaml nginx_configmap.yaml
student@node-1:~$ vim nginx_configmap.yaml
student@node-1:~$ kubectl create f nginx_configmap.yaml
Error: must specify one of -f and -k

error: unknown command "f nginx_configmap.yaml"
See 'kubectl create -h' for help and examples
student@node-1:~$ kubectl create -f nginx_configmap.yaml
error: error validating "nginx_configmap.yaml": error validating data: ValidationError(Pod.spec.containers[1]): unknown field "mountPath" in io.k8s.api.core.v1.Container; if you choose to ignore these errors, turn validation off with --validate=false
student@node-1:~$ vim nginx_configmap.yaml
```

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```
student@node-1:~$ kubectl create f nginx_configmap.yaml
Error: must specify one of -f and -k

error: unknown command "f nginx_configmap.yaml"
See 'kubectl create -h' for help and examples
student@node-1:~$ kubectl create -f nginx_configmap.yaml
error: error validating "nginx_configmap.yaml": error validating data: ValidationError(Pod.spec.containers[1]): unknown field "mountPath" in io.k8s.api.core.v1.Container; if you choose to ignore these errors, turn validation off with --validate=false
student@node-1:~$ vim nginx_configmap.yaml
student@node-1:~$ kubectl create -f nginx_configmap.yaml
pod/nginx-configmap created
student@node-1:~$ kubectl get pods
NAME          READY  STATUS   RESTARTS  AGE
liveness-http 1/1    Running  0          6h44m
nginx-101     1/1    Running  0          6h45m
nginx-configmap 0/1    ContainerCreating  0          5s
nginx-secret   1/1    Running  0          5m39s
poller        1/1    Running  0          6h44m
student@node-1:~$ kubectl get pods
NAME          READY  STATUS   RESTARTS  AGE
liveness-http 1/1    Running  0          6h44m
nginx-101     1/1    Running  0          6h45m
nginx-configmap 1/1    Running  0          8s
nginx-secret   1/1    Running  0          5m42s
poller        1/1    Running  0          6h45m
student@node-1:~$
```


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