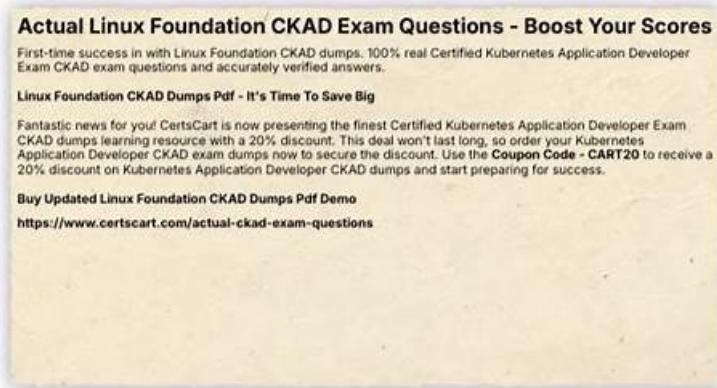


# CKAD Actual Exam & Valid CKAD Practice Questions



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Linux Foundation Certified Kubernetes Application Developer (CKAD) exam is a certification program designed to evaluate and certify the skills and knowledge of developers in using Kubernetes to develop cloud-native applications. The CKAD Certification is recognized worldwide as a benchmark for Kubernetes application development expertise, and it validates the ability of developers to create and deploy cloud-native applications using Kubernetes.

>> CKAD Actual Exam <<

## Valid CKAD Practice Questions & CKAD Exam Overview

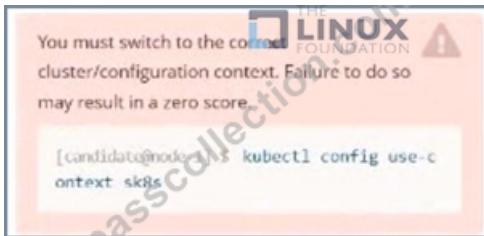
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The CKAD certification is a valuable credential for developers who are looking to advance their career in the field of Kubernetes and containerization. Linux Foundation Certified Kubernetes Application Developer Exam certification demonstrates that the candidate has the skills and knowledge required to design, build, and deploy Kubernetes-based applications, and can effectively use Kubernetes to manage containerized applications. The CKAD Certification is recognized by industry leaders and provides a competitive edge to the certified professional in the job market.

## Linux Foundation Certified Kubernetes Application Developer Exam Sample Questions (Q80-Q85):

NEW QUESTION # 80

Context



Task:

1) First update the Deployment cka00017-deployment in the ckad00017 namespace:

To run 2 replicas of the pod

Add the following label on the pod:

Role userUI

2) Next, Create a NodePort Service named cherry in the ckad00017 namespace exposing the ckad00017-deployment Deployment on TCP port 8888

**Answer:**

Explanation:

Solution:

```
# reopened with the relevant failures.
#
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"
  creationTimestamp: "2022-09-24T04:27:03Z"
  generation: 1
  labels:
    app: nginx
  name: ckad00017-deployment
  namespace: ckad00017
  resourceVersion: "3349"
  uid: lcd67613-fade-46e9-b741-94298b9c6e7c
spec:
  progressDeadlineSeconds: 600
  replicas: 2
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
-- INSERT --
```

```
File Edit View Terminal Tabs Help
name: ckad00017-deployment
namespace: ckad00017
resourceVersion: "3349"
uid: 1cd67613-fade-46e9-b741-94298b9c6e7c
spec:
  progressDeadlineSeconds: 600
  replicas: 2
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
    labels:
      app: nginx
      role: userUI
  spec:
    containers:
      - image: nginx:latest
        imagePullPolicy: Always
        name: nginx
        ports:
          - containerPort: 80
            protocol: TCP
        resources: {}
-- INSERT --
```

35,21 33%

```
File Edit View Terminal Tabs Help
backend-deployment-59d449b99d-h2zjq 0/1 > Running 0 95
backend-deployment-78976f74f5-b8c85 1/1 Running 0 6h40m
backend-deployment-78976f74f5-flfsj 1/1 Running 0 6h40m
candidate@node-1:~$ kubectl get deploy -n staging
NAME READY UP-TO-DATE AVAILABLE AGE
backend-deployment 3/3 3 3 6h40m
candidate@node-1:~$ kubectl get deploy -n staging
NAME READY UP-TO-DATE AVAILABLE AGE
backend-deployment 3/3 3 3 6h41m
candidate@node-1:~$ vim ~/spicy-pikachu/backend-deployment.yaml
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl set serviceaccount deploy app-1 app-n frontend
deployment.apps/app-1 serviceaccount updated
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ vim ~/prompt-escargot/buffalo-deployment.yaml
candidate@node-1:~$ vim ~/prompt-escargot/buffalo-deployment.yaml
candidate@node-1:~$ kubectl apply -f ~/prompt-escargot/buffalo-deployment.yaml
deployment.apps/buffalo-deployment configured
candidate@node-1:~$ kubectl get pods -n gorilla
NAME READY STATUS RESTARTS AGE
buffalo-deployment-776844df7f-r5fsb 1/1 Running 0 6h38m
buffalo-deployment-859898c6f5-zx5gj 0/1 ContainerCreating 0 8s
candidate@node-1:~$ kubectl get deploy -n gorilla
NAME READY UP-TO-DATE AVAILABLE AGE
buffalo-deployment 1/1 1 1 6h38m
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl edit deploy ckad00017-deployment -n ckad00017
deployment.apps/ckad00017-deployment edited
candidate@node-1:~$
```

```

File Edit View Terminal Tabs Help
candidate@node-1:~$ kubectl get pods -n gorilla
NAME                               READY   STATUS    RESTARTS   AGE
buffalo-deployment-776844d17f-r5fsb   1/1    Running   0          6h38m
buffalo-deployment-85989c6f5-zx5gj   0/1    ContainerCreating   0          8s
candidate@node-1:~$ kubectl get deploy -n gorilla
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
buffalo-deployment   1/1    1          1          6h38m
candidate@node-1:~$ kubectl config use-context k8s
Switched to context "k8s".
candidate@node-1:~$ kubectl edit deploy ckad00017-deployment -n ckad00017
deployment.apps/ckad00017-deployment edited
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose deploy ckad00017-deployment -n ckad0001
ckad00014  ckad00015  ckad00017
candidate@node-1:~$ kubectl expose service/cherry exposed
candidate@node-1:~$ 

candidate@node-1:~$ kubectl get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
kubernetes  ClusterIP  10.96.0.1    <none>        443/TCP      77d
candidate@node-1:~$ kubectl get svc -n ckad00017
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
cherry  NodePort  10.100.100.176  <none>        8888:30683/TCP  24s
candidate@node-1:~$ kubectl expose service deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
Error from server (NotFound): services "deploy" not found
Error from server (NotFound): service "ckad00017-deployment" not found
candidate@node-1:~$ kubectl get svc -n ckad00017
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
cherry  NodePort  10.100.100.176  <none>        8888:30683/TCP  46s
candidate@node-1:~$ 

candidate@node-1:~$ kubectl expose service deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
Error from server (NotFound): services "deploy" not found
Error from server (NotFound): services "ckad00017-deployment" not found
candidate@node-1:~$ kubectl get svc -n ckad00017
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
cherry  NodePort  10.100.100.176  <none>        8888:30683/TCP  46s
candidate@node-1:~$ history
 1  vi ~/spicy-pikachu/backend-deployment.yaml
 2  kubectl config use-context sk8s
 3  vim .vimrc
 4  vim ~/spicy-pikachu/backend-deployment.yaml
 5  kubectl apply -f ~/spicy-pikachu/backend-deployment.yaml
 6  kubectl get pods -n staging
 7  kubectl get deploy -n staging
 8  vim ~/spicy-pikachu/backend-deployment.yaml
 9  kubectl config use-context k8s
 10 kubectl set serviceaccount deploy app1-app in frontend
 11 kubectl config use-context k8s
 12 vim ~/prompt-escargot/buffer-deployment.yaml
 13 kubectl apply -f ~/prompt-escargot/buffer-deployment.yaml
 14 kubectl get pods -n gorilla
 15 kubectl get deploy -n gorilla
 16 kubectl config use-context k8s
 17 kubectl edit deploy ckad00017-deployment -n ckad00017
 18 kubectl expose deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
 19 kubectl get svc
 20 kubectl get svc -n ckad00017
 21 kubectl expose service deploy ckad00017-deployment -n ckad00017 --name=cherry --port=8888 --type=NodePort
 22 kubectl get svc -n ckad00017
 23 history
candidate@node-1:~$ 

```

## NEW QUESTION # 81

You have a Kubernetes deployment named 'wordpress-deployment' running multiple instances of a WordPress application. You want to implement a rolling update strategy with a 'maxSurge' of 1 and 'maxUnavailable' of 0. Additionally, you need to ensure that the update process is automatically triggered when a new image is pushed to the Docker Hub repository 'wordpress-image:latest'. Implement a Kustomization file to achieve this.

## Answer:

Explanation:

See the solution below with Step by Step Explanation.

Explanation:

Solution (Step by Step) :

1. Create a 'kustomization.yaml' file in your desired directory.

```
resources:
- deployment.yaml
patchesStrategicMerge:
- patch.yaml
```

2. Create a 'deployment.yaml' file (or use an existing one) with the following structure.

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: wordpress-deployment
spec:
  replicas: 3
  selector:
    matchLabels:
      app: wordpress
  template:
    metadata:
      labels:
        app: wordpress
    spec:
      containers:
        - name: wordpress
          image: wordpress-image:latest
          imagePullPolicy: Always
```

3. Create a 'patch.yaml' file with the following content to configure rolling update and automatic updates:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: wordpress-deployment
spec:
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxSurge: 1
      maxUnavailable: 0
```

4. Apply the Kustomization: bash kubectl apply -k - The 'kustomization.yaml' file defines the resources (the 'deployment.yaml' file) and the patches to apply. - The 'deployment.yaml' file contains the base configuration for the deployment. - The 'patch.yaml' file applies a strategic merge patch to the deployment, configuring rolling updates and automatic updates triggered by new images. - The 'maxSurge' and 'maxUnavailable' settings in the 'patch.yaml' define the maximum number of pods that can be added or removed during the update process. - The 'imagePullPolicy: Always' ensures that the new image is pulled from Docker Hub even if it exists in the pod's local cache, triggering the update.

## NEW QUESTION # 82

You have a microservice application that consists of two components: a web server (using Nginx) and a database (using PostgreSQL). The web server needs to access the database through a local connection, but due to network security restrictions, the web server cannot connect to the database directly. Describe how you can utilize a sidecar container to resolve this issue and ensure the database connection is secure.

## Answer:

Explanation:

See the solution below with Step by Step Explanation.

Explanation:

Solution (Step by Step) :

1. Create a Sidecar Container:

- Define a new container in your Deployment's 'spec-template-spec-containers' array, alongside the existing Nginx container. This

new container will house the necessary tools for facilitating a secure database connection.

- Name this container appropriately, for example, 'database-proxy'
- Choose an image that contains the required software for database connection, such as 'postgres' or 'postgresqr'
- Use a sidecar pattern in the Deployment YAML file. You can specify the sidecar in the container array in the Pod specification:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: my-app
spec:
  replicas: 2
  selector:
    matchLabels:
      app: my-app
  template:
    metadata:
      labels:
        app: my-app
    spec:
      containers:
        - name: nginx
          image: nginx:latest
          ports:
            - containerPort: 80
        - name: database-proxy
          image: postgres:latest
          command: ["/bin/sh", "-c", "pg_ctl -D /var/lib/postgresql/data -l logfile -w"]
          volumeMounts:
            - name: postgres-data
              mountPath: /var/lib/postgresql/data
      volumes:
        - name: postgres-data
          persistentVolumeClaim:
            claimName: postgres-pvc
```



2. Database Connection Configuration: - Configure the sidecar container to connect to the database. - Establish a connection using the database user credentials and connection string. - If you use a secure connection, ensure that the certificates and private keys are accessible to the sidecar container. 3. Communication Between Containers: - Configure your web server container to communicate with the sidecar container. - Use environment variables to specify the hostname and port of the sidecar container, enabling the web server to connect to the database proxy within the pod. 4. Volume Sharing: - Optionally, share a volume between the web server and the sidecar container to facilitate shared data access, such as database configuration files. 5. Deploy the Deployment: - Apply the updated Deployment YAML file to your Kubernetes cluster using 'kubectl apply -f my-app.yaml' 6. Test the Application: - Access your web server application and confirm that it successfully connects to the database through the sidecar container.

### NEW QUESTION # 83

You are building a web application that requires environment-specific configurations, such as database connection details and API keys. You want to use ConfigMaps to manage these configurations in a secure and efficient way. You have the following environment variables defined in your deployment YAML:

```

apiVersion: apps/v1
kind: Deployment
metadata:
  name: my-app
spec:
  replicas: 3
  template:
    metadata:
      labels:
        app: my-app
    spec:
      containers:
        - name: my-app
          image: my-app:v1
          env:
            - name: DATABASE_HOST
              valueFrom:
                configMapKeyRef:
                  name: my-app-config
                  key: database_host
            - name: API_KEY
              valueFrom:
                configMapKeyRef:
                  name: my-app-config
                  key: api_key

```

Create a ConfigMap named 'my-app-config' containing the following data: - 'database host: 'db.example.com' - 'api\_key':

**Answer:**

Explanation:

See the solution below with Step by Step Explanation.

Explanation:

Solution (Step by Step) :

1. Create the ConfigMap:

```

apiVersion: v1
kind: ConfigMap
metadata:
  name: my-app-config
data:
  database_host: db.example.com
  api_key: your_secret_api_key

```

2. Apply the ConfigMap: bash kubectl apply -f my-app-config.yaml 3. Verify the ConfigMap: bash kubectl get configmap my-app-config -o yaml This command will display the created ConfigMap and its contents. 4. Deploy the Deployment: bash kubectl apply -f deployment.yaml The deployment Will now use the values from the ConfigMap to populate the environment variables within the containers. 5. Check the Pods: bash kubectl get pods -l app=my-app -o wide 6. Confirm Environment Variables: bash kubectl exec -it bash -c 'env' Replace with the name of one of the pods. This command will display the environment variables set within the container, including 'DATABASE HOST' and 'API KEY'. Note: You should replace with your actual API key in the ConfigMap. This ensures that sensitive information is stored in a separate configuration file and not directly in the deployment YAML file.

**NEW QUESTION # 84**

You must switch to the correct cluster/configuration context. Failure to do so may result in a zero score.

```
[candidate@node-1] $ kubectl config use-context sk8s
```

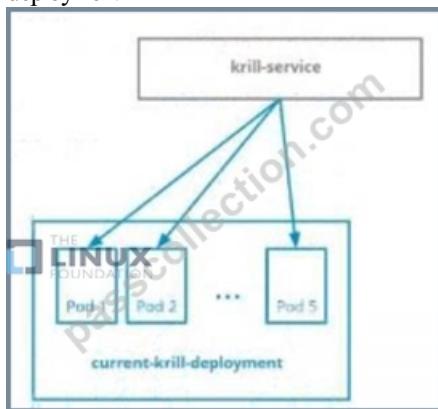


#### Context

You are asked to prepare a Canary deployment for testing a new application release.

#### Task:

A Service named krill-Service in the goshark namespace points to 5 pod created by the Deployment named current-krill-deployment

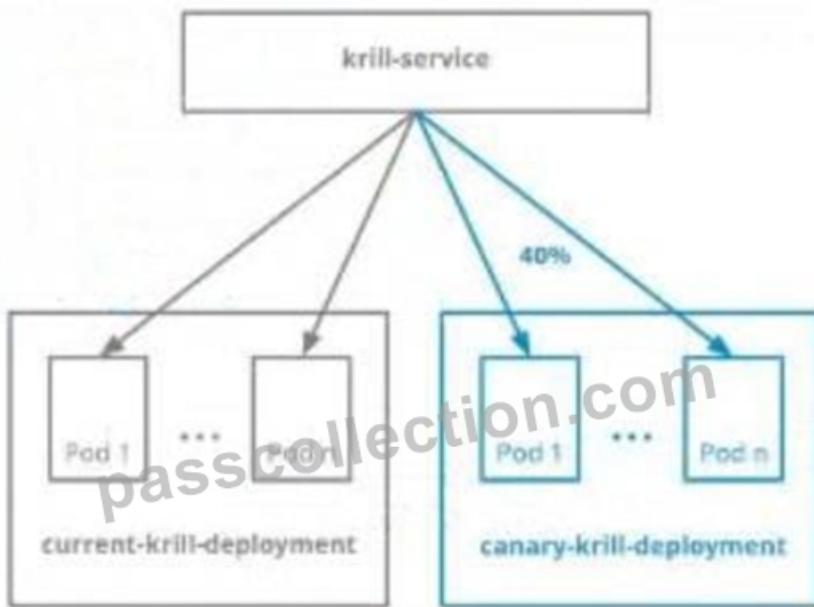


1) Create an identical Deployment named canary-kill-deployment, in the same namespace.

2) Modify the Deployment so that:

- A maximum number of 10 pods run in the goshawk namespace.

- 40% of the krill-service's traffic goes to the canary-krill-deployment pod(s)



```
The Service is exposed on NodePort 30000 . To test its load-balancing.
Run:
[candidate@node-1] $ curl https://k8s-master:30000/
```

**Answer:**

Explanation:

See the solution below.

Explanation

Solution:

```
[candidate@node-1:~/humane-storks] $ kubectl scale deploy canary-krill-deployment --replicas 4 -n goshawk
deployment.apps/canary-krill-deployment scaled
[candidate@node-1:~/humane-storks] $ kubectl get deploy -n goshawk
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
canary-krill-deployment   4/4     4          4          46s
current-krill-deployment 5/5     5          5          7h22m
[candidate@node-1:~/humane-storks] $ wget https://k8s.io/examples/
```

Text Description automatically generated

```
[candidate@node-1:~/humane-storks] $ wget https://k8s.io/examples/admin/resource/quota-pod.yaml
2022-09-24 11:43:51-- https://k8s.io/examples/admin/resource/quota-pod.yaml
solving k8s.io (k8s.io)... 34.107.204.206, 2600:1901:0:26f3:::
connecting to k8s.io (k8s.io)|34.107.204.206|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://kubernetes.io/examples/admin/resource/quota-pod.yaml [following]
2022-09-24 11:43:52-- https://kubernetes.io/examples/admin/resource/quota-pod.yaml
solving kubernetes.io (kubernetes.io)... 147.75.40.148
connecting to kubernetes.io (kubernetes.io)|147.75.40.148|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 90 [application/x-yaml]
Saving to: 'quota-pod.yaml'

quota-pod.yaml          100%[=====] 90 --.-KB/s   in 0s
2022-09-24 11:43:52 (15.0 MB/s) - 'quota-pod.yaml' saved [90/90]
[candidate@node-1:~/humane-storks] $ vim quota-pod.yaml
```

```
022-09-24 11:43:52 (15.0 MB/s) - 'quota-pod.yaml' saved [90/90]

candidate@node-1:~/humane-storks vim quota-pod.yaml
candidate@node-1:~/humane-storks kubectl create -f quota-pod.yaml
resourcequota/pod-demo created
candidate@node-1:~/humane-storks kubectl get quota -n go
0 resources found in go namespace.
candidate@node-1:~/humane-storks kubectl get quota -n goshawk
NAME          AGE   REQUEST   LIMIT
pod-demo     19s   9/10
candidate@node-1:~/humane-storks curl http://k8s-master-0:30000/
current-krill-deployment-fb7c7995c-kvtjr
sp.kubernetes.io/name="current"
sp.kubernetes.io/part-of="krill"
pod-template-hash="fb7c7995c"candidate@node-1:~/humane-storks curl http://k8s-master-0:30000/
current-krill-deployment-fb7c7995c-4whfm
sp.kubernetes.io/name="current"
sp.kubernetes.io/part-of="krill"
pod-template-hash="fb7c7995c"candidate@node-1:~/humane-storks curl http://k8s-master-0:30000/
canary-krill-deployment-5f78fd4786-dfk7l
sp.kubernetes.io/name="canary"
sp.kubernetes.io/part-of="krill"
pod-template-hash="5f78fd4786"candidate@node-1:~/humane-storks curl http://k8s-master-0:30000/
canary-krill-deployment-5f78fd4786-z5zrt
sp.kubernetes.io/name="canary"
sp.kubernetes.io/part-of="krill"
pod-template-hash="5f78fd4786"candidate@node-1:~/humane-storks curl http://k8s-master-0:30000/
canary-krill-deployment-5f78fd4786-2774b
sp.kubernetes.io/name="canary"
sp.kubernetes.io/part-of="krill"
candidate@node-1:~/humane-storks curl http://k8s-master-0:30000/
```

## NEW QUESTION # 85

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