CKS Q&As

Certified Kubernetes Security Specialist (CKS) Exam

Pass Linux Foundation CKS Exam with 100% Guarantee

Free Download Real Questions & Answers **PDF** and **VCE** file from:

https://www.pass4itsure.com/cks.html

100% Passing Guarantee
100% Money Back Assurance

Following Questions and Answers are all new published by Linux Foundation Official Exam Center

QUESTION 1

Create a new NetworkPolicy named deny-all in the namespace testing which denies all traffic of type ingress and egress traffic

A. See the explanation below:

B. PlaceHolder

Correct Answer: A

You can create a "default" isolation policy for a namespace by creating a NetworkPolicy that selects all pods but does not allow any ingress traffic to those pods.

apiVersion: networking.k8s.io/v1

kind: NetworkPolicy

metadata:

name: default-deny-ingress

spec:

podSelector: {}

policyTypes:

-Ingress

You can create a "default" egress isolation policy for a namespace by creating a NetworkPolicy that selects all pods but does not allow any egress traffic from those pods.

apiVersion: networking.k8s.io/v1

kind: NetworkPolicy

metadata:

name: allow-all-egress

spec:

podSelector: {}

egress:

-{} policyTypes:

-Egress

Default deny all ingress and all egress traffic

You can create a "default" policy for a namespace which prevents all ingress AND egress traffic by creating the following NetworkPolicy in that namespace.

apiVersion: networking.k8s.io/v1

kind: NetworkPolicy

metadata:

name: default-deny-all

spec:

podSelector: {}

policyTypes:

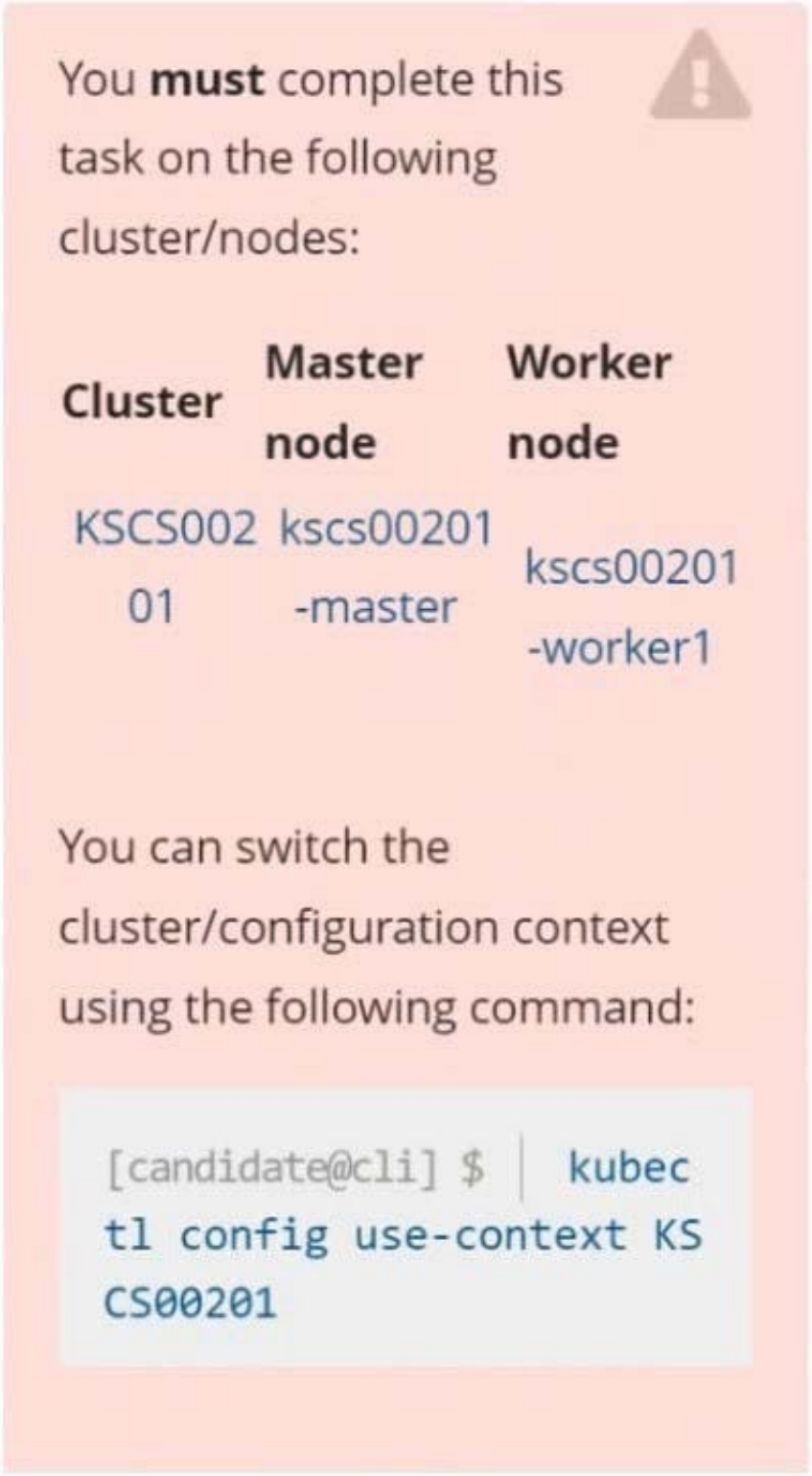
-Ingress

-Egress

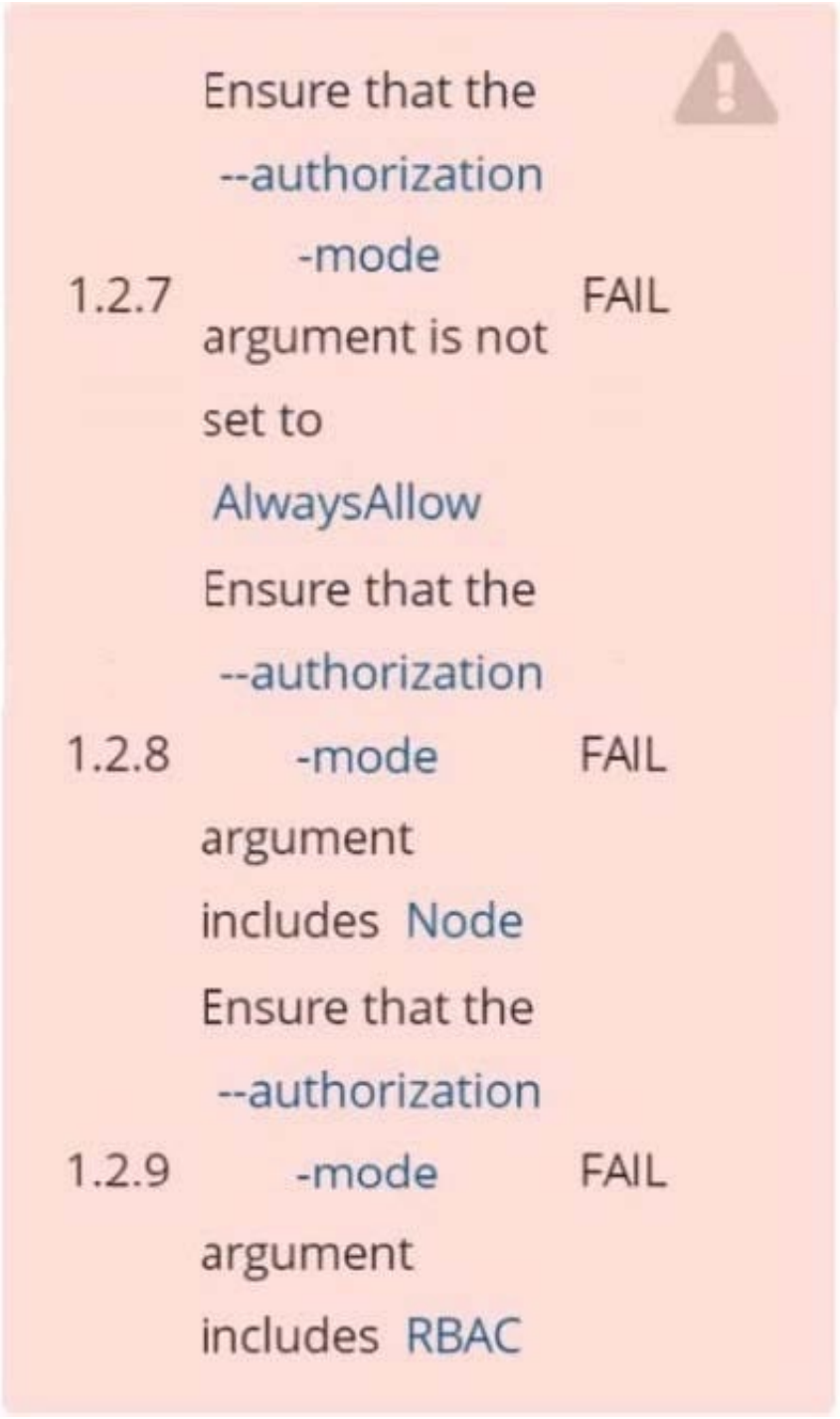
This ensures that even pods that aren\\'t selected by any other NetworkPolicy will not be allowed ingress or egress traffic.

QUESTION 2

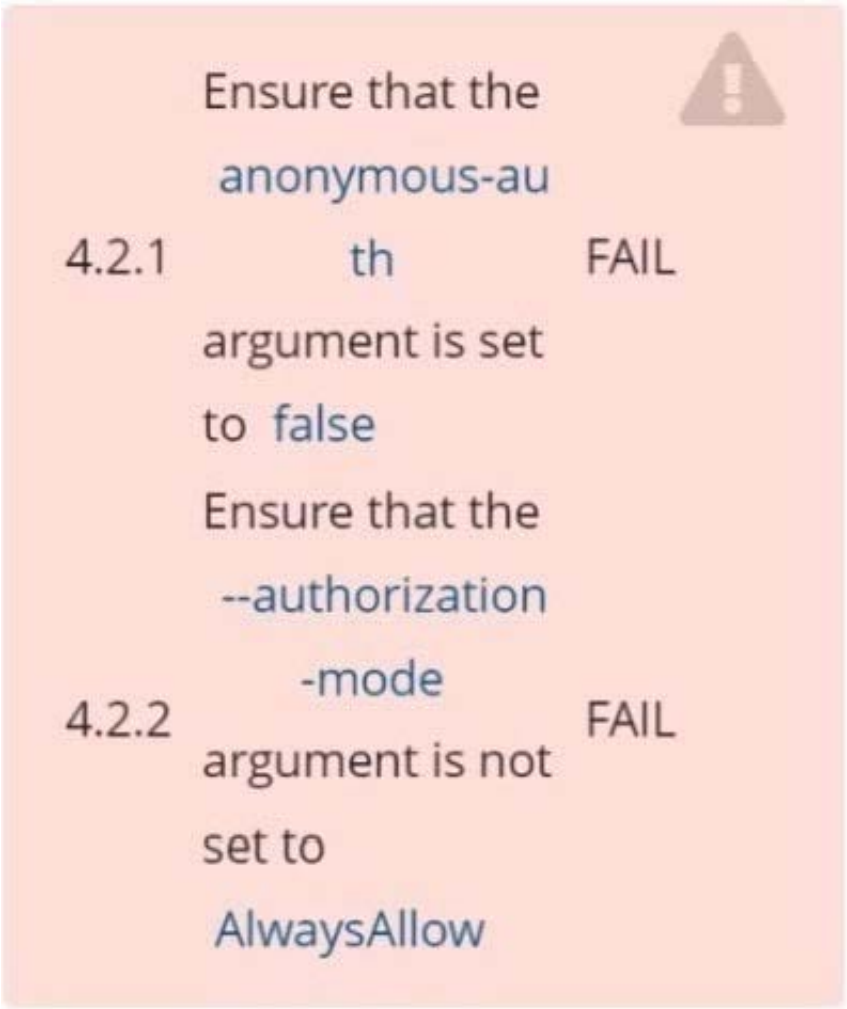
A CIS Benchmark tool was run against the kubeadm-created cluster and found multiple issues that must be addressed immediately.

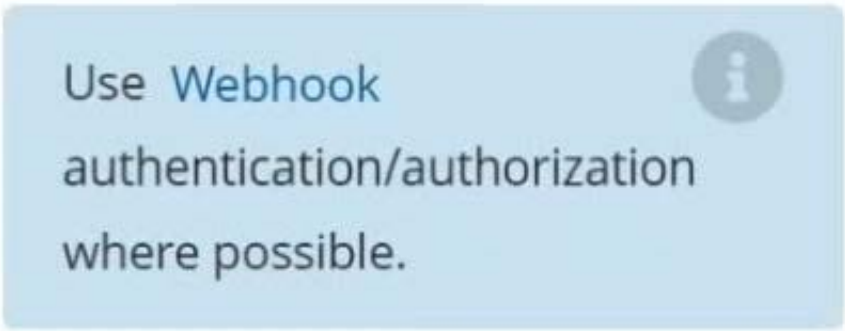


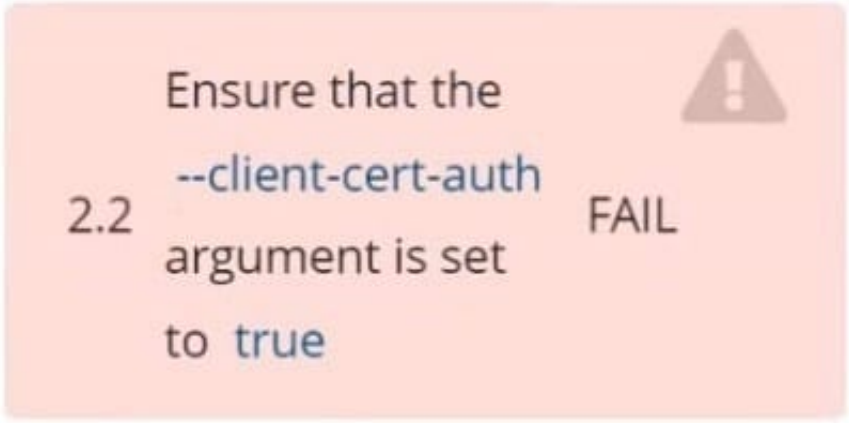
Fix all issues via configuration and restart the affected components to ensure the new settings take effect. Fix all of the following violations that were found against the API server:



Fix all of the following violations that were found against the Kubelet: Fix all of the following violations that were found against etcd:


Ensure that the anonymous-auth argument is set to false
4.2.1
FAIL
Ensure that the --authorization-mode argument is not set to AlwaysAllow
4.2.2
FAIL


Use Webhook authentication/authorization where possible.

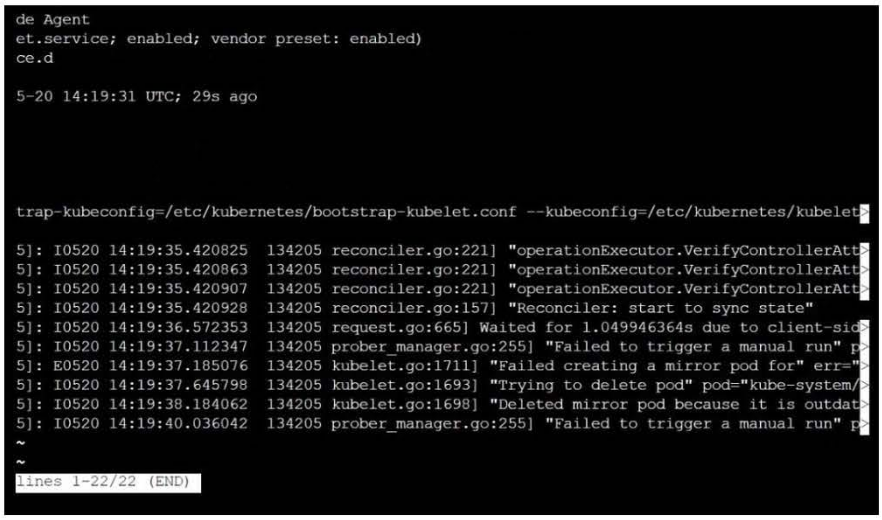


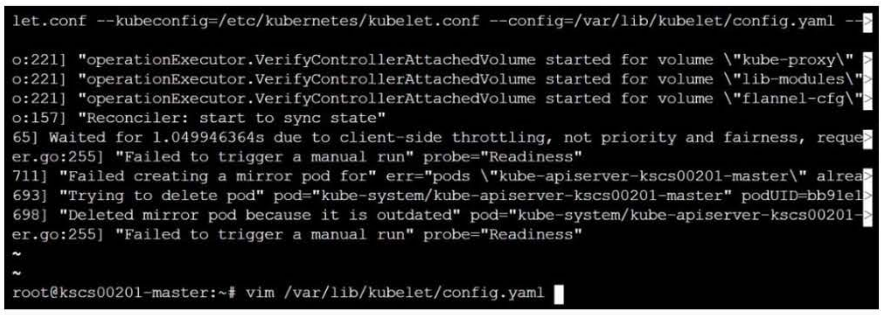
A. See explanation below.

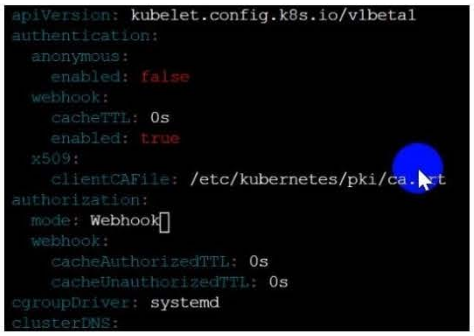
B. PlaceHolder

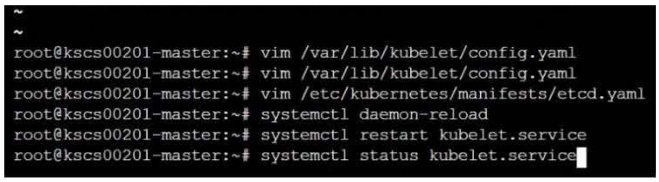
Correct Answer: A

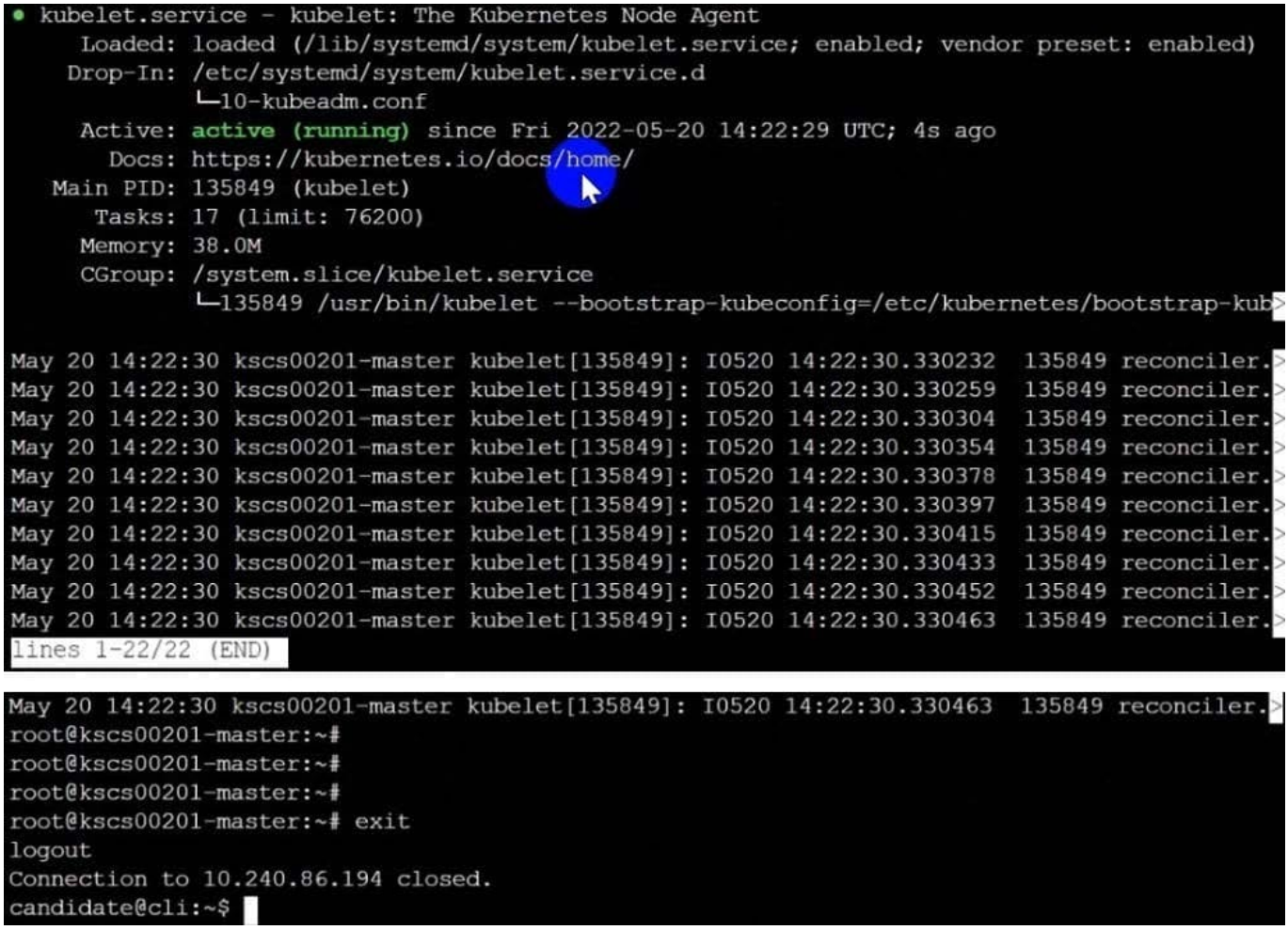
```
candidate@cli:~$ kubectl delete sa/podrunner -n qa
serviceaccount "podrunner" deleted
candidate@cli:~$ kubectl config use-context KSCS00201
Switched to context "KSCS00201".
candidate@cli:~$ ssh kscs00201-master
Warning: Permanently added '10.240.86.194' (ECDSA) to the list of known hosts.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@kscs00201-master:~# vim /etc/kubernetes/manifests/kube-apiserver.yaml
root@kscs00201-master:~# systemctl daemon-reload
root@kscs00201-master:~# systemctl restart kubelet.service
root@kscs00201-master:~# systemctl enable kubelet.service
root@kscs00201-master:~# systemctl status kubelet.service
● kubelet.service - kubelet: The Kubernetes Node Agent
     Loaded: loaded (/lib/systemd/system/kubelet.service; enabled; vendor preset: enabled)
    Drop-In: /etc/systemd/system/kubelet.service.d
             └─10-kubeadm.conf
     Active: active (running) since Fri 2022-05-20 14:19:31 UTC; 29s ago
       Docs: https://kubernetes.io/docs/home/
   Main PID: 134205 (kubelet)
      Tasks: 16 (limit: 76200)
     Memory: 39.5M
     CGroup: /system.slice/kubelet.service
             └─134205 /usr/bin/kubelet --bootstrap-kubeconfig=/etc/kubernetes/bootstrap-kub>

May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420825  134205 reconciler.>
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420863  134205 reconciler.>
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420907  134205 reconciler.>
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420928  134205 reconciler.>
May 20 14:19:36 kscs00201-master kubelet[134205]: I0520 14:19:36.572353  134205 request.go:>
May 20 14:19:37 kscs00201-master kubelet[134205]: I0520 14:19:37.112347  134205 prober_mana>
May 20 14:19:37 kscs00201-master kubelet[134205]: E0520 14:19:37.185076  134205 kubelet.go:>
May 20 14:19:37 kscs00201-master kubelet[134205]: I0520 14:19:37.645798  134205 kubelet.go:>
May 20 14:19:38 kscs00201-master kubelet[134205]: I0520 14:19:38.184062  134205 kubelet.go:>
May 20 14:19:40 kscs00201-master kubelet[134205]: I0520 14:19:40.036042  134205 prober_mana>
lines 1-22/22 (END)
```


de Agent
et.service; enabled; vendor preset: enabled)
ce.d
5-20 14:19:31 UTC; 29s ago
trap-kubeconfig=/etc/kubernetes/bootstrap-kubelet.conf --kubeconfig=/etc/kubernetes/kubelet
5]: I0520 14:19:35.420825 134205 reconciler.go:221] "operationExecutor.VerifyControllerAtt
5]: I0520 14:19:35.420863 134205 reconciler.go:221] "operationExecutor.VerifyControllerAtt
5]: I0520 14:19:35.420907 134205 reconciler.go:221] "operationExecutor.VerifyControllerAtt
5]: I0520 14:19:35.420928 134205 reconciler.go:157] "Reconciler: start to sync state"
5]: I0520 14:19:36.572353 134205 request.go:665] Waited for 1.049946364s due to client-sid
5]: I0520 14:19:37.112347 134205 prober_manager.go:255] "Failed to trigger a manual run" p
5]: E0520 14:19:37.185076 134205 kubelet.go:1711] "Failed creating a mirror pod for" err="
5]: I0520 14:19:37.645798 134205 kubelet.go:1693] "Trying to delete pod" pod="kube-system/
5]: I0520 14:19:38.184062 134205 kubelet.go:1698] "Deleted mirror pod because it is outdat
5]: I0520 14:19:40.036042 134205 prober_manager.go:255] "Failed to trigger a manual run" p
~
~
lines 1-22/22 (END)


let.conf --kubeconfig=/etc/kubernetes/kubelet.conf --config=/var/lib/kubelet/config.yaml --
o:221] "operationExecutor.VerifyControllerAttachedVolume started for volume \"kube-proxy\"
o:221] "operationExecutor.VerifyControllerAttachedVolume started for volume \"lib-modules\"
o:221] "operationExecutor.VerifyControllerAttachedVolume started for volume \"flannel-cfg\"
o:157] "Reconciler: start to sync state"
65] Waited for 1.049946364s due to client-side throttling, not priority and fairness, reque
er.go:255] "Failed to trigger a manual run" probe="Readiness"
711] "Failed creating a mirror pod for" err="pods \"kube-apiserver-kscs00201-master\" alrea
693] "Trying to delete pod" pod="kube-system/kube-apiserver-kscs00201-master" podUID=bb91e1
698] "Deleted mirror pod because it is outdated" pod="kube-system/kube-apiserver-kscs00201-
er.go:255] "Failed to trigger a manual run" probe="Readiness"
~
~
root@kscs00201-master:~# vim /var/lib/kubelet/config.yaml

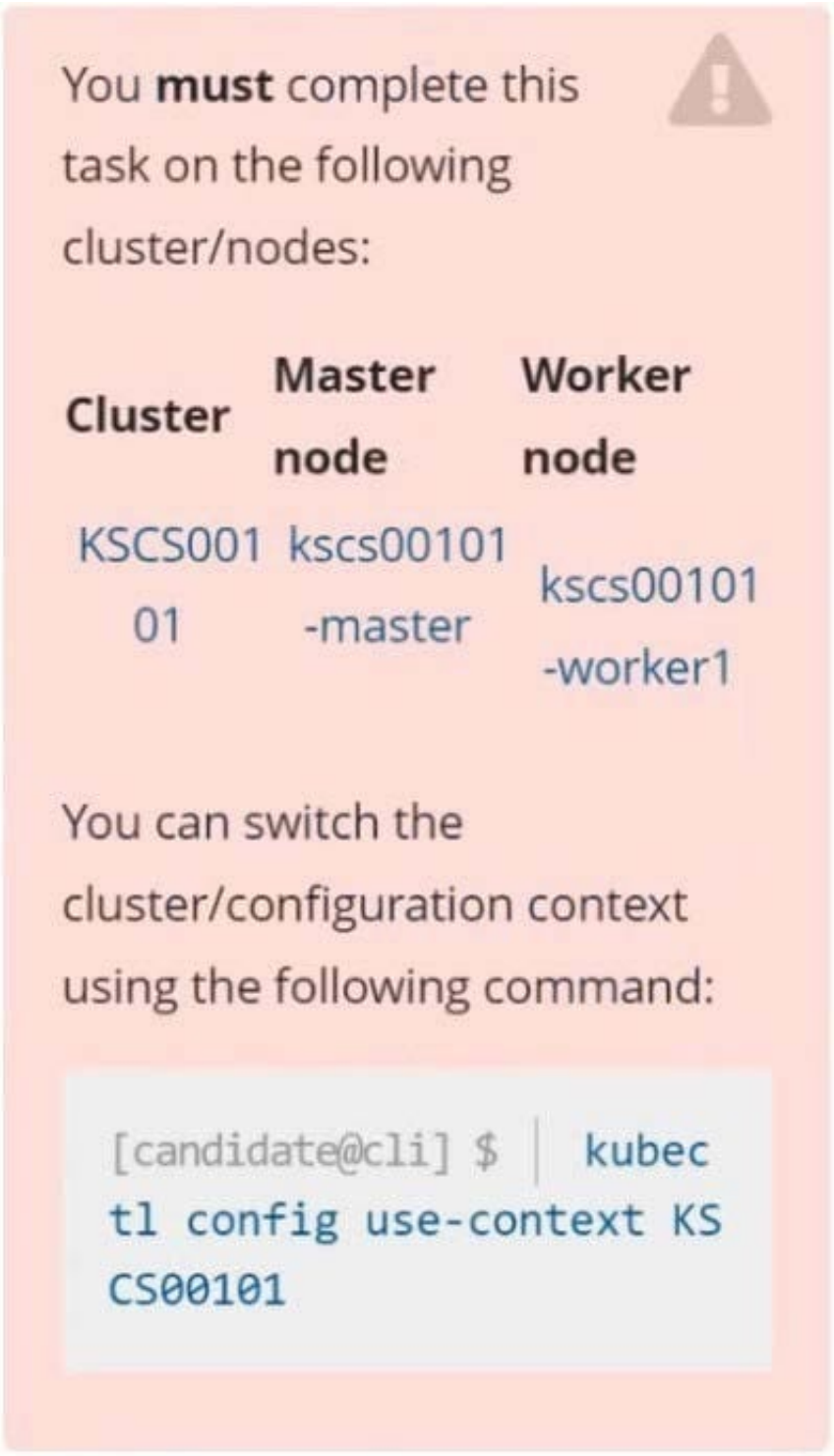

apiVersion: kubelet.config.k8s.io/v1beta1
authentication:
anonymous:
enabled: false
webhook:
cacheTTL: 0s
enabled: true
x509:
clientCAFile: /etc/kubernetes/pki/ca.crt
authorization:
mode: Webhook
webhook:
cacheAuthorizedTTL: 0s
cacheUnauthorizedTTL: 0s
cgroupDriver: systemd
clusterDNS:


~
~
root@kscs00201-master:~# vim /var/lib/kubelet/config.yaml
root@kscs00201-master:~# vim /var/lib/kubelet/config.yaml
root@kscs00201-master:~# vim /etc/kubernetes/manifests/etcd.yaml
root@kscs00201-master:~# systemctl daemon-reload
root@kscs00201-master:~# systemctl restart kubelet.service
root@kscs00201-master:~# systemctl status kubelet.service



QUESTION 3

CORRECT TEXT Context



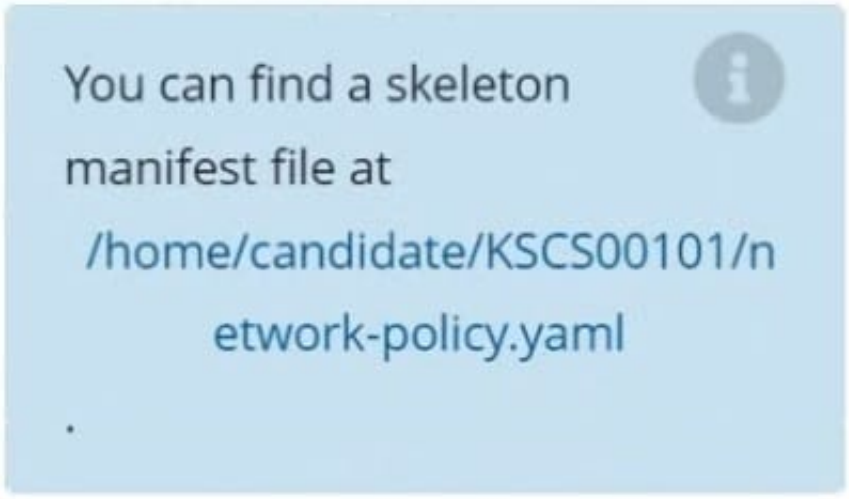
A default-deny NetworkPolicy avoids to accidentally expose a Pod in a namespace that doesn\\'t have any other NetworkPolicy defined.

Task

Create a new default-deny NetworkPolicy named defaultdeny in the namespace testing for all traffic of type Egress.

The new NetworkPolicy must deny all Egress traffic in the namespace testing.

Apply the newly created default-deny NetworkPolicy to all Pods running in namespace testing.



A. See explanation below.

B. PlaceHolder

Correct Answer: A

QUESTION 4

```
Switched to context "KSCH00301".
candidate@cli:~$ kubectl get sa -n qa
NAME        SECRETS   AGE
default     1         5h46m
podrunner   1         5h46m
candidate@cli:~$ kubectl get deployment -n qa
No resources found in qa namespace.
candidate@cli:~$ kubectl get pod -n qa
No resources found in qa namespace.
candidate@cli:~$ kubectl create sa frontend-sa -n qa
serviceaccount/frontend-sa created
candidate@cli:~$ kubectl get sa -n qa
NAME          SECRETS   AGE
default       1         5h47m
frontend-sa   1         4s
podrunner     1         5h47m
candidate@cli:~$ cat /home/candidate/KSCH00301/pod-manifest.yaml
apiVersion: v1
kind: Pod
metadata:
  name: "frontend"
  namespace: "qa"
spec:
  serviceAccountName: "frontend-sa"
  containers:
    - name: "frontend"
      image: nginx
candidate@cli:~$ vim /home/candidate/KSCH00301/pod-manifest.yaml
```

```
apiVersion: v1
kind: Pod
metadata:
  name: "frontend"
  namespace: "qa"
spec:
  serviceAccountName: "frontend-sa"
  automountServiceAccountToken: false
  containers:
    - name: "frontend"
      image: nginx
```

```
candidate@cli:~$ vim /home/candidate/KSCH00301/pod-manifest.yaml
candidate@cli:~$ cat /home/candidate/KSCH00301/pod-manifest.yaml
apiVersion: v1
kind: Pod
metadata:
  name: "frontend"
  namespace: "qa"
spec:
  serviceAccountName: "frontend-sa"
  automountServiceAccountToken: false
  containers:
    - name: "frontend"
      image: nginx
candidate@cli:~$ kubectl create -f /home/candidate/KSCH00301/pod-manifest.yaml
pod/frontend created
candidate@cli:~$ kubectl get pods -n qa
NAME       READY   STATUS    RESTARTS   AGE
frontend   1/1     Running   0          6s
candidate@cli:~$ kubectl get sa -n qa
NAME          SECRETS   AGE
default       1         5h49m
frontend-sa   1         105s
podrunner     1         5h49m
candidate@cli:~$ kubectl delete sa/podrunner -n qa
serviceaccount "podrunner" deleted
candidate@cli:~$
```

You can switch the cluster/configuration context using the following command:

[desk@cli] $ kubectl config use-context stage

Context:

A PodSecurityPolicy shall prevent the creation of privileged Pods in a specific namespace.

Task:

1.

Create a new PodSecurityPolcy named deny-policy, which prevents the creation of privileged Pods.

2.

Create a new ClusterRole name deny-access-role, which uses the newly created PodSecurityPolicy deny-policy.

3.

Create a new ServiceAccount named psd-denial-sa in the existing namespace development.

Finally, create a new ClusterRoleBindind named restrict-access-bind, which binds the newly created ClusterRole deny-access-role to the newly created ServiceAccount psp-denial-sa

A. See the explanation below

B. PlaceHolder

Correct Answer: A

Create psp to disallow privileged container uk.co.certification.simulator.questionpool.PList@11600d40 k create sa psp-denial-sa -n development uk.co.certification.simulator.questionpool.PList@11601040 namespace: development Explanationmaster1 $ vim psp.yaml apiVersion: policy/v1beta1 kind: PodSecurityPolicy metadata: name: deny-policy spec: privileged: false # Don\\'t allow privileged pods! seLinux: rule: RunAsAny supplementalGroups: rule: RunAsAny runAsUser: rule: RunAsAny fsGroup: rule: RunAsAny volumes:

-\\'*\\'

master1 $ vim cr1.yaml

apiVersion: rbac.authorization.k8s.io/v1

kind: ClusterRole

metadata:

name: deny-access-role

rules:

-apiGroups: [\\'policy\\']

resources: [\\'podsecuritypolicies\\']

verbs: [\\'use\\']

resourceNames:

-"deny-policy"

master1 $ k create sa psp-denial-sa -n developmentmaster1 $ vim cb1.yaml apiVersion: rbac.authorization.k8s.io/v1

kind: ClusterRoleBinding

metadata:

name: restrict-access-bing

roleRef:

kind: ClusterRole

name: deny-access-role

apiGroup: rbac.authorization.k8s.io

subjects:

Authorize specific service accounts:

-kind: ServiceAccount

name: psp-denial-sa

namespace: development

QUESTION 5

```
candidate@cli:~$ kubectl config use-context KSSH00401
Switched to context "KSSH00401".
candidate@cli:~$ ssh kssh00401-worker1
Warning: Permanently added '10.240.86.172' (ECDSA) to the list of known hosts.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@kssh00401-worker1:~# head /etc/apparmor.d/nginx_apparmor
#include <tunables/global>

profile nginx-profile-2 flags=(attach_disconnected,mediate_deleted) {
 #include <abstractions/base>
  network inet tcp,
  network inet udp,
  network inet icmp,

  deny network raw,

root@kssh00401-worker1:~# apparmor_parser -q /etc/apparmor.d/nginx_apparmor
root@kssh00401-worker1:~# exit
logout
Connection to 10.240.86.172 closed.
candidate@cli:~$ cat KSSH00401/nginx-pod.yaml
---
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
  - name: nginx-pod
    image: nginx:1.19.0
    ports:
    - containerPort: 80
candidate@cli:~$ vim KSSH00401/nginx-pod.yaml
```

```
---
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    container.apparmor.security.beta.kubernetes.io/nginx-pod: localhost/nginx-pr
spec:
  containers:
  - name: nginx-pod
    image: nginx:1.19.0
    ports:
    - containerPort: 80
~
```

```
candidate@cli:~$ vim KSSH00401/nginx-pod.yaml
candidate@cli:~$ kubectl create -f KSSH00401/nginx-pod.yaml
pod/nginx-pod created
candidate@cli:~$ cat KSSH00401/nginx-pod.yaml
---
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
  annotations:
    container.apparmor.security.beta.kubernetes.io/nginx-pod: localhost/nginx-profile-2
spec:
  containers:
  - name: nginx-pod
    image: nginx:1.19.0
    ports:
    - containerPort: 80
```

You can switch the cluster/configuration context using the following command:

[desk@cli] $ kubectl config use-context test-account

Task: Enable audit logs in the cluster.

To do so, enable the log backend, and ensure that:

1.

logs are stored at /var/log/Kubernetes/logs.txt

2.

log files are retained for 5 days

3.

at maximum, a number of 10 old audit log files are retained

A basic policy is provided at /etc/Kubernetes/logpolicy/audit-policy.yaml. It only specifies what not to log.

Note: The base policy is located on the cluster\\'s master node.

Edit and extend the basic policy to log:

1.

Nodes changes at RequestResponse level

2.

The request body of persistentvolumes changes in the namespace frontend

3.

ConfigMap and Secret changes in all namespaces at the Metadata level

Also, add a catch-all rule to log all other requests at the Metadata level Note: Don\\'t forget to apply the modified policy.

A. See the explanation below

B. PlaceHolder

Correct Answer: A

$ vim /etc/kubernetes/log-policy/audit-policy.yaml

uk.co.certification.simulator.questionpool.PList@11602760

$ vim /etc/kubernetes/manifests/kube-apiserver.yamlAdd these
uk.co.certification.simulator.questionpool.PList@11602c70

- --audit-log-maxbackup=10

[desk@cli] $ ssh master1[master1@cli] $ vim /etc/kubernetes/log-policy/audit-policy.yaml

apiVersion: audit.k8s.io/v1 # This is required.

kind: Policy

Don\\'t generate audit events for all requests in RequestReceived stage.

omitStages:

-"RequestReceived"

rules:

Don\\'t log watch requests by the "system:kube-proxy" on endpoints or services

-level: None

users: ["system:kube-proxy"]

verbs: ["watch"]

resources:

-group: "" # core API group

resources: ["endpoints", "services"]

Don\\'t log authenticated requests to certain non-resource URL paths.

-level: None

userGroups: ["system:authenticated"]

nonResourceURLs:

-"/api*" # Wildcard matching.

-"/version"

Add your changes below

-

level: RequestResponse userGroups: ["system:nodes"] # Block for nodes

-

level: Request resources:

-group: "" # core API group resources: ["persistentvolumes"] # Block for persistentvolumes namespaces: ["frontend"] # Block for persistentvolumes of frontend ns

-level: Metadata resources:

-group: "" # core API group resources: ["configmaps", "secrets"] # Block for configmaps and secrets

-level: Metadata # Block for everything else

[master1@cli] $ vim /etc/kubernetes/manifests/kube-apiserver.yaml apiVersion: v1

kind: Pod

metadata:

annotations:

kubeadm.kubernetes.io/kube-apiserver.advertise-address.endpoint: 10.0.0.5:6443 labels:

component: kube-apiserver

tier: control-plane name: kube-apiserver namespace: kube-system spec: containers:

-command:

-kube-apiserver - --advertise-address=10.0.0.5 - --allow-privileged=true - --authorization-mode=Node,RBAC - --audit-policy-file=/etc/kubernetes/log-policy/audit-policy.yaml #Add this - --audit-log-path=/var/log/kubernetes/logs.txt #Add this - --audit-log-maxage=5 #Add this - --audit-log-maxbackup=10 #Add this

output truncated

QUESTION 6

Fix all issues via configuration and restart the affected components to ensure the new setting takes effect.

Fix all of the following violations that were found against the API server:

1.

Ensure the --authorization-mode argument includes RBAC

2.

Ensure the --authorization-mode argument includes Node

3.

Ensure that the --profiling argument is set to false

Fix all of the following violations that were found against the Kubelet:

1.

Ensure the --anonymous-auth argument is set to false.

2.

Ensure that the --authorization-mode argument is set to Webhook. Fix all of the following violations that were found against the ETCD:

Ensure that the --auto-tls argument is not set to true Hint: Take the use of Tool Kube-Bench

A. See the below.

B. PlaceHolder

Correct Answer: A

API server:

Ensure the --authorization-mode argument includes RBAC

Turn on Role Based Access Control.Role Based Access Control (RBAC) allows fine- grained control over the operations that different entities can perform on different objects in the cluster. It is recommended to use the RBAC authorization

mode.

Fix - BuildtimeKubernetesapiVersion: v1

kind: Pod

metadata:

creationTimestamp: null

labels:

component: kube-apiserver

tier: control-plane

name: kube-apiserver

namespace: kube-system

spec:

containers:

-command: + - kube-apiserver + - --authorization-mode=RBAC,Node image: gcr.io/google_containers/kube-apiserver-amd64:v1.6.0 livenessProbe: failureThreshold: 8 httpGet: host: 127.0.0.1 path: /healthz port: 6443 scheme: HTTPS initialDelaySeconds: 15 timeoutSeconds: 15 name: kube-apiserver-should-pass resources: requests: cpu: 250m volumeMounts:

-

mountPath: /etc/kubernetes/ name: k8s readOnly: true

-

mountPath: /etc/ssl/certs name: certs

-

mountPath: /etc/pki name: pki hostNetwork: true volumes:

-

hostPath: path: /etc/kubernetes name: k8s

-

hostPath: path: /etc/ssl/certs name: certs

-

hostPath: path: /etc/pki name: pki

Ensure the --authorization-mode argument includes Node

Remediation: Edit the API server pod specification file /etc/kubernetes/manifests/kube- apiserver.yaml on the master node and set the --authorization-mode parameter to a value that includes Node.

--authorization-mode=Node,RBAC

Audit:

/bin/ps -ef | grep kube-apiserver | grep -v grep

Expected result:

\\'Node,RBAC\\' has \\'Node\\'

Ensure that the --profiling argument is set to false

Remediation: Edit the API server pod specification file /etc/kubernetes/manifests/kube-apiserver.yaml on the master

node and set the below parameter.

--profiling=false

Audit:

/bin/ps -ef | grep kube-apiserver | grep -v grep

Expected result:

\\'false\\' is equal to \\'false\\'

Fix all of the following violations that were found against the Kubelet:

uk.co.certification.simulator.questionpool.PList@e3e35a0

Remediation: If using a Kubelet config file, edit the file to set authentication: anonymous:

enabled to false. If using executable arguments, edit the kubelet service file /etc/systemd/system/kubelet.service.d/10-kubeadm.conf on each worker node and set the below parameter in KUBELET_SYSTEM_PODS_ARGS variable.

--anonymous-auth=false

Based on your system, restart the kubelet service. For example:

systemctl daemon-reload

systemctl restart kubelet.service

Audit:

/bin/ps -fC kubelet

Audit Config:

/bin/cat /var/lib/kubelet/config.yaml

Expected result:

\\'false\\' is equal to \\'false\\'

2) Ensure that the --authorization-mode argument is set to Webhook.

Audit

docker inspect kubelet | jq -e \\'.[0].Args[] | match("--authorization- mode=Webhook").string\\'

Returned Value: --authorization-mode=Webhook

Fix all of the following violations that were found against the ETCD:

a. Ensure that the --auto-tls argument is not set to true

Do not use self-signed certificates for TLS. etcd is a highly-available key value store used by Kubernetes deployments for persistent storage of all of its REST API objects. These objects are sensitive in nature and should not be available to unauthenticated clients. You should enable the client authentication via valid certificates to secure the access to the

etcd service.

Fix - BuildtimeKubernetesapiVersion: v1 kind: Pod metadata: annotations: scheduler.alpha.kubernetes.io/critical-pod: "" creationTimestamp: null labels: component: etcd tier: control-plane name: etcd namespace: kube-system spec: containers:

-command:

+ - etcd

+ - --auto-tls=true

image: k8s.gcr.io/etcd-amd64:3.2.18

imagePullPolicy: IfNotPresent

livenessProbe:

exec:

command:

-/bin/sh

- -ec

-ETCDCTL_API=3 etcdctl --endpoints=https://[192.168.22.9]:2379 -- cacert=/etc/kubernetes/pki/etcd/ca.crt

--cert=/etc/kubernetes/pki/etcd/healthcheck-client.crt -- key=/etc/kubernetes/pki/etcd/healthcheck-client.key get foo

failureThreshold: 8

initialDelaySeconds: 15

timeoutSeconds: 15

name: etcd-should-fail

resources: {}

volumeMounts:

-

mountPath: /var/lib/etcd

name: etcd-data

-

mountPath: /etc/kubernetes/pki/etcd

name: etcd-certs

hostNetwork: true

priorityClassName: system-cluster-critical

volumes:

-

hostPath:

path: /var/lib/etcd

type: DirectoryOrCreate

name: etcd-data

-

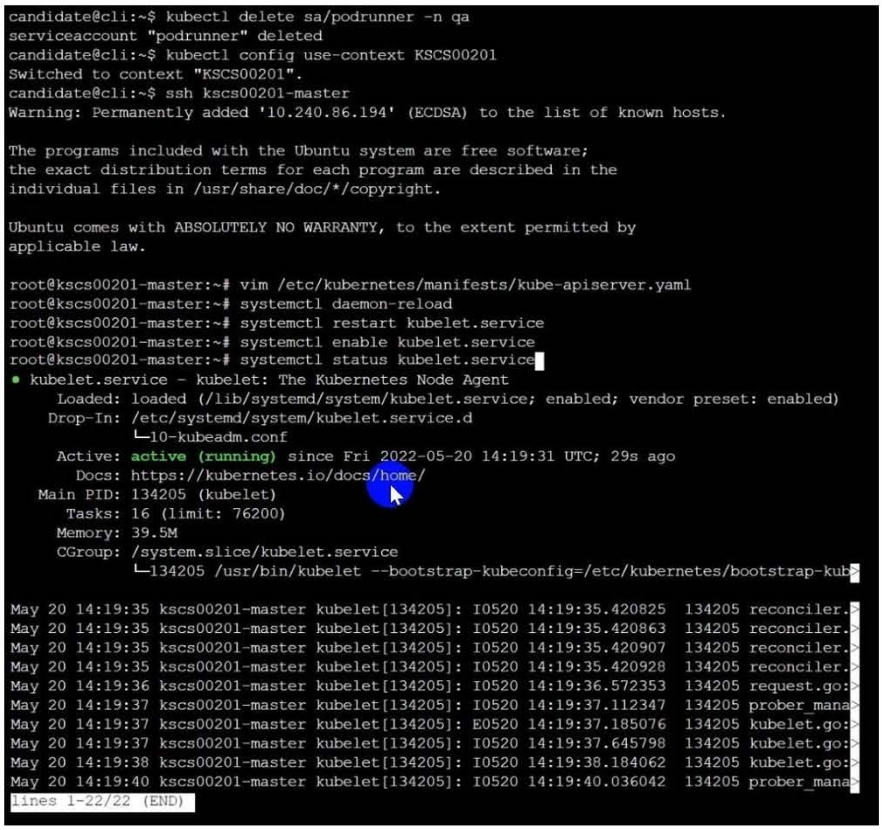
hostPath:

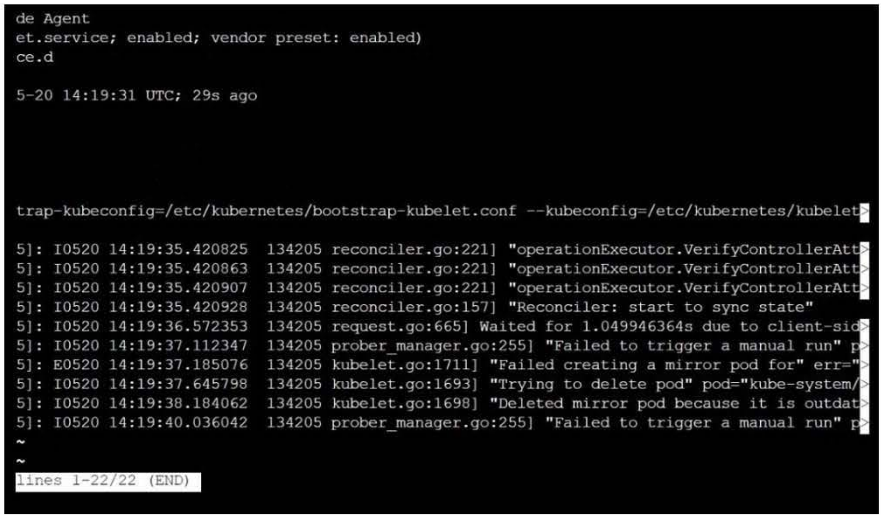
path: /etc/kubernetes/pki/etcd

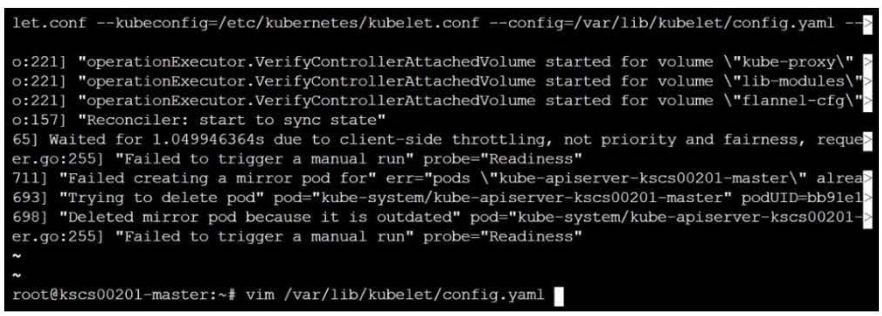
type: DirectoryOrCreate

name: etcd-certs

status: {}


candidate@cli:~$ kubectl delete sa/podrunner -n qa
serviceaccount "podrunner" deleted
candidate@cli:~$ kubectl config use-context KSCS00201
Switched to context "KSCS00201".
candidate@cli:~$ ssh kscs00201-master
Warning: Permanently added '10.240.86.194' (ECDSA) to the list of known hosts.
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
root@kscs00201-master:~# vim /etc/kubernetes/manifests/kube-apiserver.yaml
root@kscs00201-master:~# systemctl daemon-reload
root@kscs00201-master:~# systemctl restart kubelet.service
root@kscs00201-master:~# systemctl enable kubelet.service
root@kscs00201-master:~# systemctl status kubelet.service
kubelet.service - kubelet: The Kubernetes Node Agent
Loaded: loaded (/lib/systemd/system/kubelet.service; enabled; vendor preset: enabled)
Drop-In: /etc/systemd/system/kubelet.service.d
10-kubeadm.conf
Active: active (running) since Fri 2022-05-20 14:19:31 UTC; 29s ago
Docs: https://kubernetes.io/docs/home/
Main PID: 134205 (kubelet)
Tasks: 16 (limit: 76200)
Memory: 39.5M
CGroup: /system.slice/kubelet.service
134205 /usr/bin/kubelet --bootstrap-kubeconfig=/etc/kubernetes/bootstrap-kub
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420825 134205 reconciler.
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420863 134205 reconciler.
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420907 134205 reconciler.
May 20 14:19:35 kscs00201-master kubelet[134205]: I0520 14:19:35.420928 134205 reconciler.
May 20 14:19:36 kscs00201-master kubelet[134205]: I0520 14:19:36.572353 134205 request.go:
May 20 14:19:37 kscs00201-master kubelet[134205]: I0520 14:19:37.112347 134205 prober_mana
May 20 14:19:37 kscs00201-master kubelet[134205]: E0520 14:19:37.185076 134205 kubelet.go:
May 20 14:19:37 kscs00201-master kubelet[134205]: I0520 14:19:37.645798 134205 kubelet.go:
May 20 14:19:38 kscs00201-master kubelet[134205]: I0520 14:19:38.184062 134205 kubelet.go:
May 20 14:19:40 kscs00201-master kubelet[134205]: I0520 14:19:40.036042 134205 prober_mana
lines 1-22/22 (END)


de Agent
et.service; enabled; vendor preset: enabled)
ce.d
5-20 14:19:31 UTC; 29s ago
trap-kubeconfig=/etc/kubernetes/bootstrap-kubelet.conf --kubeconfig=/etc/kubernetes/kubelet
5]: I0520 14:19:35.420825 134205 reconciler.go:221] "operationExecutor.VerifyControllerAtt
5]: I0520 14:19:35.420863 134205 reconciler.go:221] "operationExecutor.VerifyControllerAtt
5]: I0520 14:19:35.420907 134205 reconciler.go:221] "operationExecutor.VerifyControllerAtt
5]: I0520 14:19:35.420928 134205 reconciler.go:157] "Reconciler: start to sync state"
5]: I0520 14:19:36.572353 134205 request.go:665] Waited for 1.049946364s due to client-sid
5]: I0520 14:19:37.112347 134205 prober_manager.go:255] "Failed to trigger a manual run" p
5]: E0520 14:19:37.185076 134205 kubelet.go:1711] "Failed creating a mirror pod for" err="
5]: I0520 14:19:37.645798 134205 kubelet.go:1693] "Trying to delete pod" pod="kube-system/
5]: I0520 14:19:38.184062 134205 kubelet.go:1698] "Deleted mirror pod because it is outdat
5]: I0520 14:19:40.036042 134205 prober_manager.go:255] "Failed to trigger a manual run" p
~
~
lines 1-22/22 (END)


let.conf --kubeconfig=/etc/kubernetes/kubelet.conf --config=/var/lib/kubelet/config.yaml --
o:221] "operationExecutor.VerifyControllerAttachedVolume started for volume \"kube-proxy\"
o:221] "operationExecutor.VerifyControllerAttachedVolume started for volume \"lib-modules\"
o:221] "operationExecutor.VerifyControllerAttachedVolume started for volume \"flannel-cfg\"
o:157] "Reconciler: start to sync state"
65] Waited for 1.049946364s due to client-side throttling, not priority and fairness, reque
er.go:255] "Failed to trigger a manual run" probe="Readiness"
711] "Failed creating a mirror pod for" err="pods \"kube-apiserver-kscs00201-master\" alrea
693] "Trying to delete pod" pod="kube-system/kube-apiserver-kscs00201-master" podUID=bb91e1
698] "Deleted mirror pod because it is outdated" pod="kube-system/kube-apiserver-kscs00201-
er.go:255] "Failed to trigger a manual run" probe="Readiness"
~
~
root@kscs00201-master:~# vim /var/lib/kubelet/config.yaml

```
apiVersion: kubelet.config.k8s.io/v1beta1
authentication:
  anonymous:
    enabled: false
  webhook:
    cacheTTL: 0s
    enabled: true
  x509:
    clientCAFile: /etc/kubernetes/pki/ca.crt
authorization:
  mode: Webhook
  webhook:
    cacheAuthorizedTTL: 0s
    cacheUnauthorizedTTL: 0s
cgroupDriver: systemd
clusterDNS:
```

```
~
~
root@kscs00201-master:~# vim /var/lib/kubelet/config.yaml
root@kscs00201-master:~# vim /var/lib/kubelet/config.yaml
root@kscs00201-master:~# vim /etc/kubernetes/manifests/etcd.yaml
root@kscs00201-master:~# systemctl daemon-reload
root@kscs00201-master:~# systemctl restart kubelet.service
root@kscs00201-master:~# systemctl status kubelet.service
```

```
● kubelet.service - kubelet: The Kubernetes Node Agent
     Loaded: loaded (/lib/systemd/system/kubelet.service; enabled; vendor preset: enabled)
    Drop-In: /etc/systemd/system/kubelet.service.d
             └─10-kubeadm.conf
     Active: active (running) since Fri 2022-05-20 14:22:29 UTC; 4s ago
       Docs: https://kubernetes.io/docs/home/
   Main PID: 135849 (kubelet)
      Tasks: 17 (limit: 76200)
     Memory: 38.0M
     CGroup: /system.slice/kubelet.service
             └─135849 /usr/bin/kubelet --bootstrap-kubeconfig=/etc/kubernetes/bootstrap-kub>

May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330232  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330259  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330304  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330354  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330378  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330397  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330415  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330433  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330452  135849 reconciler.>
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330463  135849 reconciler.>
lines 1-22/22 (END)
```

```
May 20 14:22:30 kscs00201-master kubelet[135849]: I0520 14:22:30.330463  135849 reconciler.>
root@kscs00201-master:~#
root@kscs00201-master:~#
root@kscs00201-master:~#
root@kscs00201-master:~# exit
logout
Connection to 10.240.86.194 closed.
candidate@cli:~$
```

QUESTION 7

```
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: pod-access
  namespace: dev-team
spec:
  podSelector:
    matchLabels:
      environment: dev
  policyTypes:
    - Ingress
  ingress:
    - from:
        - namespaceSelector:
            matchLabels:
              environment: dev
        - podSelector:
            matchLabels:
              environment: testing
```

```
candidate@cli:~$ vim np.yaml
candidate@cli:~$ cat np.yaml
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: pod-access
  namespace: dev-team
spec:
  podSelector:
    matchLabels:
      environment: dev
  policyTypes:
    - Ingress
  ingress:
    - from:
        - namespaceSelector:
            matchLabels:
              environment: dev
        - podSelector:
            matchLabels:
              environment: testing
candidate@cli:~$
candidate@cli:~$
candidate@cli:~$ kubectl create -f np.yaml -n dev-team
networkpolicy.networking.k8s.io/pod-access created
candidate@cli:~$ kubectl describe netpol -n dev-team
Name:         pod-access
Namespace:    dev-team
Created on:   2022-05-20 15:35:33 +0000 UTC
Labels:       <none>
Annotations:  <none>
Spec:
  PodSelector:     environment=dev
  Allowing ingress traffic:
    To Port: <any> (traffic allowed to all ports)
    From:
      NamespaceSelector: environment=dev
    From:
      PodSelector: environment=testing
  Not affecting egress traffic
  Policy Types: Ingress
candidate@cli:~$ cat KSSH00301/network-policy.yaml
---
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: ""
  namespace: ""
spec:
  podSelector: {}
  policyTypes:
    - Ingress
  ingress:
    - from: []
    - from: []
candidate@cli:~$ cp np.yaml KSSH00301/network-policy.yaml
candidate@cli:~$ cat KSSH00301/network-policy.yaml
```

```
candidate@cli:~$ cat KSSH00301/network-policy.yaml
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: pod-access
  namespace: dev-team
spec:
  podSelector:
    matchLabels:
      environment: dev
  policyTypes:
    - Ingress
  ingress:
    - from:
        - namespaceSelector:
            matchLabels:
              environment: dev
        - podSelector:
            matchLabels:
              environment: testing
candidate@cli:~$
```

Enable audit logs in the cluster, To Do so, enable the log backend, and ensure that

1.

logs are stored at /var/log/kubernetes-logs.txt.

2.

Log files are retained for 12 days.

3.

at maximum, a number of 8 old audit logs files are retained.

4.

set the maximum size before getting rotated to 200MB

Edit and extend the basic policy to log:

1.

namespaces changes at RequestResponse

2.

Log the request body of secrets changes in the namespace kube-system.

3.

Log all other resources in core and extensions at the Request level.

4.

Log "pods/portforward", "services/proxy" at Metadata level.

5.

Omit the Stage RequestReceived

All other requests at the Metadata level

A. See the explanation below:

B. PlaceHolder

Correct Answer: A

Kubernetes auditing provides a security-relevant chronological set of records about a cluster. Kube-apiserver performs auditing. Each request on each stage of its execution generates an event, which is then pre-processed according to a

certain policy and written to a backend. The policy determines what\\'s recorded and the backends persist the records. You might want to configure the audit log as part of compliance with the CIS (Center for Internet Security) Kubernetes

Benchmark controls.

The audit log can be enabled by default using the following configuration in cluster.yml:

services:

kube-api:

audit_log:

enabled: true

When the audit log is enabled, you should be able to see the default values at /etc/kubernetes/audit-policy.yaml

The log backend writes audit events to a file in JSONlines format. You can configure the log audit backend using the following kube-apiserver flags:

--audit-log-path specifies the log file path that log backend uses to write audit events. Not specifying this flag disables log backend. - means standard out --audit-log-maxage defined the maximum number of days to retain old audit log files

--audit-log-maxbackup defines the maximum number of audit log files to retain

--audit-log-maxsize defines the maximum size in megabytes of the audit log file before it gets rotated

If your cluster\\'s control plane runs the kube-apiserver as a Pod, remember to mount the hostPath to the location of the policy file and log file, so that audit records are persisted.

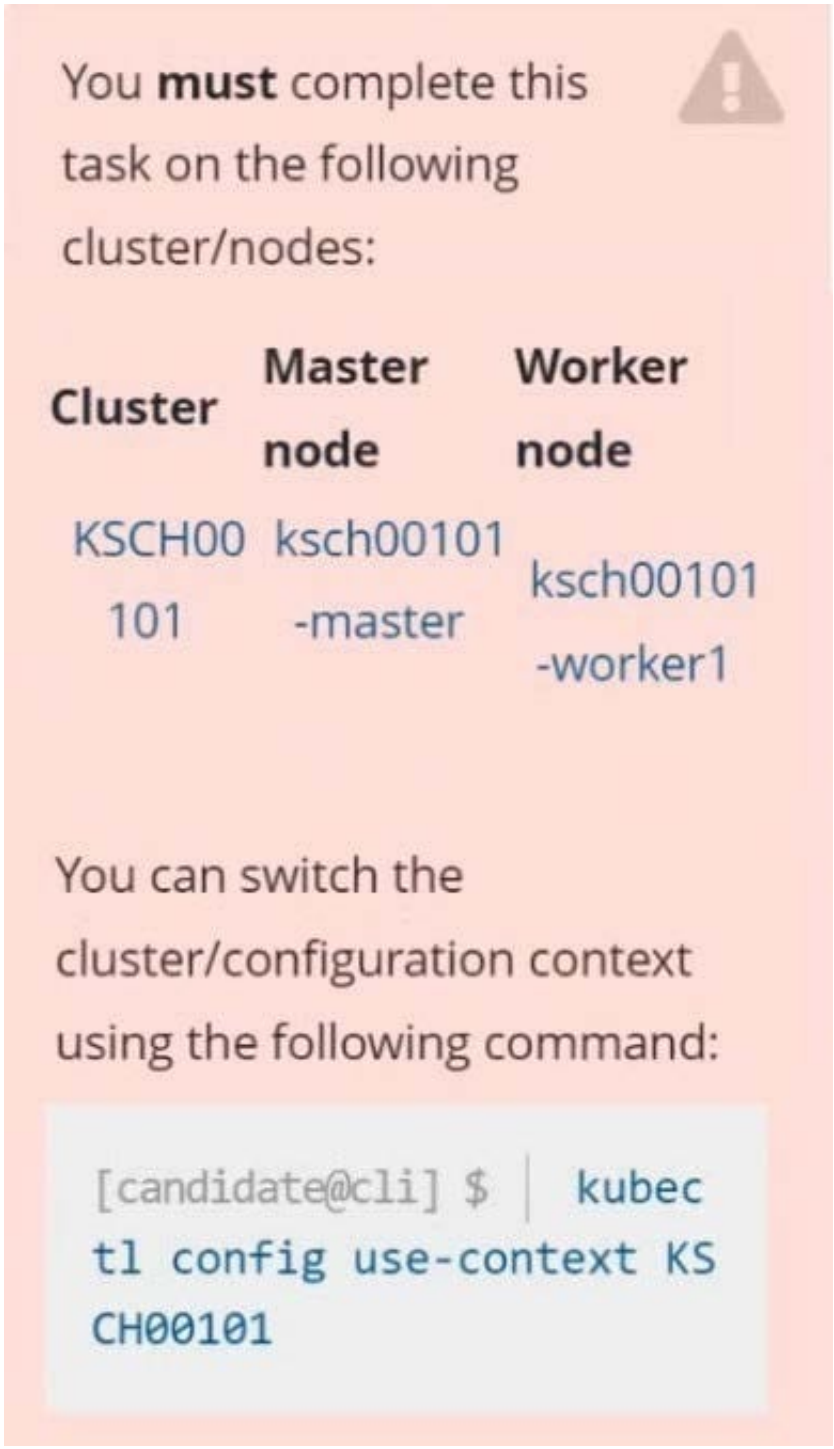
For example:

--audit-policy-file=/etc/kubernetes/audit-policy.yaml \

--audit-log-path=/var/log/audit.log

QUESTION 8

The kubeadm-created cluster\\'s Kubernetes API server was, for testing purposes, temporarily configured to allow unauthenticated and unauthorized access granting the anonymous user duster-admin access.



Task

Reconfigure the cluster\\'s Kubernetes API server to ensure that only authenticated and authorized REST requests are allowed.

Use authorization mode Node,RBAC and admission controller NodeRestriction.

Cleaning up, remove the ClusterRoleBinding for user system:anonymous.

A. See explanation below.

B. PlaceHolder

Correct Answer: A

```
candidate@cli:~$ kubectl config use-context KSCH00101
Switched to context "KSCH00101".
candidate@cli:~$ ssh ksch00101-master
Warning: Permanently added '10.240.86.190' (ECDSA) to the list of known hosts.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
root@ksch00101-master:~# vim /etc/kubernetes/manifests/kube-apiserver.yaml
```

```
apiVersion: v1
kind: Pod
metadata:
  annotations:
    kubeadm.kubernetes.io/kube-apiserver.advertise-address.endpoint: 10.240.86.190:6443
  creationTimestamp: null
  labels:
    component: kube-apiserver
    tier: control-plane
  name: kube-apiserver
  namespace: kube-system
spec:
  containers:
    - command:
        - kube-apiserver
        - --advertise-address=10.240.86.190
        - --allow-privileged=true
        - --authorization-mode=Node,RBAC
        - --client-ca-file=/etc/kubernetes/pki/ca.crt
        - --enable-admission-plugins=AlwaysAdmit
        - --enable-bootstrap-token-auth=true
        - --etcd-cafile=/etc/kubernetes/pki/etcd/ca.crt
        - --etcd-certfile=/etc/kubernetes/pki/apiserver-etcd-client.crt
        - --etcd-keyfile=/etc/kubernetes/pki/apiserver-etcd-client.key
"/etc/kubernetes/manifests/kube-apiserver.yaml" 128L, 4343C                1,1           Top
```

```
root@ksch00101-master:~# cat /etc/kubernetes/admin.conf
apiVersion: v1
clusters:
- cluster:
    certificate-authority-data: LS0tLS1CRUdJTiBDRVJUSUZJQ0FURS0tLS0tCk1JSUMvakNDQWVhZ0F3SUJB
Z0lCQURBTkJna3Foa21HOXcwQkFRc0ZBREFWTVJNd0VRWURWUVFERXdwcmRXSmwKY201bGRHVnpNQjRYRFJeU1ESXhO
akF3T1RVeE9Wb1hEVE15TURJeE5EQXdOVFV4T1Zvd0ZURVRNQkVHQTFVRQpBeE1LYTNWaVpYSnVaWFJsY3pDQ0FTSXdE
UVlKS29aSWh2YO05BUUVCQlFBRGdnRVBBRENDQVFvQ2dnRUJBTlgwCm9LeUYvTGNmYTIvNzNZTktkSFdZU3JUaUx0QStr
NG1qTXpRZllzM2ttNGllalpoM0tZc3Y1bUdpNOUyQ2tYcOMKUnhlLlNiZnBDMzlla2k5V3hOSHc5eTM0OEtXUVE3VXBL
UmZRdXVxd1A1WXdDZkordlJmWGNGTXQxLzRNQVhWLwpkdjZ5YWRKSitPeFFSVjZlaHFBZHR0M3FtOFdVcW84UE5JT1E0
OEc3WWhnRUg5RHU3SFdkMS8raXVkSjNOMXl6CnNISEdtYklsWENSbEcydFV0M2RScDczSnRIS1JjS2tnMGxYM3FWSlUy
QmJRblBmK01wb0V1TXFGcmZvcWVaVWcKYlBKK3ROVmZIM1JLTkhVUnYydVJIa3ZZc2JrclhUMW8rMXFNNHZrYnFNMHlq
KzNxTUtiSyt5V3dzUTlBYUVPMApUdXR4UUdlTFp3OUE3TjZZeTFVQ0F3RUFBYU5aTUZjd0RnWURWUjBQQVFLL0JBUURB
Z0trTUE4R0ExVWRFd0VCCi93UUZNQUlCQWY4d0hRWURWUjBPQkJZRUZEcUlwLzdYbzZaNkJNVjVEK2w3bFZPcGpBOWlN
QlVHQTFVZEVRUU8KTUF5QONtdDFZbVZ5YmlWMFpYTXdEUVlKS29aSWh2Y05BQUVNQlFBRGdnRUJBSlNWNm9wNGgxYkNv
eGZLRUZ4bwoxaVlHUFlnMlhhOTN0WEZlTTY3RnA2NkdqUEc5SXBONnNHUnRnWVlyd0MyalBDeFVOb2IySWtUQlFNbDV3
cWRHCkdPS2JwVVp6Smc3YOdyS2E3RlpZWVNyVUVGRWhyd2xZWXNGME56aFBoZVcwcHJjcWtSdXNlbm55SG5YNGVOMUoK
N1NzbGZYTjJIdVFJd1VIRGl5LOJsL1ZWRmZNZnRxOGF0Z0pYSFZGTmlVcDRpNXlJTXFRNTB4ZjVqcnF1WFRmWwpVdmJq
ZjEyOThhXVTk3QkxHcDdRZE9QYWVKU051UStlVkMrdnpVZ2tVQVNjclVsc24xcThPNnBRbjV3TjNxdUVrCm5zQk9pckxS
c2k2alN3U1hLbGcvangvcitqd0dTc0xwWUxDZTlxalFraTdCSVRJTlN3ejd3c2hzbERuNzBFY0IKa0VBPQotLS0tLUVO
RCBDRVJUSUZJQ0FURS0tLS0tCg==
    server: https://10.240.86.190:6443
  name: kubernetes
contexts:
- context:
    cluster: kubernetes
    user: kubernetes-admin
  name: kubernetes-admin@kubernetes
current-context: kubernetes-admin@kubernetes
kind: Config
preferences: {}
users:
- name: kubernetes-admin
  user:
    client-certificate-data: LS0tLS1CRUdJTiBDRVJUSUZJQ0FURS0tLS0tCk1JSURVENDQWdtZ0F3SUJBZ01
ocEdQcDB4Zk9JbkYxaGJwcThSYlBUMGxlTm5VNjBiSUpxRXVKckxJbEtXClNValh1VkYzNklOZHc1ZUlOT2JxK1haaHd
hY2JURVZCMlVDVURsbDgzdG5teFQyVXJmY0pUQmhlTCtzTFAvcWYKdjdXR3BwQlZXNnhVZGFibGNuUklIMnpleUVJTEt
Tck5XbUQ0TzZzMU13blZOOVJzQ2RXTkV3VGNZRHdoUTd2OQpGcExxKL3hiSDdUTzkwY1RFd1Iwazl3cFVYdllkdklj5XN
MRkYwL3F2bDA3U3lxbGplOEI1SnNpQlhCUlZxbS9wCmNUUSs3SnZlbmdaZzlkOWd2aVJVdFFTcHBONkx4UnhkSzNKMGR
BK240SWxFZEtHRWh3TE00d0tMaldERG9scHgKYzB3WHkwVXBORGZ6UUxuRUFzVUJsbDRCQ3VkdW5QNVVDN2FuS3dJREF
RQUJBb0lCQURWRkZNSVRqYnNySTZTTWpQOGM0MTByN3RWZ251cXJVS202dHRnZWtXOWd1S1pvMnZyb3RsbG9qOGFRamF
0MTZnaEUwOXdZd2xMSDhId0tLCk1Mb2NrZnFCUytlOWo1ZmlFWGxYTG00cElCVDFRbGFJQlJRMDRyQ0JZbHdCN1VFbVB
lWjhuQ3lmR2JYTC9HM2wKcXBYTDVKdzJqcVh2MXdzcWsrdWNCRk0zZ0FYZk5YZkk1RExnV0VyNXRZRlF4VXo5UFFHOD1
pcDY1OTBkYnB1SApoOMnU2NGk4UTg1dk83OFV1Tlc2eUFZU1loZVdha093RDFwZzNPdkhxV3FhbnV1MnlrOWxaUUR0WW5
2MytBeU5DCnloNlRaRHluZ0lZdEptbDFTQ01TNEpSR2d4NXNwaCtKOC9XOGx0Ri9wMWZxbTA0bXZSRndxU3M2Y1JCQ2Z
PVVcKbFV1MGxLRUNnWUVBNWJzT0lVVzFBVndjTmJsc0pSVDNURkI2OVlxbDRYcnZRR0FZY3BhdktENnd5VmtEOTV1QQp
SaXVRS1NNKzY4REtBVmlpYllpaThJemExTkdqdC9JZDUwTGVoNklaRVg2enVpK0g3d1BSbVd6SE9ueWNmU2FmC1VQMEF
RL0RiM2lCNWJQTmJHYXNkaDNIb2JvR0NSSHZmTFFXY2tYbUVXM2ZudVlIRlJLZ2xlTEVDZllFQTVUdysKTEVTV1BESFF
mamNBNOhtNmdsMndGRjdCUG1sSGdaYVVRN25Eb3ZvRmMxalBMRWVCMWJ6OHJNWld1eGdmaHN0OQpMZ0xSUDBXdkJWd1J
sVTdMTmFLTlVzRmkxU2dvaWZsS01ZWkMyZmpLWTY1RFE3YUUzcTdnVis4U2pIZHpoclhCCkVQc1AvWXQ3S0QrbFBMZmh
aNXNKZWFtelY3b3gveno5Y0s0U0ZKc0NnWUJ4OVk2VzFydHBoMFcvS05JS3V4SEoKMjRxRFQxbm1ObE9FdmFhakFUaTJ
ZQkxXYnIvWERsNWRjTEs4bFcxYkNYR3JwY2s3U0xKNlhZUVlXajQ2dTNJMgpEQ2ZUWlFiRWRQTzNBbWtPR2ZqWmdPcDd
pdUVkLOJDLzNpRkprcXVlenNFdFdMTHlVcjM5T0hZeWl6QVJ4Tmo2CnZuUGlma000Rkl6d3F2MHVoN0xlb1FLQmdBT1Z
XZTRZMlRwbzJ3aEswbmVkMllsMXhVNjJoZ2JiVHcvaVdhdVcKY3ZMV3dlZUlmd0Q4MVRWL2R3a29KVEM1VEJRUXQzUkk
xRFFnVmtnMHFwcUtOOGhDNGQwM05MRzIwTWdZMk94WgpjSFZzK2J4elYwVVB6V1RUbEMyVEsyamhmOHVRcndzSktxY2N
OU0ZEczZwclhocThsV213Znd3aWlBRlhLSFJRCkE3RkxBb0dCQUx3NW8rbHFVZ3hHQlpKdy9ZelBGek5TekQreVd6Um8
lc2ZEc2x6a2FvY0pHbEx2MUNndEVIc3QKeG5HMTlIYStSM1M3cDRtei9LeDJYMFRzaTZzUzVwWlR5WEx5STF5azh2TUZ
rRldacjRmeVhXV2t3SjZlVEllYwpyWFl3TWM5VFlDUGZrSFJaTm9XRlhZV3BkeTJBOXZCbFlScHZsQVZoenU2T1VZQ2w
5b2ZpCi0tLS0tRU5EIFJTQSBQUklWQVRFIEtFWS0tLS0tCg==
root@ksch00101-master:~# vim /etc/kubernetes/manifests/kube-apiserver.yaml
```

```
root@ksch00101-master:~# vim /etc/kubernetes/manifests/kube-apiserver.yaml
root@ksch00101-master:~# systemctl daemon-reload
sroot@ksch00101-master:~# systemctl restart kubelet.service
root@ksch00101-master:~# kubectl get nodes
error: You must be logged in to the server (Unauthorized)
root@ksch00101-master:~# exit
logout
Connection to 10.240.86.190 closed.
candidate@cli:~$ kubectl get nodes
NAME                STATUS   ROLES                  AGE   VERSION
ksch00101-master    Ready    control-plane,master   93d   v1.23.3
ksch00101-worker1   Ready    <none>                 93d   v1.23.3
candidate@cli:~$ kubectl get pod -n kube-system
NAME                                       READY   STATUS    RESTARTS       AGE
coredns-64897985d-7pnhm                    1/1     Running   1 (7h2m ago)   93d
coredns-64897985d-rr7sd                    1/1     Running   1 (7h2m ago)   93d
etcd-ksch00101-master                      1/1     Running   1 (7h2m ago)   93d
kube-apiserver-ksch00101-master            0/1     Running   0              24s
kube-controller-manager-ksch00101-master   1/1     Running   3 (42s ago)    93d
kube-flannel-ds-llktn                      1/1     Running   1 (93d ago)    93d
kube-flannel-ds-q9vnl                      1/1     Running   1 (93d ago)    93d
kube-proxy-2c4ht                           1/1     Running   1 (93d ago)    93d
kube-proxy-pmmbc                           1/1     Running   1 (93d ago)    93d
kube-scheduler-ksch00101-master            1/1     Running   3 (42s ago)    93d
candidate@cli:~$ kubectl get pod -n kube-system
NAME                                       READY   STATUS    RESTARTS       AGE
coredns-64897985d-7pnhm                    1/1     Running   1 (7h2m ago)   93d
coredns-64897985d-rr7sd                    1/1     Running   1 (7h2m ago)   93d
etcd-ksch00101-master                      1/1     Running   1 (7h2m ago)   93d
kube-apiserver-ksch00101-master            0/1     Running   0              30s
kube-controller-manager-ksch00101-master   1/1     Running   3 (48s ago)    93d
kube-flannel-ds-llktn                      1/1     Running   1 (93d ago)    93d
kube-flannel-ds-q9vnl                      1/1     Running   1 (93d ago)    93d
kube-proxy-2c4ht                           1/1     Running   1 (93d ago)    93d
kube-proxy-pmmbc                           1/1     Running   1 (93d ago)    93d
kube-scheduler-ksch00101-master            1/1     Running   3 (48s ago)    93d
candidate@cli:~$ kubectl get clusterrolebindings.rbac.authorization.k8s.io | grep anon
system:anonymous                                       ClusterRole/cluster-admin
                                                  7h1m
candidate@cli:~$ kubectl delete clusterrolebindings.rbac.authorization.k8s.io/system:anonymo
us
clusterrolebinding.rbac.authorization.k8s.io "system:anonymous" deleted
```

QUESTION 9

Create a User named john, create the CSR Request, fetch the certificate of the user after approving it.

Create a Role name john-role to list secrets, pods in namespace john

Finally, Create a RoleBinding named john-role-binding to attach the newly created role john-role to the user john in the namespace john.

To Verify: Use the kubectl auth CLI command to verify the permissions.

A. See the below.

B. PlaceHolder

Correct Answer: A

se kubectl to create a CSR and approve it.

Get the list of CSRs:

kubectl get csr

Approve the CSR:

kubectl certificate approve myuser

Get the certificateRetrieve the certificate from the CSR:

kubectl get csr/myuser -o yaml

here are the role and role-binding to give john permission to create NEW_CRD resource:

kubectl apply -f roleBindingJohn.yaml --as=john

rolebinding.rbac.authorization.k8s.io/john_external-rosource-rb created

kind: RoleBinding

apiVersion: rbac.authorization.k8s.io/v1

metadata:

name: john_crd

namespace: development-john

subjects:

-kind: User name: john apiGroup: rbac.authorization.k8s.io roleRef: kind: ClusterRole name: crd-creation

kind: ClusterRole apiVersion: rbac.authorization.k8s.io/v1 metadata: name: crd-creation rules:

-apiGroups: ["kubernetes-client.io/v1"] resources: ["NEW_CRD"] verbs: ["create, list, get"]

QUESTION 10

CORRECT TEXT

Task

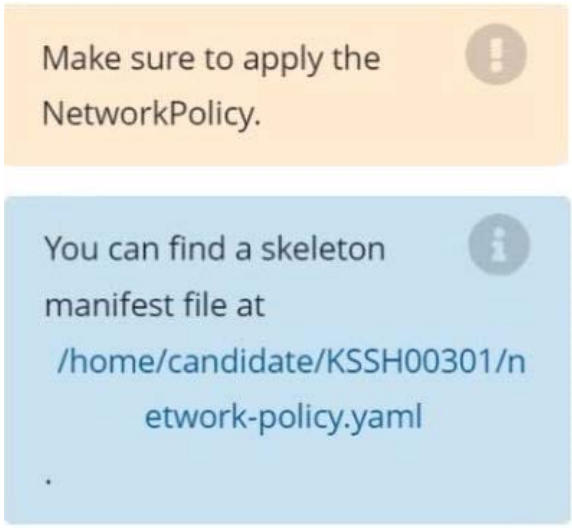
Create a NetworkPolicy named pod-access to restrict access to Pod users-service running in namespace dev-team. Only allow the following Pods to connect to Pod users-service:

1.

Pods in the namespace qa

2.

Pods with label environment: testing, in any namespace



A. See explanation below.
B. PlaceHolder

Correct Answer: A
Explanation

Explanation/Reference:

```
candidate@cli:~$ kubectl config use-context KSSH00301
Switched to context "KSSH00301".
candidate@cli:~$
candidate@cli:~$
candidate@cli:~$ kubectl get ns dev-team --show-labels
NAME       STATUS   AGE     LABELS
dev-team   Active   6h39m   environment=dev,kubernetes.io/metadata.name=dev-team
candidate@cli:~$ kubectl get pods -n dev-team --show-labels
NAME            READY   STATUS    RESTARTS   AGE     LABELS
users-service   1/1     Running   0          6h40m   environment=dev
candidate@cli:~$ ls
KSCH00301  KSMV00102  KSSC00301  KSSH00401     test-secret-pod.yaml
KSCS00101  KSMV00301  KSSH00301  password.txt  username.txt
candidate@cli:~$ vim np.yaml
```

A. See explanation below.

B. PlaceHolder

Correct Answer: A