CertsDeals

Free Questions for CKA by certsdeals

Shared by Hamilton on 15-04-2024

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Question 1

Question Type: MultipleChoice

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

Options:

A- Explanation:

```
kubectl create namespace development
kubectl run nginx --image=nginx --restart=Never -n development
```

Answer:

A

Question 2

Question Type: MultipleChoice

Create a persistent volume with name app-data, of capacity 2Gi and access mode ReadWriteMany. The type of volume is hostPath and its location is /srv/app-data.

Options:

A- Explanation:

solution

Persistent Volume

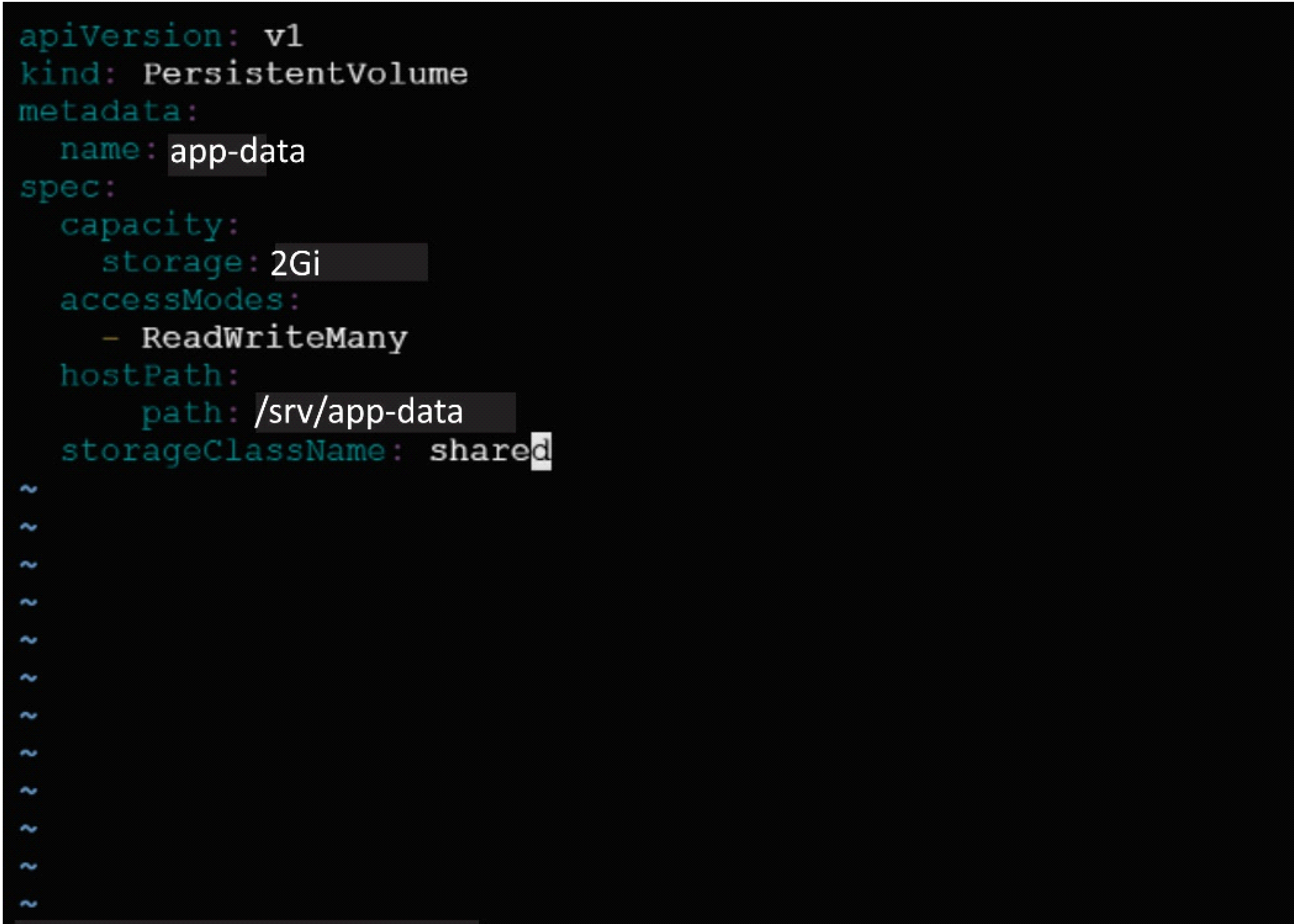
A persistent volume is a piece of storage in a Kubernetes cluster. PersistentVolumes are a cluster-level resource like nodes, which don't belong to any namespace. It is provisioned by the administrator and has a particular file size. This way, a developer deploying their app on Kubernetes need not know the 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 Persistent Volume

```
kind: PersistentVolume
apiVersion: v1
metadata:
name:app-data
spec:
capacity: # defines the capacity of PV we are creating
storage: 2Gi #the amount of storage we are tying to claim
accessModes: # defines the rights of the volume we are creating
- ReadWriteMany
hostPath:
path: '/srv/app-data' # path to which we are creating the volume
```

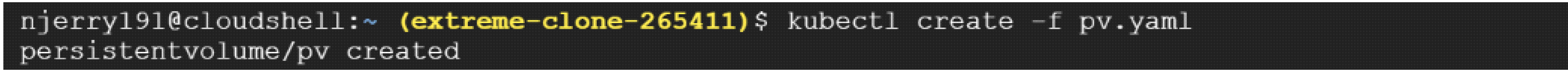
Challenge

Create a Persistent Volume named app-data, with access mode ReadWriteMany, storage classname shared, 2Gi of storage capacity and the host path /srv/app-data.



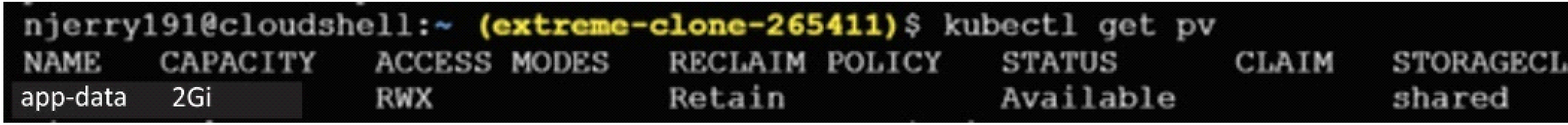
```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: app-data
spec:
  capacity:
    storage: 2Gi
  accessModes:
    - ReadWriteMany
  hostPath:
      path: /srv/app-data
  storageClassName: shared
~
~
~
~
~
~
~
~
~
~
~
~
```

2. Save the file and create the persistent volume.



```
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
NAME      CAPACITY    ACCESS MODES    RECLAIM POLICY    STATUS       CLAIM    STORAGECL
app-data    2Gi       RWX             Retain            Available             shared
```

Our persistent volume status is available meaning it is available and it has not been mounted yet. This status will change 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. Ensure that the Persistent Volume Claim has the same storageClassName as the persistentVolume you had previously created.

```
kind: PersistentVolume
apiVersion: v1
metadata:
name:app-data
spec:
accessModes:
- ReadWriteMany
```

resources:

requests:

storage: 2Gi

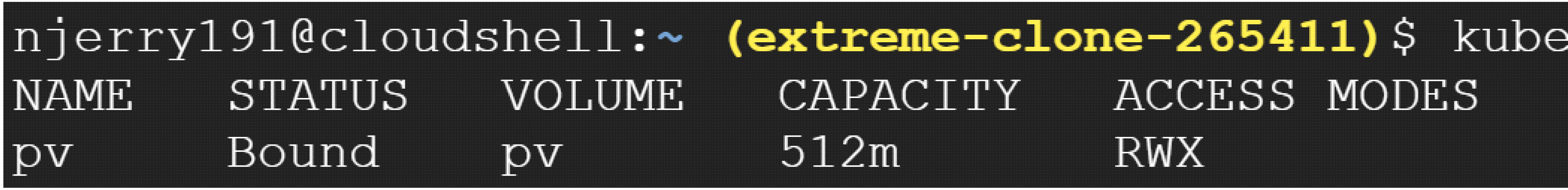
storageClassName: shared

2. Save and create the pvc

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

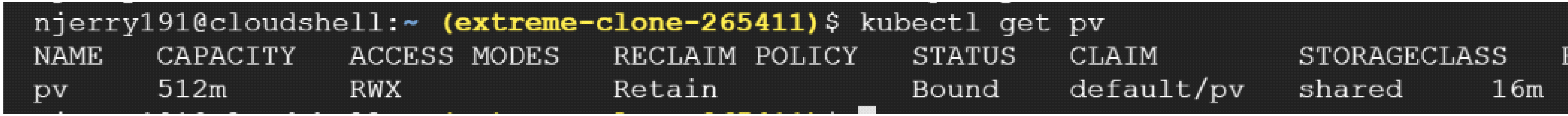
persistentvolumeclaim/app-data created

3. View the pvc



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

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   I
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: v1

kind: Pod

metadata:

```
creationTimestamp: null
name: app-data
spec:
volumes:
- name:congigpvc
persistenVolumeClaim:
claimName: app-data
containers:
- image: nginx
name: app
volumeMounts:
- mountPath: '/srv/app-data '
name: configpvc
```

Answer:

A

Question 3

Question Type: MultipleChoice

Given a partially-functioning Kubernetes cluster, identify symptoms of failure on the cluster.

Determine the node, the failing service, and take actions to bring up the failed service and restore the health of the cluster. Ensure that any changes are made permanently.

You can ssh to the relevant I nodes (bk8s-master-0 or bk8s-node-0) using:

[student@node-1] $ ssh

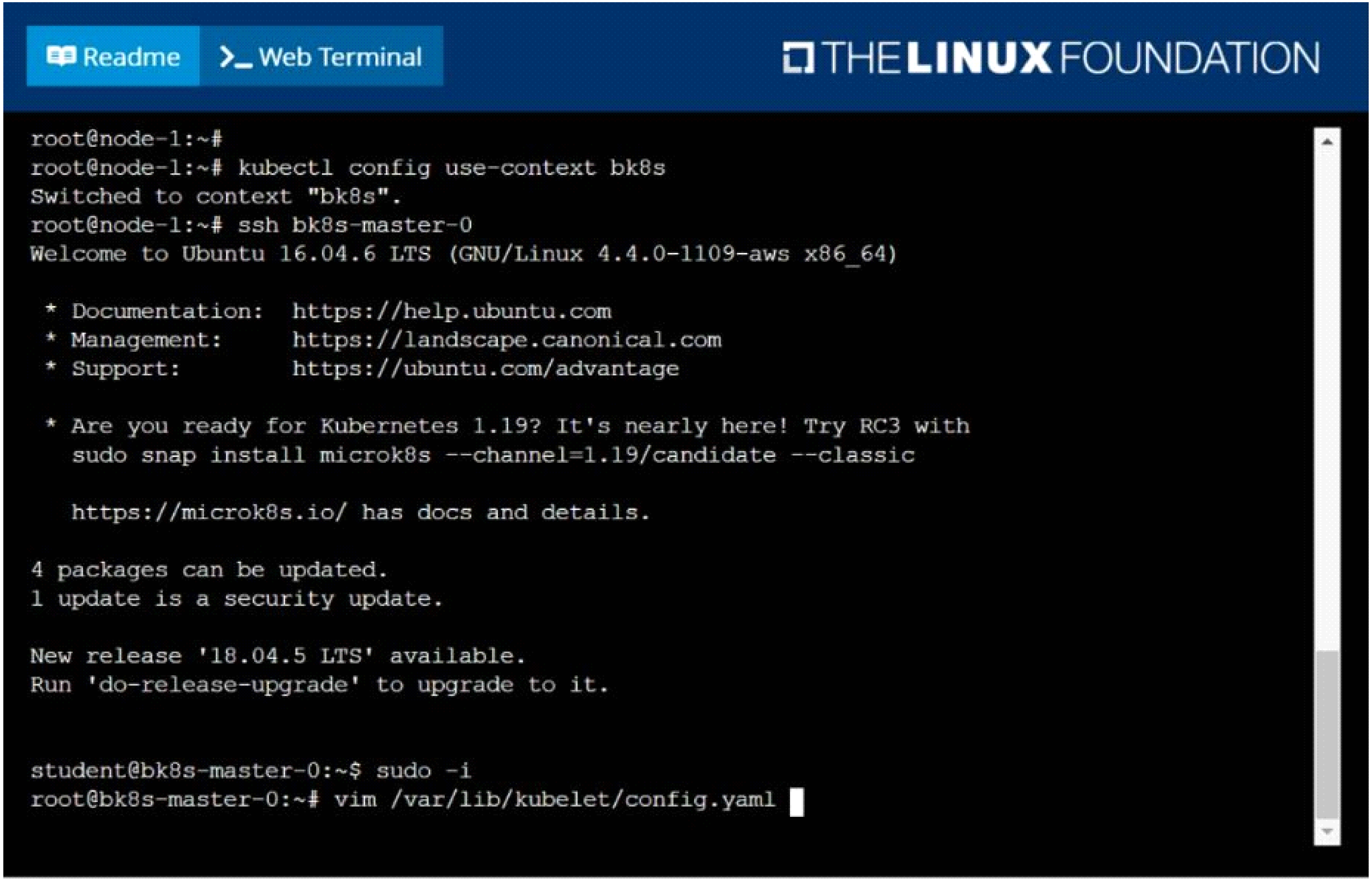
You can assume elevated privileges on any node in the cluster with the following command:

[student@nodename] $ | sudo --i

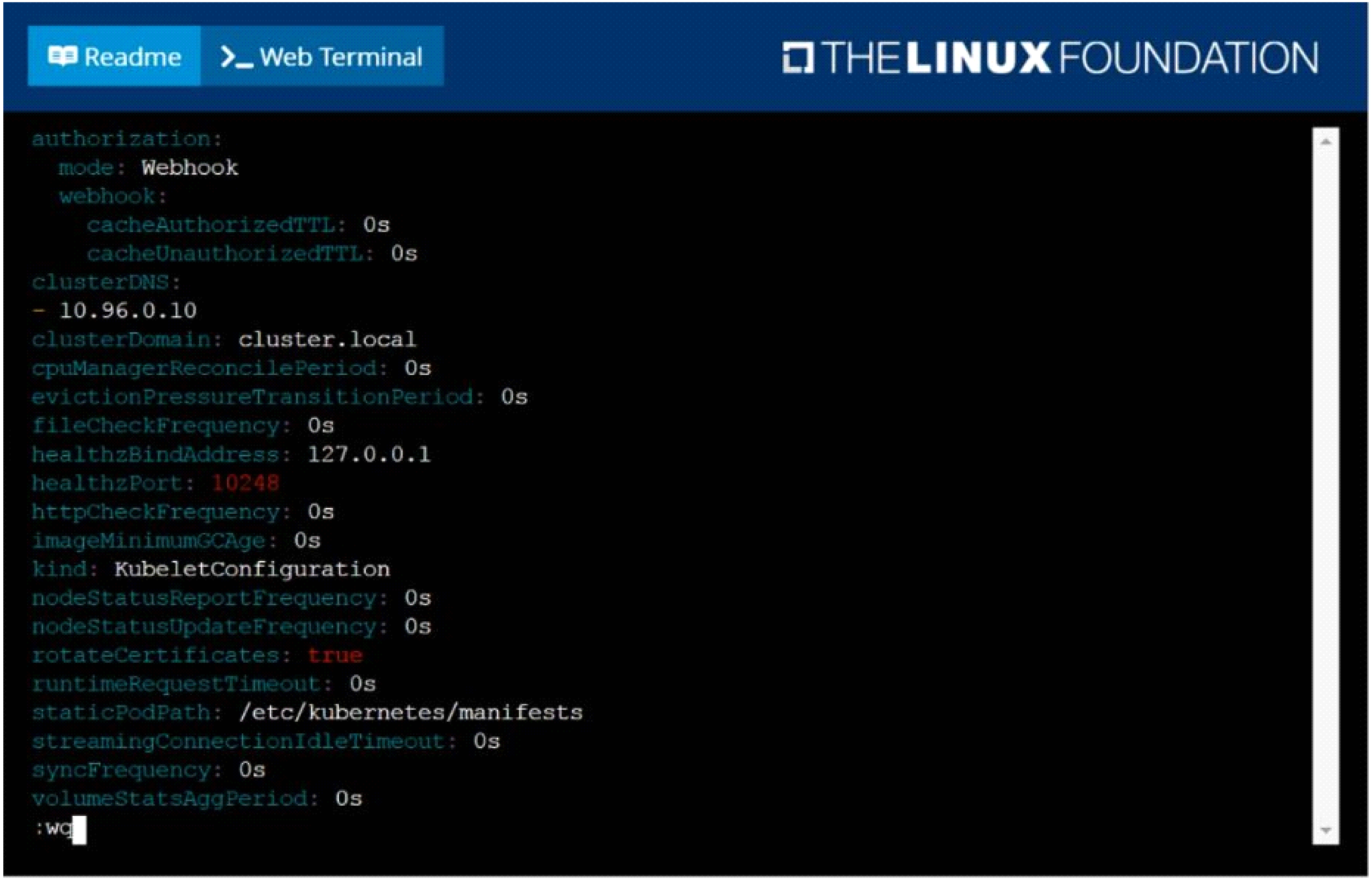
Options:

A- Explanation:

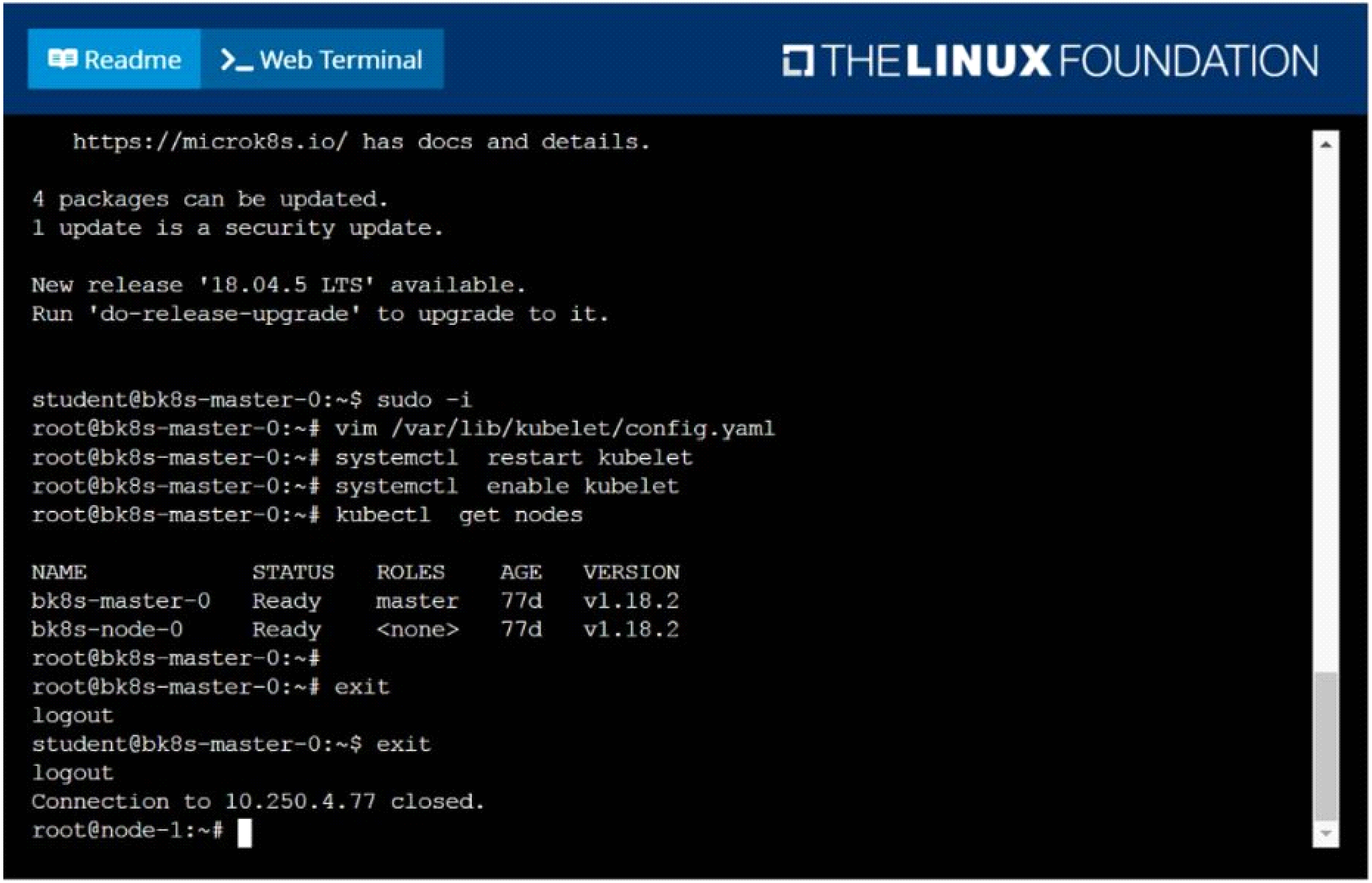
solution



```
root@node-1:~#
root@node-1:~# kubectl config use-context bk8s
Switched to context "bk8s".
root@node-1:~# ssh bk8s-master-0
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1109-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

 * Are you ready for Kubernetes 1.19? It's nearly here! Try RC3 with
   sudo snap install microk8s --channel=1.19/candidate --classic

   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@bk8s-master-0:~$ sudo -i
root@bk8s-master-0:~# vim /var/lib/kubelet/config.yaml
```



```
authorization:
  mode: Webhook
  webhook:
    cacheAuthorizedTTL: 0s
    cacheUnauthorizedTTL: 0s
clusterDNS:
- 10.96.0.10
clusterDomain: cluster.local
cpuManagerReconcilePeriod: 0s
evictionPressureTransitionPeriod: 0s
fileCheckFrequency: 0s
healthzBindAddress: 127.0.0.1
healthzPort: 10248
httpCheckFrequency: 0s
imageMinimumGCAge: 0s
kind: KubeletConfiguration
nodeStatusReportFrequency: 0s
nodeStatusUpdateFrequency: 0s
rotateCertificates: true
runtimeRequestTimeout: 0s
staticPodPath: /etc/kubernetes/manifests
streamingConnectionIdleTimeout: 0s
syncFrequency: 0s
volumeStatsAggPeriod: 0s
:wq
```



```
   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@bk8s-master-0:~$ sudo -i
root@bk8s-master-0:~# vim /var/lib/kubelet/config.yaml
root@bk8s-master-0:~# systemctl  restart kubelet
root@bk8s-master-0:~# systemctl  enable kubelet
root@bk8s-master-0:~# kubectl  get nodes

NAME            STATUS   ROLES    AGE   VERSION
bk8s-master-0   Ready    master   77d   v1.18.2
bk8s-node-0     Ready    <none>   77d   v1.18.2
root@bk8s-master-0:~#
root@bk8s-master-0:~# exit
logout
student@bk8s-master-0:~$ exit
logout
Connection to 10.250.4.77 closed.
root@node-1:~#
```

Answer:

A

Question 4

Question Type: **MultipleChoice**

For this item, you will have to ssh to the nodes ik8s-master-0 and ik8s-node-0 and complete all tasks on these nodes. Ensure that you return to the base node (hostname: node-1) when you have completed this item.

Context

As an administrator of a small development team, you have been asked to set up a Kubernetes cluster to test the viability of a new application.

Task You must use kubeadm to perform this task. Any kubeadm invocations will require the use of the --ignore-preflight-errors=all option.

Configure the node ik8s-master-O as a master node. .

Join the node ik8s-node-o to the cluster.

Options:

A- Explanation:
solution
You must use the kubeadm configuration file located at /etc/kubeadm.conf when initializing
your cluster.
You may use any CNI plugin to complete this task, but if you don't have your favourite CNI plugin's manifest URL at hand, Calico is one popular option: https://docs.projectcalico.org/v3.14/manifests/calico.yaml
Docker is already installed on both nodes and apt has been configured so that you can install the required tools.

Answer:

A

Question 5

Question Type: MultipleChoice

Configure the kubelet systemd- managed service, on the node labelled with name=wk8s-node-1, to launch a pod containing a single container of Image httpd named webtool automatically. Any spec files required should be placed in the /etc/kubernetes/manifests directory on the node.

You can ssh to the appropriate node using:

[student@node-1] $ ssh wk8s-node-1

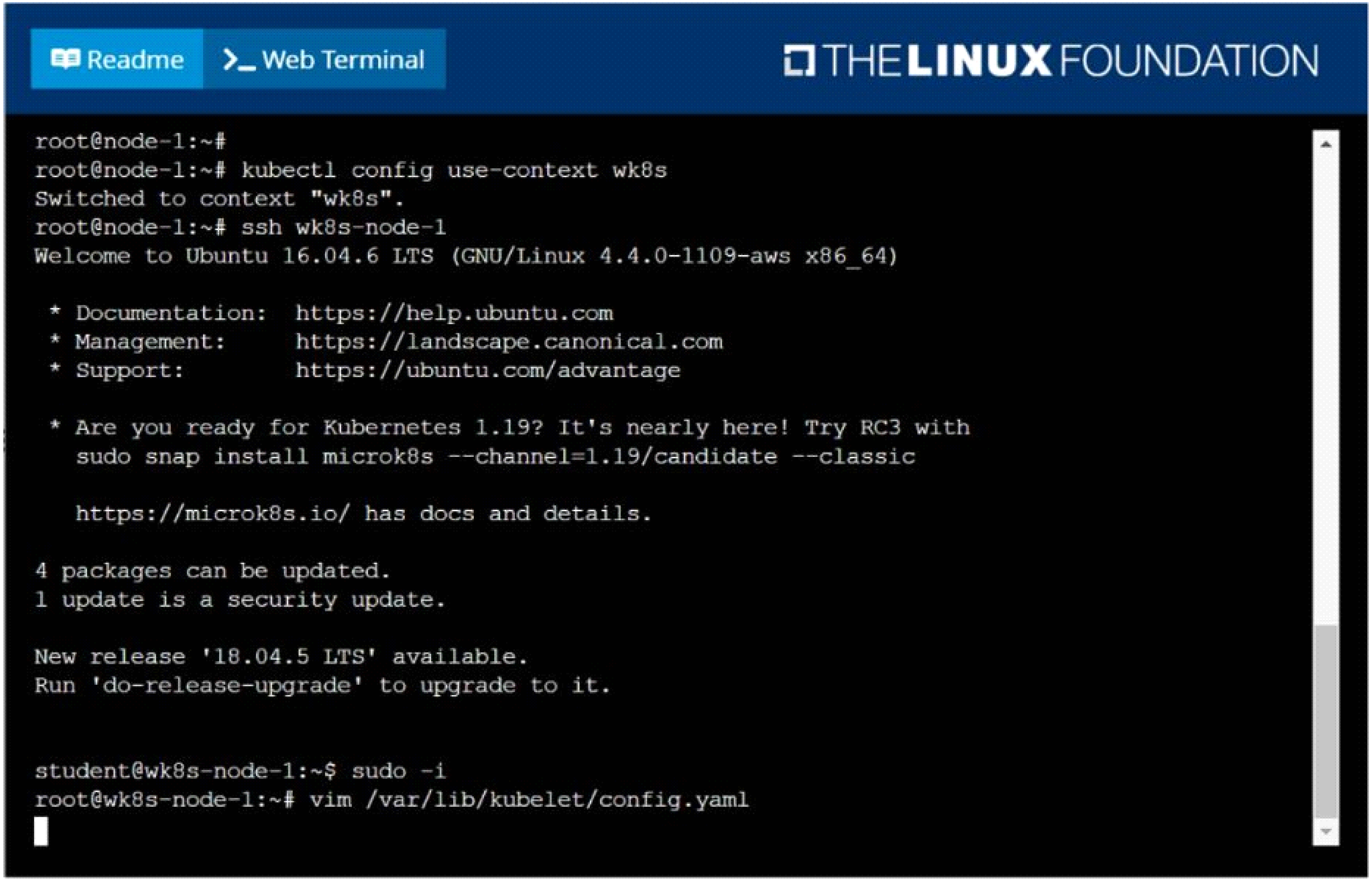
You can assume elevated privileges on the node with the following command:

```
[student@wk8s-node-1] $ | sudo --i
```

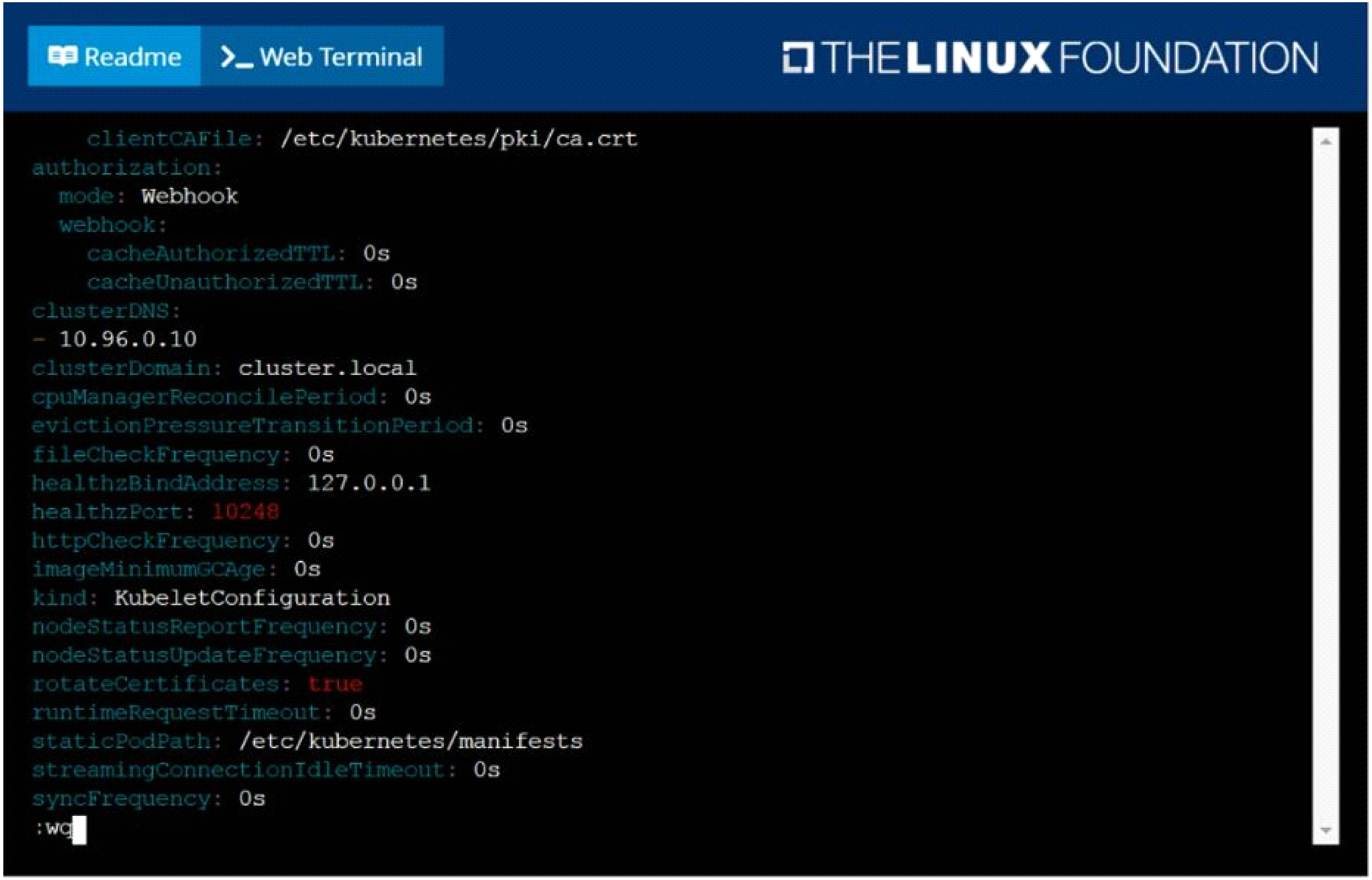
Options:

A- Explanation:

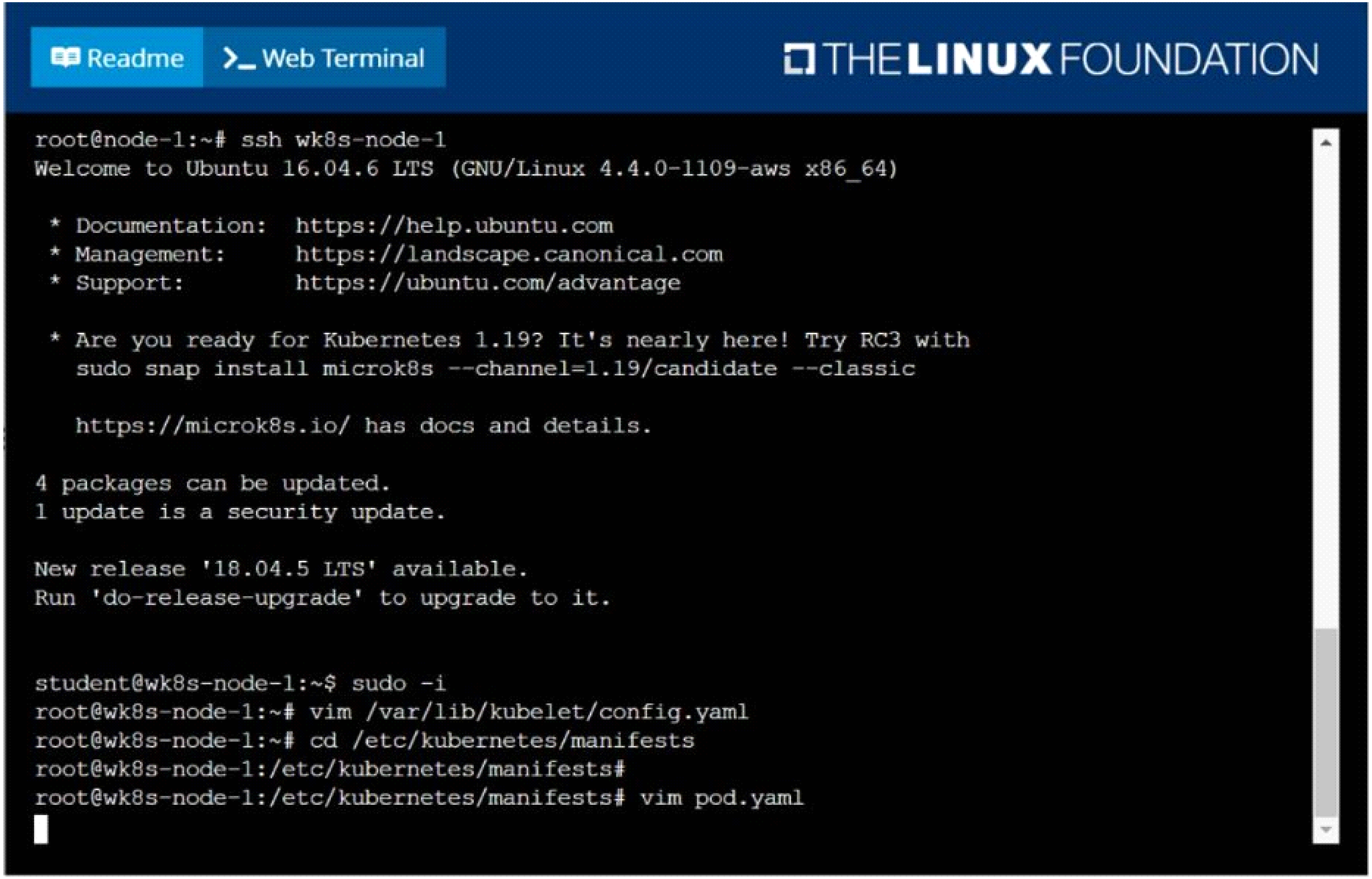
solution



```
root@node-1:~#
root@node-1:~# kubectl config use-context wk8s
Switched to context "wk8s".
root@node-1:~# ssh wk8s-node-1
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1109-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

 * Are you ready for Kubernetes 1.19? It's nearly here! Try RC3 with
   sudo snap install microk8s --channel=1.19/candidate --classic

   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@wk8s-node-1:~$ sudo -i
root@wk8s-node-1:~# vim /var/lib/kubelet/config.yaml
```



```
    clientCAFile: /etc/kubernetes/pki/ca.crt
authorization:
  mode: Webhook
  webhook:
    cacheAuthorizedTTL: 0s
    cacheUnauthorizedTTL: 0s
clusterDNS:
- 10.96.0.10
clusterDomain: cluster.local
cpuManagerReconcilePeriod: 0s
evictionPressureTransitionPeriod: 0s
fileCheckFrequency: 0s
healthzBindAddress: 127.0.0.1
healthzPort: 10248
httpCheckFrequency: 0s
imageMinimumGCAge: 0s
kind: KubeletConfiguration
nodeStatusReportFrequency: 0s
nodeStatusUpdateFrequency: 0s
rotateCertificates: true
runtimeRequestTimeout: 0s
staticPodPath: /etc/kubernetes/manifests
streamingConnectionIdleTimeout: 0s
syncFrequency: 0s
:wq
```



```
root@node-1:~# ssh wk8s-node-1
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1109-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

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   sudo snap install microk8s --channel=1.19/candidate --classic

   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@wk8s-node-1:~$ sudo -i
root@wk8s-node-1:~# vim /var/lib/kubelet/config.yaml
root@wk8s-node-1:~# cd /etc/kubernetes/manifests
root@wk8s-node-1:/etc/kubernetes/manifests#
root@wk8s-node-1:/etc/kubernetes/manifests# vim pod.yaml
```
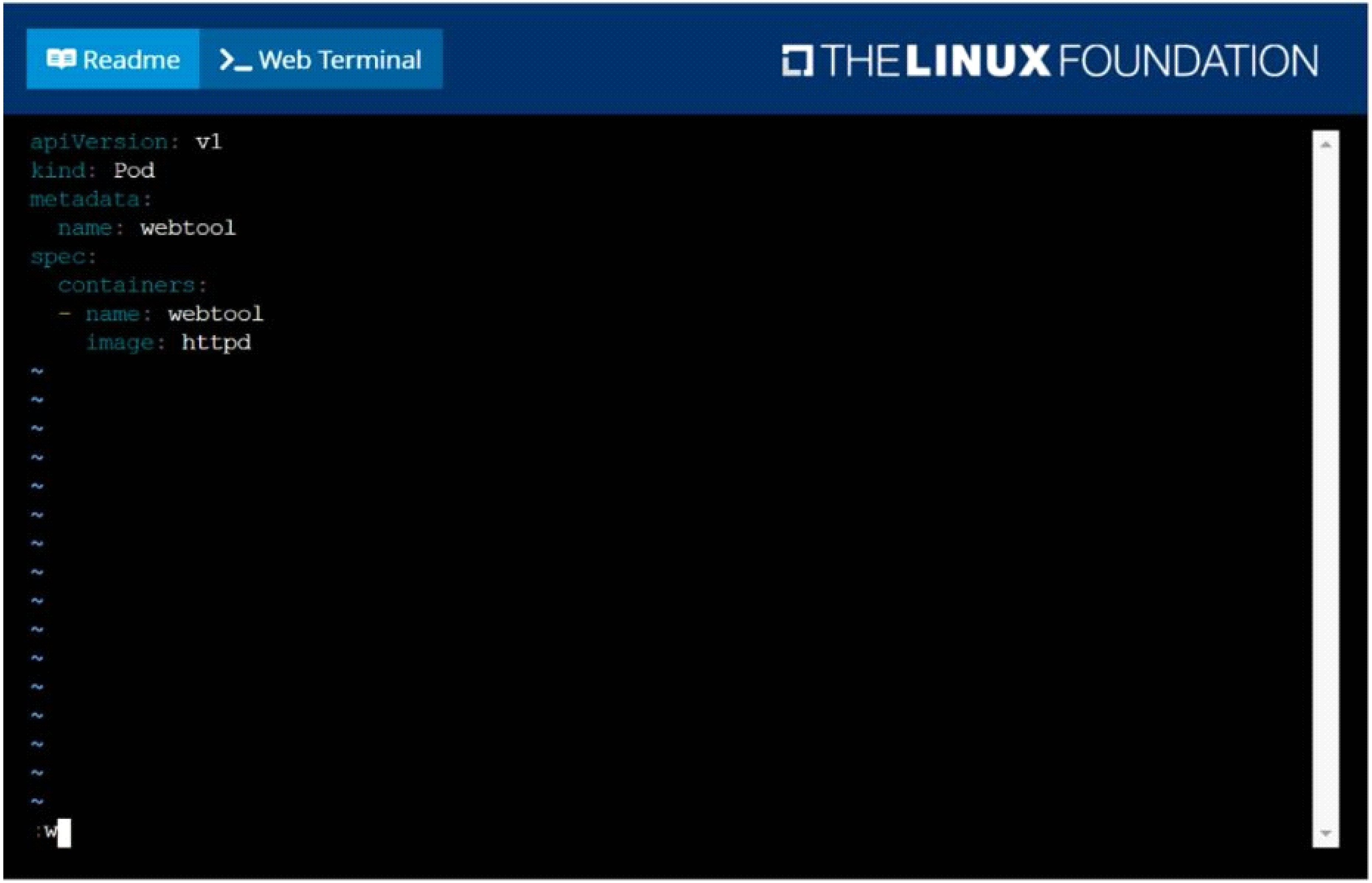
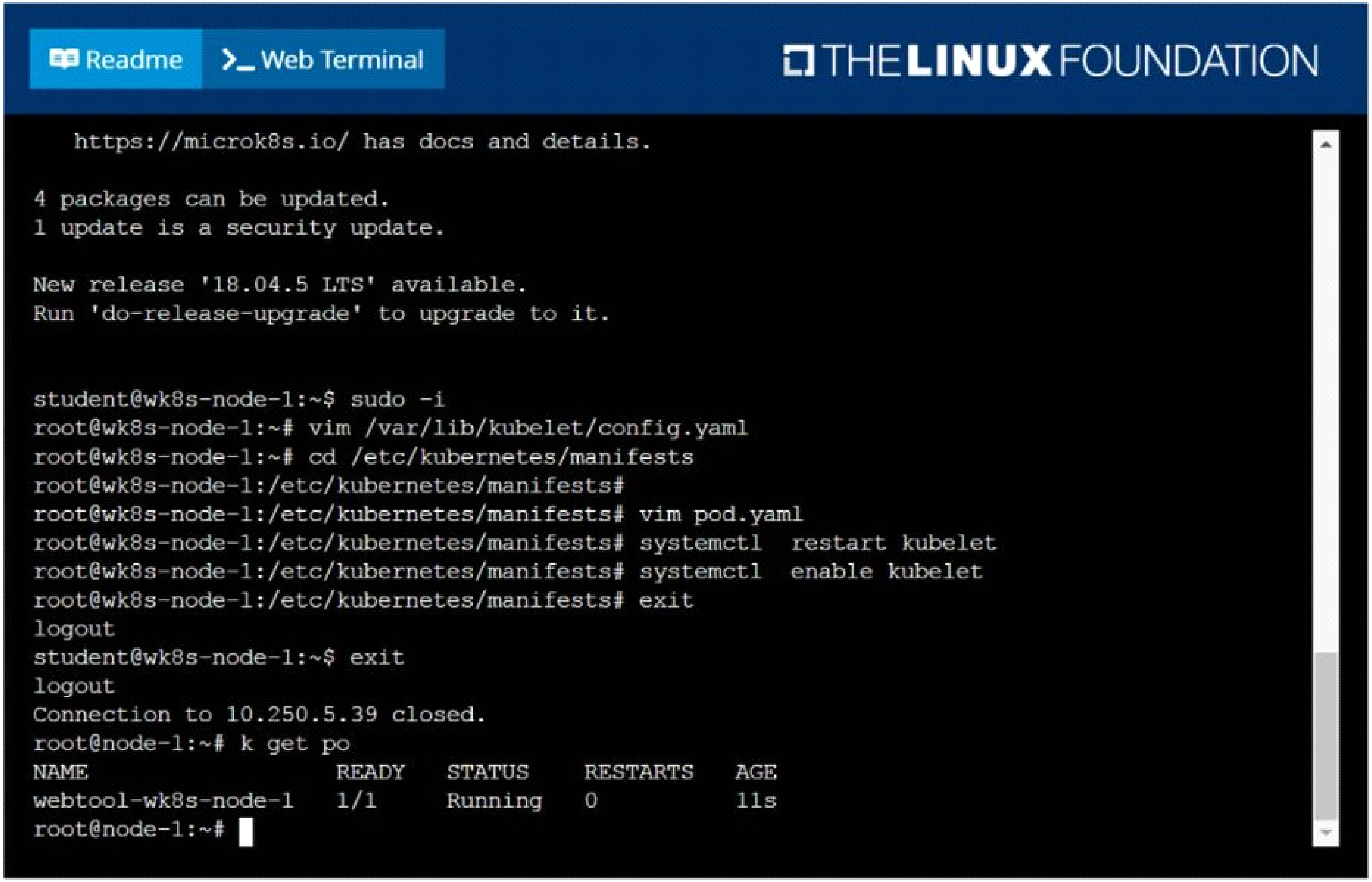



```
apiVersion: v1
kind: Pod
metadata:
  name: webtool
spec:
  containers:
  - name: webtool
    image: httpd
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:w
```



```
   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@wk8s-node-1:~$ sudo -i
root@wk8s-node-1:~# vim /var/lib/kubelet/config.yaml
root@wk8s-node-1:~# cd /etc/kubernetes/manifests
root@wk8s-node-1:/etc/kubernetes/manifests#
root@wk8s-node-1:/etc/kubernetes/manifests# vim pod.yaml
root@wk8s-node-1:/etc/kubernetes/manifests# systemctl  restart kubelet
root@wk8s-node-1:/etc/kubernetes/manifests# systemctl  enable kubelet
root@wk8s-node-1:/etc/kubernetes/manifests# exit
logout
student@wk8s-node-1:~$ exit
logout
Connection to 10.250.5.39 closed.
root@node-1:~# k get po
NAME                  READY   STATUS    RESTARTS   AGE
webtool-wk8s-node-1   1/1     Running   0          11s
root@node-1:~#
```

Answer:

A

Question 6

Question Type: MultipleChoice

A Kubernetes worker node, named wk8s-node-0 is in state NotReady. Investigate why this is the case, and perform any appropriate steps to bring the node to a Ready state, ensuring that any changes are made permanent.

You can ssh to the failed node using:

[student@node-1] $ | ssh Wk8s-node-0

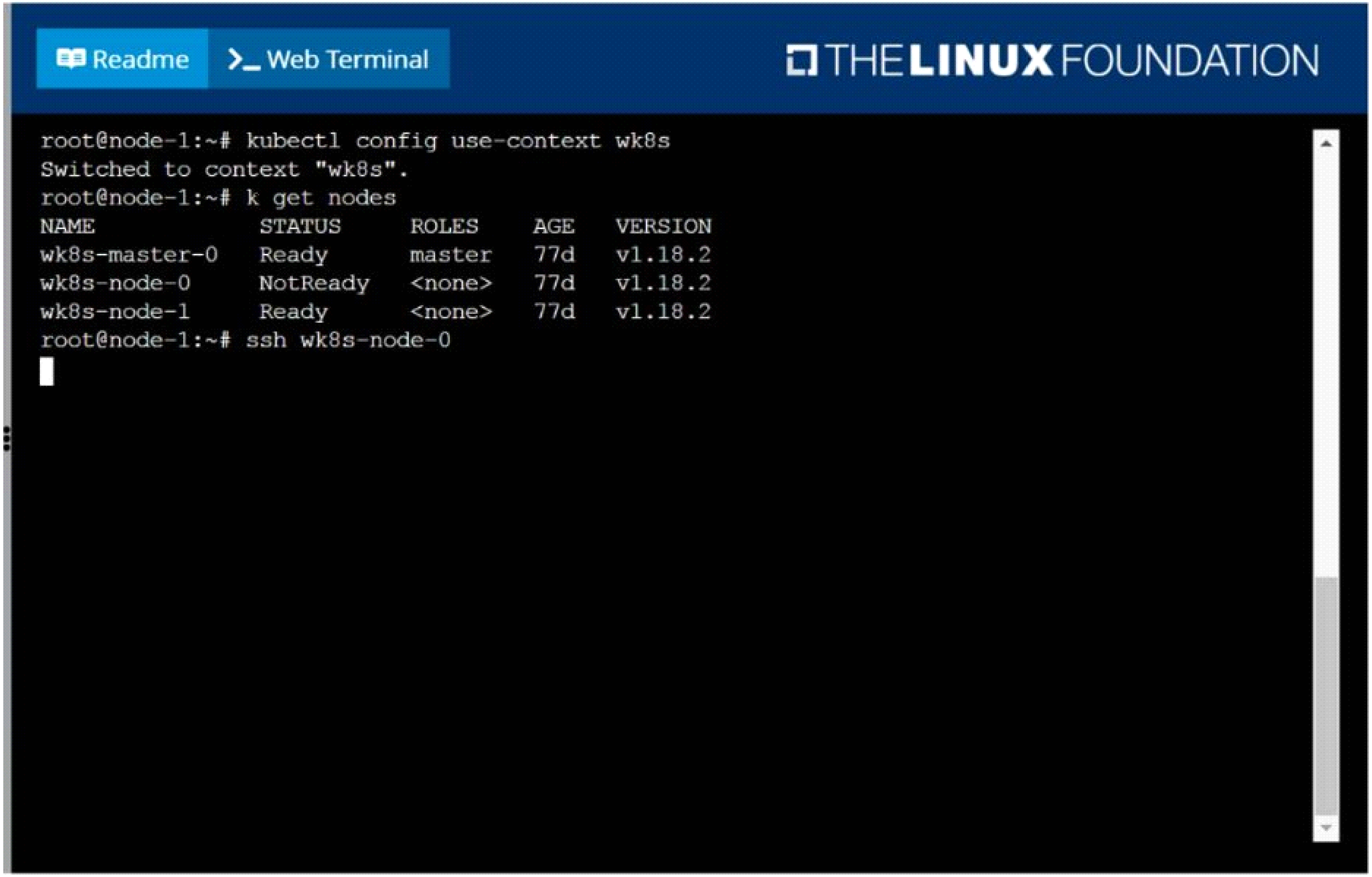
You can assume elevated privileges on the node with the following command:

[student@w8ks-node-0] $ | sudo --i

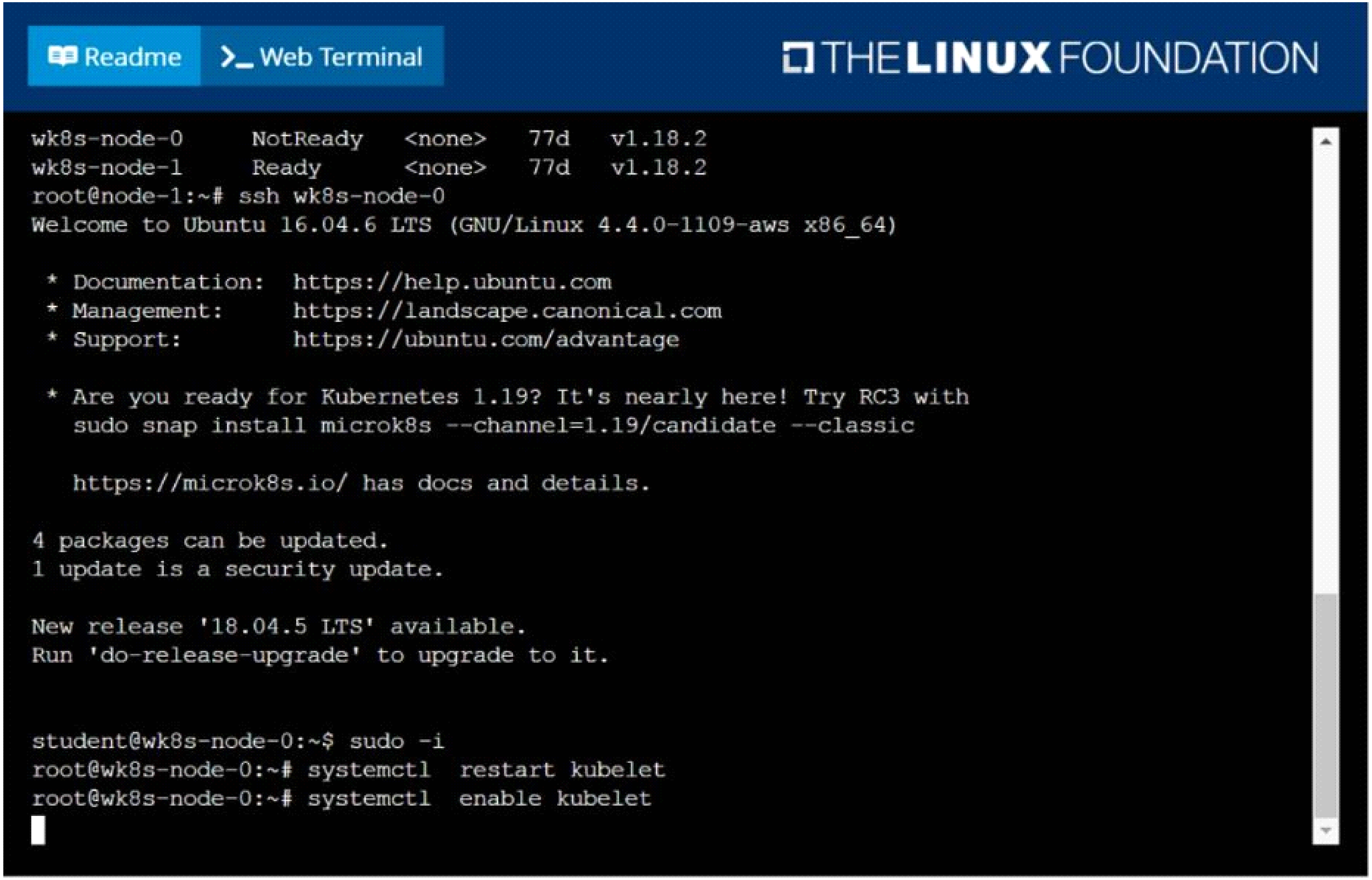
Options:

A- Explanation:

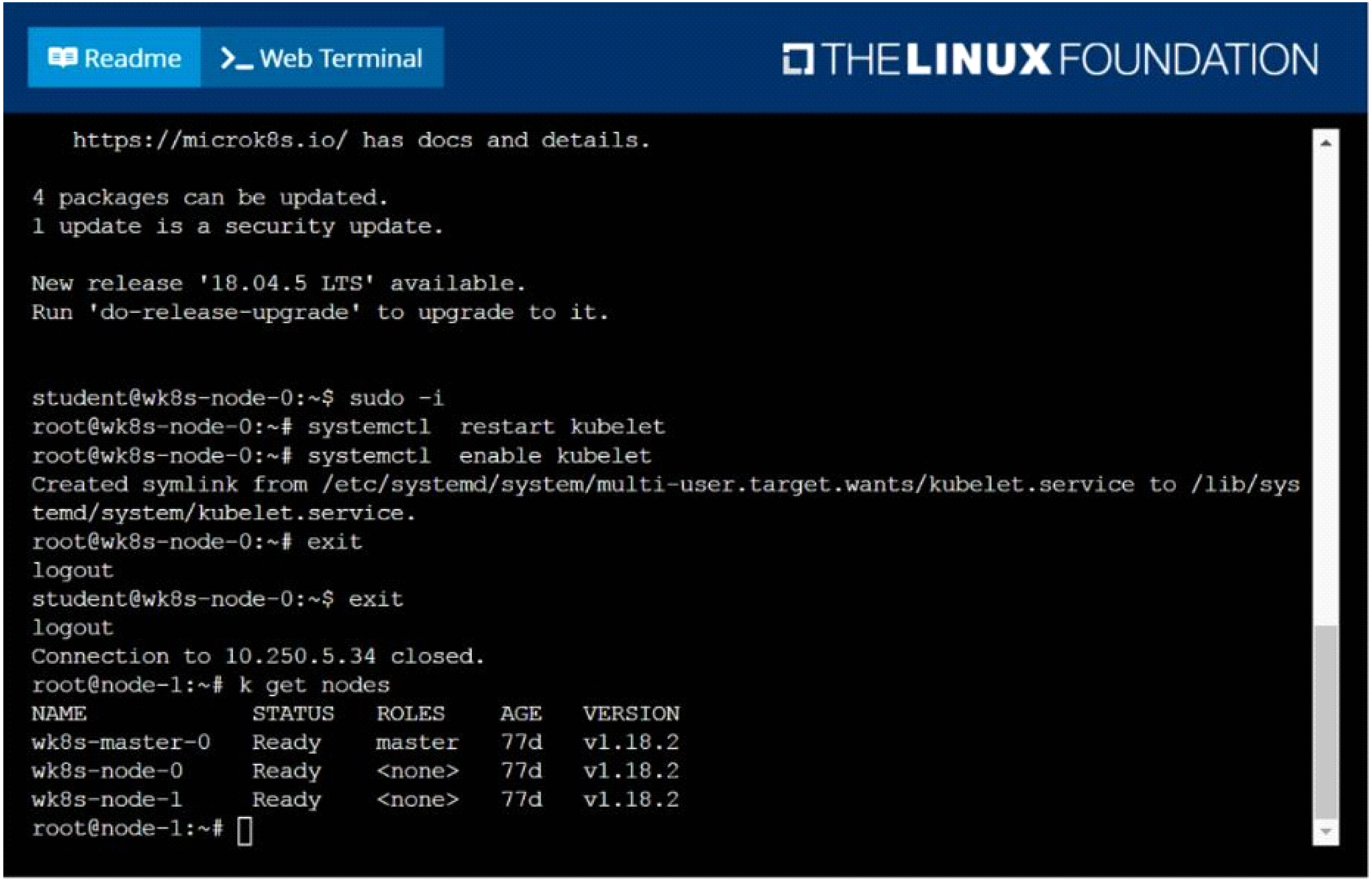
solution



```
root@node-1:~# kubectl config use-context wk8s
Switched to context "wk8s".
root@node-1:~# k get nodes
NAME            STATUS     ROLES    AGE   VERSION
wk8s-master-0   Ready      master   77d   v1.18.2
wk8s-node-0     NotReady   <none>   77d   v1.18.2
wk8s-node-1     Ready      <none>   77d   v1.18.2
root@node-1:~# ssh wk8s-node-0
```



```
wk8s-node-0     NotReady   <none>   77d   v1.18.2
wk8s-node-1     Ready      <none>   77d   v1.18.2
root@node-1:~# ssh wk8s-node-0
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1109-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

 * Are you ready for Kubernetes 1.19? It's nearly here! Try RC3 with
   sudo snap install microk8s --channel=1.19/candidate --classic

   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@wk8s-node-0:~$ sudo -i
root@wk8s-node-0:~# systemctl  restart kubelet
root@wk8s-node-0:~# systemctl  enable kubelet
```



```
   https://microk8s.io/ has docs and details.

4 packages can be updated.
1 update is a security update.

New release '18.04.5 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


student@wk8s-node-0:~$ sudo -i
root@wk8s-node-0:~# systemctl  restart kubelet
root@wk8s-node-0:~# systemctl  enable kubelet
Created symlink from /etc/systemd/system/multi-user.target.wants/kubelet.service to /lib/sys
temd/system/kubelet.service.
root@wk8s-node-0:~# exit
logout
student@wk8s-node-0:~$ exit
logout
Connection to 10.250.5.34 closed.
root@node-1:~# k get nodes
NAME             STATUS   ROLES    AGE   VERSION
wk8s-master-0    Ready    master   77d   v1.18.2
wk8s-node-0      Ready    <none>   77d   v1.18.2
wk8s-node-1      Ready    <none>   77d   v1.18.2
root@node-1:~# 
```

Answer:

A

Question 7

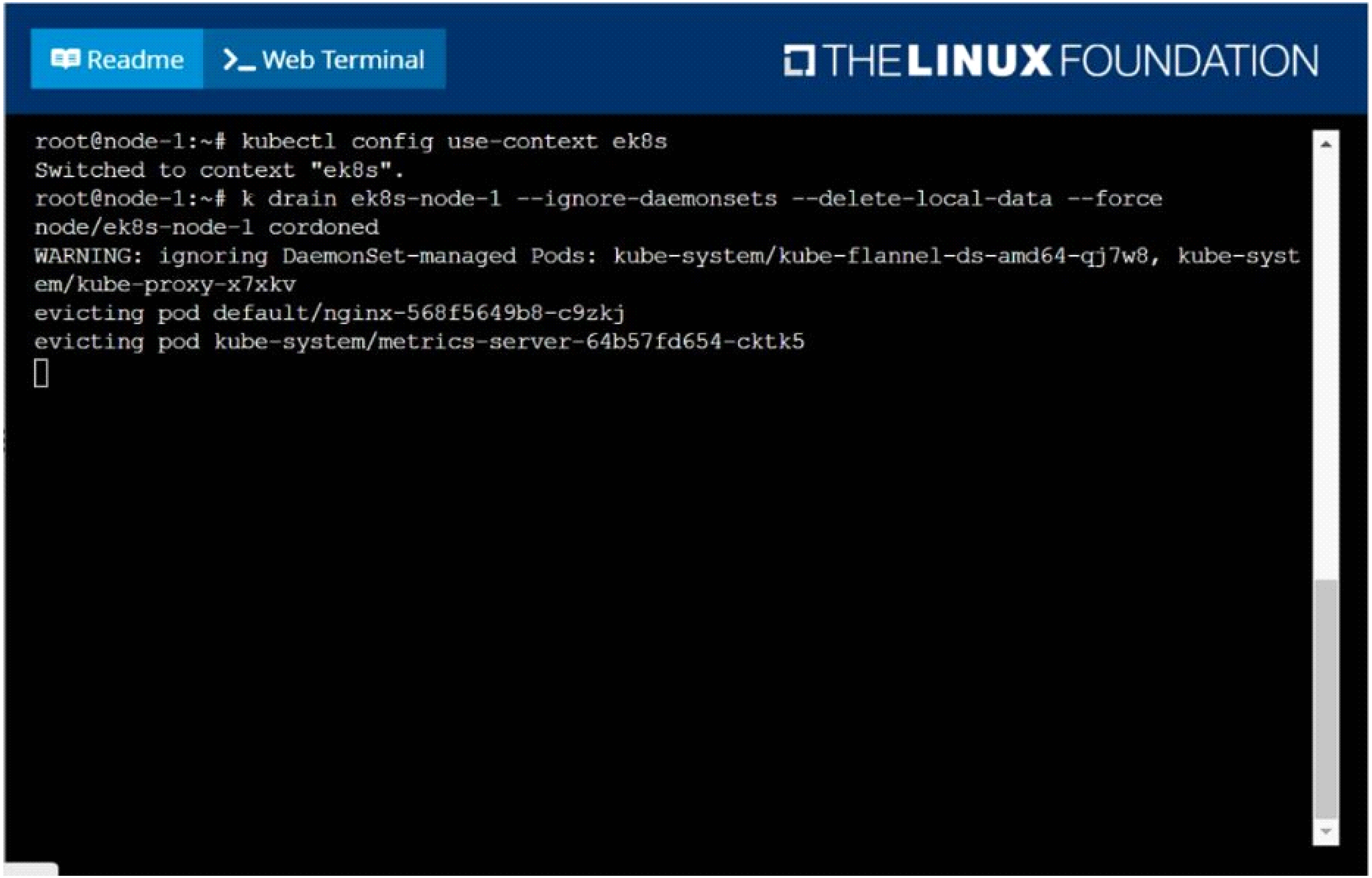
Question Type: MultipleChoice

Set the node named ek8s-node-1 as unavailable and reschedule all the pods running on it.

Options:

A- Explanation:

solution



```
root@node-1:~# kubectl config use-context ek8s
Switched to context "ek8s".
root@node-1:~# k drain ek8s-node-1 --ignore-daemonsets --delete-local-data --force
node/ek8s-node-1 cordoned
WARNING: ignoring DaemonSet-managed Pods: kube-system/kube-flannel-ds-amd64-qj7w8, kube-syst
em/kube-proxy-x7xkv
evicting pod default/nginx-568f5649b8-c9zkj
evicting pod kube-system/metrics-server-64b57fd654-cktk5
```

Answer:

A

Question 8

Question Type: **MultipleChoice**

Create a snapshot of the etcd instance running at https://127.0.0.1:2379, saving the snapshot to the file path /srv/data/etcd-snapshot.db.

The following TLS certificates/key are supplied for connecting to the server with etcdctl:

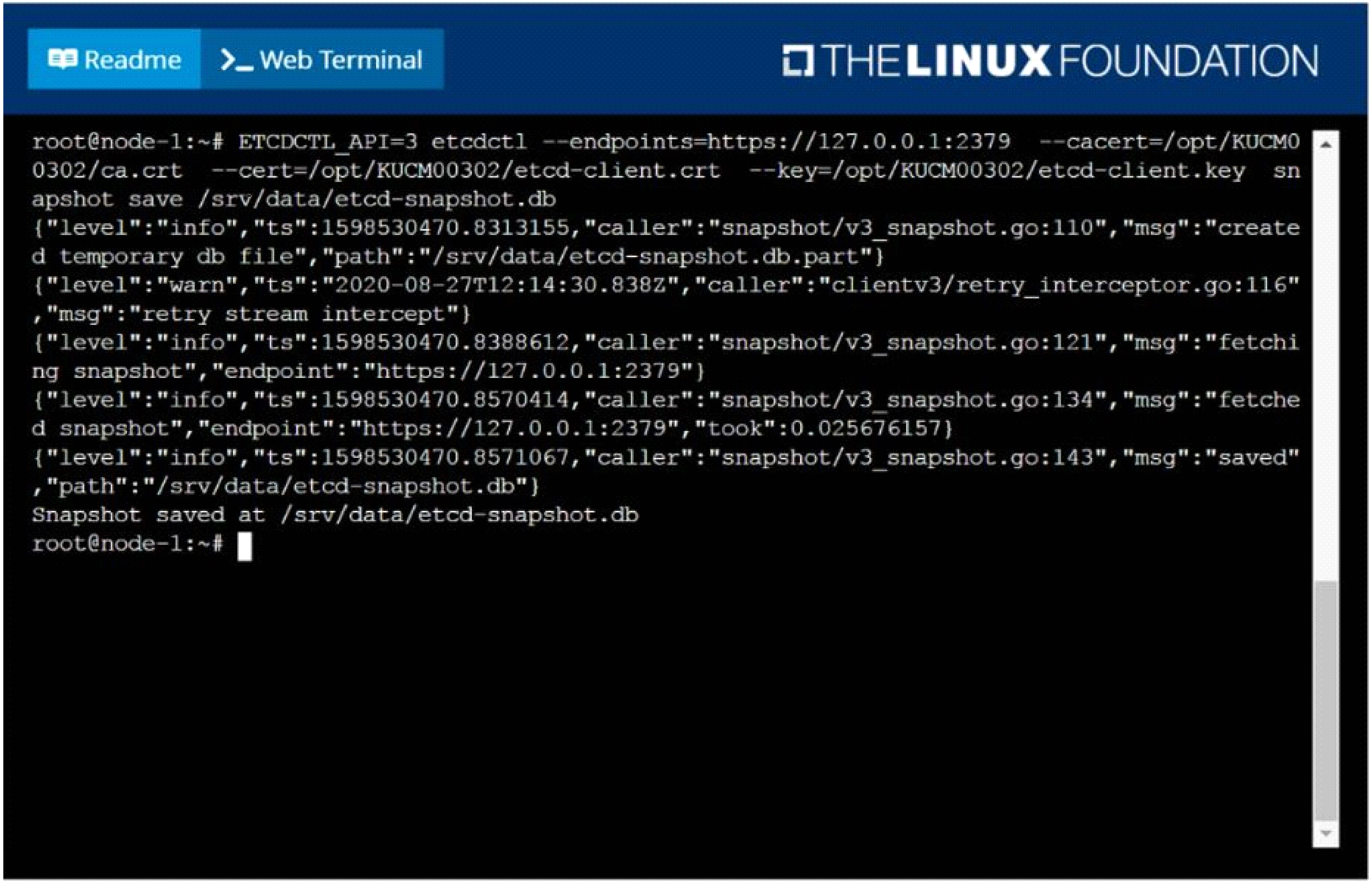
CA certificate: /opt/KUCM00302/ca.crt

Client certificate: /opt/KUCM00302/etcd-client.crt

Client key: Topt/KUCM00302/etcd-client.key

Options:

A- Explanation:
solution



```
root@node-1:~# ETCDCTL_API=3 etcdctl --endpoints=https://127.0.0.1:2379  --cacert=/opt/KUCM0
0302/ca.crt  --cert=/opt/KUCM00302/etcd-client.crt  --key=/opt/KUCM00302/etcd-client.key  sn
apshot save /srv/data/etcd-snapshot.db
{"level":"info","ts":1598530470.8313155,"caller":"snapshot/v3_snapshot.go:110","msg":"create
d temporary db file","path":"/srv/data/etcd-snapshot.db.part"}
{"level":"warn","ts":"2020-08-27T12:14:30.838Z","caller":"clientv3/retry_interceptor.go:116"
,"msg":"retry stream intercept"}
{"level":"info","ts":1598530470.8388612,"caller":"snapshot/v3_snapshot.go:121","msg":"fetchi
ng snapshot","endpoint":"https://127.0.0.1:2379"}
{"level":"info","ts":1598530470.8570414,"caller":"snapshot/v3_snapshot.go:134","msg":"fetche
d snapshot","endpoint":"https://127.0.0.1:2379","took":0.025676157}
{"level":"info","ts":1598530470.8571067,"caller":"snapshot/v3_snapshot.go:143","msg":"saved"
,"path":"/srv/data/etcd-snapshot.db"}
Snapshot saved at /srv/data/etcd-snapshot.db
root@node-1:~# 
```

Answer:

A