

**\*\*CKA Lab Part 4 - Cluster\*\***

**\*\*Lab 1 - Cluster Upgrades\*\***

Upgrade a Kubernetes cluster running a previous version to the latest version

- Upgrade the kubeadm binary

```
apt-mark unhold kubeadm && \  
apt-get update && apt-get install -y kubeadm=1.13.x-00 && \  
apt-mark hold kubeadm
```

- Assess the upgrade path that kubeadm has provided

```
sudo kubeadm upgrade plan
```

- Note down the command to execute the upgrade

```
sudo kubeadm upgrade apply v1.14.1
```

- Upgrade Kubelet on all the nodes

```
apt-mark unhold kubelet && \  
apt-get update && apt-get install -y kubelet=1.13.x-00 && \  
apt-mark hold kubelet
```

**\*\*Lab 2 - Cluster Upgrades - OS Upgrades\*\***

- Gracefully remove a node from active service

```
kubect1 drain k8s-worker-03 --ignore-daemonsets  
  
node/k8s-worker-03 cordoned  
WARNING: Ignoring DaemonSet-managed pods: kube-flannel-ds-amd64-9mrnj, kube-proxy-fq4vx  
  
pod/nginx-deployment-6dd86d77d-vbjcl evicted  
pod/nginx-deployment-6dd86d77d-hsthw evicted  
  
node/k8s-worker-03 evicted  
  
*   Verify the node has scheduling disabled
```

```
kubect1 get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
k8s-master-03	Ready	master	14d	v1.14.1
k8s-worker-03	Ready, SchedulingDisabled	<none>	14d	v1.14.1
k8s-worker-04	Ready	<none>	14d	v1.14.1

- Gracefully return a node into active service

```
kubect1 uncordon k8s-worker-03  
node/k8s-worker-03 uncordoned
```

\* Verify the node has scheduling enabled

```
kubect1 get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
k8s-master-03	Ready	master	14d	v1.14.1
k8s-worker-03	Ready	<none>	14d	v1.14.1
k8s-worker-04	Ready	<none>	14d	v1.14.1

**\*\*Lab 3 - Back up etcd\*\***

- Take a snapshot of the etcd database

```
sudo ETCDCTL_API=3 etcdctl snapshot save snapshotdb
--cacert /etc/kubernetes/pki/etcd/server.crt
--cert /etc/kubernetes/pki/etcd/ca.crt
--key /etc/kubernetes/pki/etcd/ca.key
```

- Verify the snapshot

```
sudo ETCDCTL_API=3 etcdctl --write-out=table snapshot status snapshotdb
+-----+-----+-----+-----+
|  HASH   | REVISION | TOTAL KEYS | TOTAL SIZE |
+-----+-----+-----+-----+
| 45c3ef38 | 1851970 | 1052 | 3.8 MB |
+-----+-----+-----+-----+
```

## **\*\*Lab 4 - Back up Kubernetes certificates\*\***

- Tarball the k8s certificate directory

```
cd /etc/kubernetes/pki/
ls -la
total 84
drwxr-xr-x 3 root root 4096 Apr 16 08:31 .
drwxr-xr-x 5 root root 4096 Apr 12 13:45 ..
-rw-r--r-- 1 root root 1229 Apr 11 15:23 apiserver.crt
-rw-r--r-- 1 root root 1090 Apr 12 13:45 apiserver-etcd-client.crt
-rw----- 1 root root 1679 Apr 12 13:45 apiserver-etcd-client.key
-rw----- 1 root root 1679 Apr 11 15:23 apiserver.key
-rw-r--r-- 1 root root 1099 Apr 11 15:23 apiserver-kubelet-client.crt
-rw----- 1 root root 1675 Apr 11 15:23 apiserver-kubelet-client.key
-rw-r--r-- 1 root root 1025 Apr 11 15:23 ca.crt
-rw----- 1 root root 1675 Apr 11 15:23 ca.key
-rw-r--r-- 1 root root 17 Apr 16 08:31 ca.srl
drwxr-xr-x 2 root root 4096 Apr 11 15:23 etcd
-rw-r--r-- 1 root root 1038 Apr 11 15:23 front-proxy-ca.crt
-rw----- 1 root root 1675 Apr 11 15:23 front-proxy-ca.key
-rw-r--r-- 1 root root 1058 Apr 11 15:23 front-proxy-client.crt
-rw----- 1 root root 1679 Apr 11 15:23 front-proxy-client.key
-rw----- 1 root root 1675 Apr 11 15:23 sa.key
-rw----- 1 root root 451 Apr 11 15:23 sa.pub
-rw-r--r-- 1 root root 1005 Apr 16 08:31 vt.crt
-rw-r--r-- 1 root root 915 Apr 16 08:30 vt.csr
-rw----- 1 root root 1675 Apr 16 08:30 vt.key
```

```
Tar -zcvf pki-certs.tar.gz /etc/kubernetes/pki
```