Linux-Foundation

Exam Questions CKS

Certified Kubernetes Security Specialist (CKS) Exam

NEW QUESTION 1
Given an existing Pod named test-web-pod running in the namespace test-system
Edit the existing Role bound to the Pod's Service Account named sa-backend to only allow performing get operations on endpoints.
Create a new Role named test-system-role-2 in the namespace test-system, which can perform patch operations, on resources of type statefulsets.
Create a new RoleBinding named test-system-role-2-binding binding the newly created Role to the Pod's ServiceAccount sa-backend.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Send us your feedback on this.

NEW QUESTION 2
Enable audit logs in the cluster, To Do so, enable the log backend, and ensure that-
* 1. logs are stored at /var/log/kubernetes/kubernetes-logs.txt.
* 2. Log files are retainedfor5 days.
* 3. at maximum, a number of 10 old audit logs files are retained.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
Edit and extend the basic policy to log:
* 1. Cronjobs changes at RequestResponse
* 2. Log the request body of deployments changesinthenamespacekube-system.
* 3. Log all other resourcesincoreandextensions at the Request level.
* 4. Don't log watch requests by the "system:kube-proxy" on endpoints or Send us your feedback on it.

NEW QUESTION 3
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 thAe PI server:
* a. Ensure the --authorization-mode argument includes RBAC
* b. Ensure the --authorization-mode argument includes Node
* c. Ensure that the --profiling argumentissettofalse
Fix all of the following violations that were found against the Kubelet:
* a. Ensure the --anonymous-auth argumentissettofalse.
* b. Ensure that the --authorization-mode argumentissetto 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
Hint: Take the use of Tool Kube-Bench

A. Mastered
B. Not Mastered

Answer: A

Explanation:
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 fil/eetc/kubernetes/manifests/kube-apiserver.yaml on the master node and set the --authorization-mode parameter to a value that includeNs ode.
--authorization-mode=Node,RBAC
Audit:
/bin/ps -ef | grep kube-apiserver | grep -v grep
Expected result:
'Node,RBAC' has 'Node'
Ensure that the --profiling argumentissettofalse
Remediation: Edit the API server pod specification fil/eetc/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:-
Ensure the --anonymous-auth argumentissettofalse.
Remediation: If using a Kubelet config file, edit the file to set authenticationa:nonymous: 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
--anonymous-auth=false
variable.
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 argumentissetto 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: {}

NEW QUESTION 4
Create a new ServiceAccount named backend-sa in the existing namespace default, which has the capability to list the pods inside the namespace default.
Create a new Pod named backend-pod in the namespace default, mount the newly created sa backend-sa to the pod, and Verify that the pod is able to list pods.
Ensure that the Pod is running.

A. Mastered
B. Not Mastered

Answer: A

Explanation:
A service account provides an identity for processes that run in a Pod.
When you (a human) access the cluster (for example, using kubectl), you are authenticated by the apiserver as a particular User Account (currently this is usually admin, unless your cluster administrator has customized your cluster). Processes in containers inside pods can also contact the apiserver. When they do, they are authenticated as a particular Service Account (for example, default).
When you create a pod, if you do not specify a service account, it is automatically assigned the default servic account in the same namespace. If you get the raw json or yaml for a pod you have created (for
example, kubectl get pods/<podname> -o yaml), you can see the spec.serviceAccountName field has been automatically set.
You can access the API from inside a pod using automatically mounted service account credentials, as described in Accessing the Cluster. The API permissions of the service account depend on the authorization plugin and policy in use.
In version 1.6+, you can opt out of automounting API credentials for a service account by setting automountServiceAccountToken: false on the service account:
apiVersion:v1
kind:ServiceAccount
metadata:
name:build-robot
automountServiceAccountToken:false
In version 1.6+, you can also opt out of automounting API credentials for a particular pod:
apiVersion:v1
kind:Pod
metadata:
name:my-pod
spec:
serviceAccountName:build-robot
automountServiceAccountToken:false
The pod spec takes precedence over the service account if both specify a automountServiceAccountToken value.

NEW QUESTION 5
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. Mastered
B. Not Mastered

Answer: A

Explanation:
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: kubectlapply-froleBindingJohn.yaml--as=john
rolebinding.rbac.authorization.k8s.io/john_external-rosource-rbcreated
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"]

NEW QUESTION 6
Create a PSP that will only allow the persistentvolumeclaim as the volume type in the namespace restricted.
Create a new PodSecurityPolicy named prevent-volume-policy which prevents the pods which is having different volumes mount apart from persistentvolumeclaim.
Create a new ServiceAccount named psp-sa in the namespace restricted.
Create a new ClusterRole named psp-role, which uses the newly created Pod Security Policy prevent-volume-policy
Create a new ClusterRoleBinding named psp-role-binding, which binds the created ClusterRole psp-role to the created SA psp-sa.
Hint:
Also, Check the Configuration is working or not by trying to Mount a Secret in the pod maifest, it should get failed.
POD Manifest:
* apiVersion: v1
* kind: Pod
* metadata:
* name:
* spec:
* containers:
* - name:
* image:
* volumeMounts:
* - name:
* mountPath:
* volumes:
* - name:
* secret:
* secretName:

A. Mastered
B. Not Mastered

Answer: A

Explanation:

apiVersion: policy/v1beta1
kind: PodSecurityPolicy
metadata:
name: restricted
annotations:
seccomp.security.alpha.kubernetes.io/allowedProfileNames: 'docker/default,runtime/default'
apparmor.security.beta.kubernetes.io/allowedProfileNames: 'runtime/default' seccomp.security.alpha.kubernetes.io/defaultProfileName: 'runtime/default'
apparmor.security.beta.kubernetes.io/defaultProfileName: 'runtime/default'
spec:
privileged: false
Required to prevent escalations to root.
allowPrivilegeEscalation: false
This is redundant with non-root + disallow privilege escalation,
but we can provide it for defense in depth.
requiredDropCapabilities:
- ALL
Allow core volume types. volumes:
- 'configMap'
- 'emptyDir'
- 'projected'
- 'secret'
- 'downwardAPI'
Assume that persistentVolumes set up by the cluster admin are safe to use.
- 'persistentVolumeClaim'
hostNetwork: false

hostIPC: false
hostPID: false
runAsUser:
Require the container to run without root privileges.
rule: 'MustRunAsNonRoot'
seLinux:
This policy assumes the nodes are using AppArmor rather than SELinux.
rule: 'RunAsAny'
supplementalGroups:
rule: 'MustRunAs'
ranges:
Forbid adding the root group.
- min: 1
max: 65535
fsGroup:
rule: 'MustRunAs'
ranges:
Forbid adding the root group.
- min: 1
max: 65535
readOnlyRootFilesystem: false

NEW QUESTION 10
.....

Thank You for Trying Our Product

We offer two products:

1st - We have Practice Tests Software with Actual Exam Questions

2nd - Questons and Answers in PDF Format

CKS Practice Exam Features:

* CKS Questions and Answers Updated Frequently

* CKS Practice Questions Verified by Expert Senior Certified Staff

* CKS Most Realistic Questions that Guarantee you a Pass on Your FirstTry

* CKS Practice Test Questions in Multiple Choice Formats and Updatesfor 1 Year