6.14. LABS



Exercise 6.3: Working with ServiceAccounts

We can use ServiceAccounts to assign cluster roles, or the ability to use particular HTTP verbs. In this section we will create a new ServiceAccount and grant it access to view secrets.

1. Begin by viewing secrets, both in the default namespace as well as all.

```
student@ckad-1:~/app2$ cd
student@ckad-1:~$ kubectl get secrets
                     TYPE
                                                           DATA
                                                                  AGE
default-token-c4rdg
                     kubernetes.io/service-account-token
                                                           3
                                                                  4d16h
lfsecret
                     Opaque
                                                                  6m5s
student@ckad-1:~$ kubectl get secrets --all-namespaces
NAMESPACE
             NAME
TYPE
                                      DATA
                                             AGE
default
             default-token-c4rdg
                                             4d16h
 kubernetes.io/service-account-token 3
kube-public default-token-zqzbg
kubernetes.io/service-account-token 3
                                             4d16h
kube-system attachdetach-controller-token-wxzvc
kubernetes.io/service-account-token 3
<output_omitted>
```

2. We can see that each agent uses a secret in order to interact with the API server. We will create a new ServiceAccount which will have access.

```
student@ckad-1:~$ vim serviceaccount.yaml
```



serviceaccount.yaml

```
apiVersion: v1
kind: ServiceAccount
metadata:
name: secret-access-sa
```

3. Now we will create a ClusterRole which will list the actual actions allowed cluster-wide. We will look at an existing role to see the syntax.

```
student@ckad-1:~$ kubectl get clusterroles
```



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```
NAME AGE
admin 1d17h
calico-cni-plugin 1d17h
calico-kube-controllers 1d17h
cluster-admin 1d17h
<output_omitted>
```

4. View the details for the admin and compare it to the cluster-admin. The admin has particular actions allowed, but cluster-admin has the meta-character '*' allowing all actions.

```
student@ckad-1:~$ kubectl get clusterroles admin -o yaml
<output_omitted>
student@ckad-1:~$ kubectl get clusterroles cluster-admin -o yaml
<output_omitted>
```

5. Using some of the output above, we will create our own file.

student@ckad-1:~\$ vim clusterrole.yaml



clusterrole.yaml

```
apiVersion: rbac.authorization.k8s.io/v1beta1
kind: ClusterRole
metadata:
name: secret-access-cr
rules:
- apiGroups:
- ""
resources:
- secrets
verbs:
- get
- list
```

6. Create and verify the new ClusterRole.

```
student@ckad-1:~$ kubectl create -f clusterrole.yaml
clusterrole.rbac.authorization.k8s.io/secret-access-cr created

student@ckad-1:~$ kubectl get clusterrole secret-access-cr -o yaml
apiVersion: rbac.authorization.k8s.io/v1
kind: ClusterRole
metadata:
    creationTimestamp: 2018-10-18T19:27:24Z
    name: secret-access-cr
<output_omitted>
```

7. Now we bind the role to the account. Create another YAML file which uses roleRef::

```
student@ckad-1:~$ vim rolebinding.yaml
```



rolebinding.yaml

```
apiVersion: rbac.authorization.k8s.io/v1beta1
```

2 kind: RoleBinding



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```
metadata:
4    name: secret-rb
5    subjects:
6    - kind: ServiceAccount
7    name: secret-access-sa
8    roleRef:
9    kind: ClusterRole
10    name: secret-access-cr
11    apiGroup: rbac.authorization.k8s.io
```

8. Create the new RoleBinding and verify.

9. View the secondapp pod and grep for secret settings. Note that it uses the default settings.

10. Edit the second.yaml file and add the use of the serviceAccount.

```
student@ckad-1:~$ vim ~/app2/second.yaml
```



second.yaml

```
1 ....
2  name: secondapp
3  spec:
4   serviceAccountName: secret-access-sa #<-- Add this line
5   securityContext:
6   runAsUser: 1000
7 ....</pre>
```

11. We will delete the secondapp pod if still running, then create it again. View what the secret is by default.

```
student@ckad-1:~$ kubectl delete pod secondapp ; kubectl create -f ~/app2/second.yaml
pod "secondapp" deleted
pod/secondapp created

student@ckad-1:~$ kubectl describe pod secondapp | grep -i secret
    /var/run/secrets/kubernetes.io/serviceaccount from
secret-access-sa-token-wd7vm (ro)
secret-access-sa-token-wd7vm:
    Type: Secret (a volume populated by a Secret)
    SecretName: secret-access-sa-token-wd7vm
```