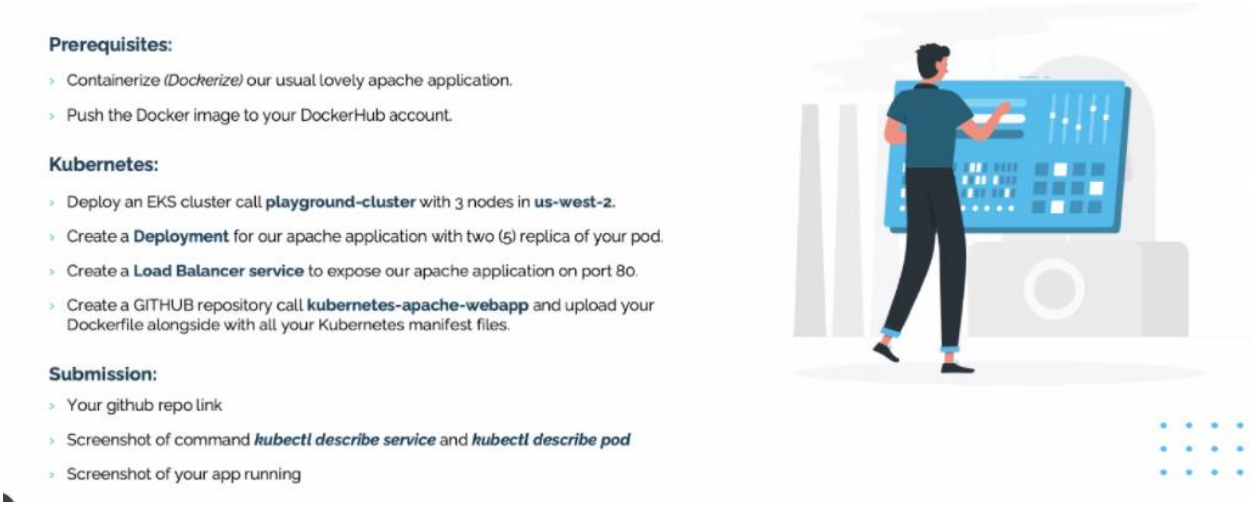
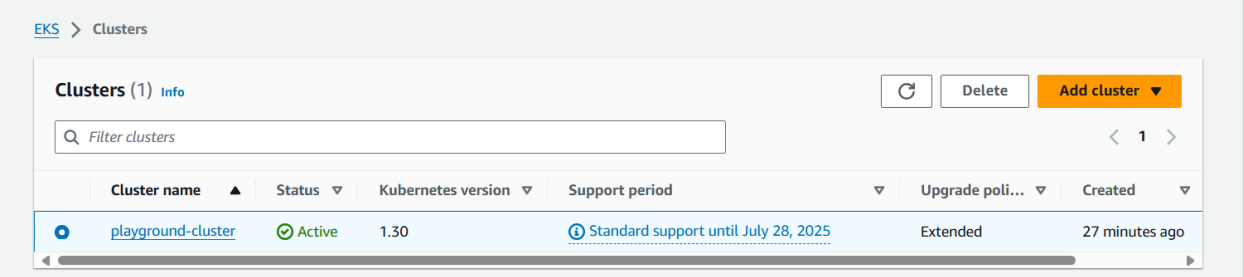
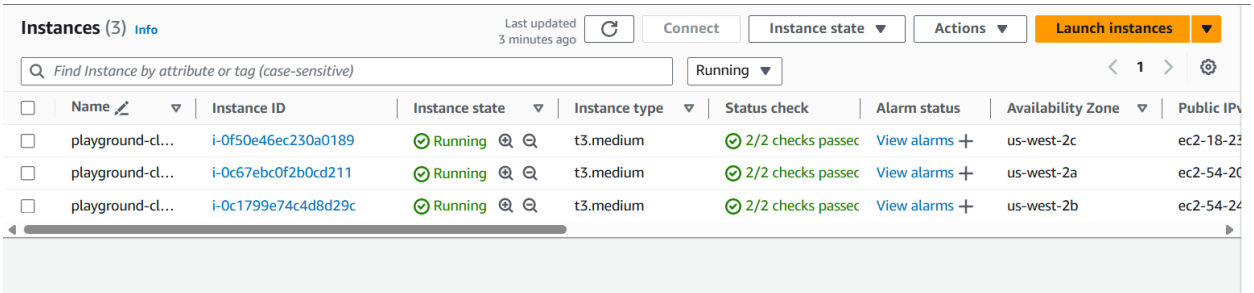
Kubernetes Mini-Project



1- Screenshot showing EKS cluster called playground-cluster with 3 nodes

```
2024-08-20 23:21:08 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:21:39 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:22:39 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:23:40 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:24:40 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:25:41 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:26:41 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:27:42 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:28:42 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:29:43 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-cluster"
2024-08-20 23:29:46 [!]  recommended policies were found for "vpc-cni" addon, but since OIDC is disabled on the cluster, eksctl cannot configure the requested permissions; the recommended way to provide IAM perm
issions for "vpc-cni" addon is via pod identity associations; after addon creation is completed, add all recommended policies to the config file, under `addon.PodIdentityAssociations`, and run `eksctl update add
on`
2024-08-20 23:29:46 [ℹ]  creating addon
2024-08-20 23:29:47 [ℹ]  successfully created addon
2024-08-20 23:29:48 [ℹ]  creating addon
2024-08-20 23:29:48 [ℹ]  successfully created addon
2024-08-20 23:29:49 [ℹ]  creating addon
2024-08-20 23:29:49 [ℹ]  successfully created addon
2024-08-20 23:31:52 [ℹ]  building managed nodegroup stack "eksctl-playground-cluster-nodegroup-ng-fdae8e0d"
2024-08-20 23:31:53 [ℹ]  deploying stack "eksctl-playground-cluster-nodegroup-ng-fdae8e0d"
2024-08-20 23:31:53 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-nodegroup-ng-fdae8e0d"
2024-08-20 23:32:23 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-nodegroup-ng-fdae8e0d"
2024-08-20 23:33:07 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-nodegroup-ng-fdae8e0d"
2024-08-20 23:34:48 [ℹ]  waiting for CloudFormation stack "eksctl-playground-cluster-nodegroup-ng-fdae8e0d"
2024-08-20 23:34:48 [ℹ]  waiting for the control plane to become ready
2024-08-20 23:34:49 [✔]  saved kubeconfig as "C:\\Users\\tache\\.kube\\config"
2024-08-20 23:34:49 [ℹ]  no tasks
2024-08-20 23:34:49 [✔]  all EKS cluster resources for "playground-cluster" have been created
2024-08-20 23:34:49 [✔]  created 0 nodegroup(s) in cluster "playground-cluster"
2024-08-20 23:34:49 [ℹ]  nodegroup "ng-fdae8e0d" has 3 node(s)
2024-08-20 23:34:49 [ℹ]  node "ip-192-168-20-171.us-west-2.compute.internal" is ready
2024-08-20 23:34:49 [ℹ]  node "ip-192-168-32-42.us-west-2.compute.internal" is ready
2024-08-20 23:34:49 [ℹ]  node "ip-192-168-89-189.us-west-2.compute.internal" is ready
2024-08-20 23:34:49 [ℹ]  waiting for at least 3 node(s) to become ready in "ng-fdae8e0d"
2024-08-20 23:34:49 [ℹ]  nodegroup "ng-fdae8e0d" has 3 node(s)
2024-08-20 23:34:49 [ℹ]  node "ip-192-168-20-171.us-west-2.compute.internal" is ready
2024-08-20 23:34:49 [ℹ]  node "ip-192-168-32-42.us-west-2.compute.internal" is ready
2024-08-20 23:34:49 [ℹ]  node "ip-192-168-89-189.us-west-2.compute.internal" is ready
2024-08-20 23:34:49 [✔]  created 1 managed nodegroup(s) in cluster "playground-cluster"
2024-08-20 23:34:51 [ℹ]  kubectl command should work with "C:\\Users\\tache\\.kube\\config", try 'kubectl get nodes'
2024-08-20 23:34:51 [✔]  EKS cluster "playground-cluster" in "us-west-2" region is ready
PS C:\WINDOWS\system32> kubectl get nodes
NAME                                           STATUS   ROLES    AGE     VERSION
ip-192-168-20-171.us-west-2.compute.internal   Ready    <none>   3m48s   v1.30.2-eks-1552ad0
ip-192-168-32-42.us-west-2.compute.internal    Ready    <none>   3m52s   v1.30.2-eks-1552ad0
ip-192-168-89-189.us-west-2.compute.internal   Ready    <none>   3m45s   v1.30.2-eks-1552ad0
PS C:\WINDOWS\system32>
```





2- Screenshot showing the command kubectl describe pods

```
PS C:\Users\tache\OneDrive\Documents\Cloudformation-project\kubernetes-apache-webapp> kubectl describe apache-app
error: the server doesn't have a resource type "apache-app"
PS C:\Users\tache\OneDrive\Documents\Cloudformation-project\kubernetes-apache-webapp> kubectl describe pods
Name:             apache-app
Namespace:        default
Priority:         0
Service Account:  default
Node:             ip-192-168-89-189.us-west-2.compute.internal/192.168.89.189
Start Time:       Thu, 22 Aug 2024 10:49:37 -0500
Labels:           <none>
Annotations:      <none>
Status:           Running
IP:               192.168.65.192
IPs:
  IP:  192.168.65.192
Containers:
  apache-container:
    Container ID:   containerd://cf4159f1580c481ba8f2df420e1f94bae8a45889c5b54fdef33535b5c230dadb
    Image:          etachenko/elie_apache_image:v1.0.1
    Image ID:       docker.io/etachenko/elie_apache_image@sha256:297eff9474d604632c044ea844d789b351fa4ec91ec99026c70e0bd6044ec3c3
    Port:           80/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Thu, 22 Aug 2024 10:49:48 -0500
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-xhfp7 (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-xhfp7:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
```

```
Volumes:
  kube-api-access-xhfp7:
    Type:                     Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:   3607
    ConfigMapName:            kube-root-ca.crt
    ConfigMapOptional:        <nil>
    DownwardAPI:              true
QoS Class:                    BestEffort
Node-Selectors:               <none>
Tolerations:                  node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                              node.kubernetes.io/unreachable:NoExecute op=Exists for 300s

Events:
  Type    Reason     Age    From               Message
  ----    ------     ----   ----               -------
  Normal  Scheduled  2m16s  default-scheduler  Successfully assigned default/apache-app to ip-192-168-89-189.us-west-2.compute.internal
  Normal  Pulling    2m16s  kubelet            Pulling image "etachenko/elie_apache_image:v1.0.1"
  Normal  Pulled     2m5s   kubelet            Successfully pulled image "etachenko/elie_apache_image:v1.0.1" in 10.559s (10.559s including waiting). Image
size: 200456218 bytes.
  Normal  Created    2m5s   kubelet            Created container apache-container
  Normal  Started    2m5s   kubelet            Started container apache-container
PS C:\Users\tache\OneDrive\Documents\Cloudformation-project\kubernetes-apache-webapp>
```

3- Screenshot showing the command kubectl describe deployment

```
PS C:\Users\tache\OneDrive\Documents\Cloudformation-project\kubernetes-apache-webapp> kubectl describe deployment
Name:                   apache-deployment
Namespace:              default
CreationTimestamp:      Thu, 22 Aug 2024 12:18:03 -0500
Labels:                 app=apache
Annotations:            deployment.kubernetes.io/revision: 1
Selector:               app=apache
Replicas:               5 desired | 5 updated | 5 total | 5 available | 0 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=apache
  Containers:
   apache-container:
    Image:        etachenko/elie_apache_image:v1.0.1
    Port:         80/TCP
    Host Port:    0/TCP
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Available      True    MinimumReplicasAvailable
  Progressing    True    NewReplicaSetAvailable
OldReplicaSets:  <none>
NewReplicaSet:   apache-deployment-86b599484b (5/5 replicas created)
Events:
  Type    Reason             Age   From                   Message
  ----    ------             ----  ----                   -------
  Normal  ScalingReplicaSet  16m   deployment-controller  Scaled up replica set apache-deployment-86b599484b to 5
PS C:\Users\tache\OneDrive\Documents\Cloudformation-project\kubernetes-apache-webapp>
```

4- Screenshot showing the command kubectl describe Service

```
Annotations:              <none>
Selector:                 app=apache
Type:                     LoadBalancer
IP Family Policy:         SingleStack
IP Families:              IPv4
IP:                       10.100.213.142
IPs:                      10.100.213.142
LoadBalancer Ingress:     ae06531bdaf8c4f1fafad62dacc5e39b-1217169133.us-west-2.elb.amazonaws.com
Port:                     <unset>  80/TCP
TargetPort:               80/TCP
NodePort:                 <unset>  30520/TCP
Endpoints:                192.168.23.109:80,192.168.53.87:80,192.168.8.105:80 + 2 more...
Session Affinity:         None
External Traffic Policy:  Cluster
Events:
  Type    Reason                Age   From                Message
  ----    ------                ----  ----                -------
  Normal  EnsuringLoadBalancer  46m   service-controller  Ensuring load balancer
  Normal  EnsuredLoadBalancer   45m   service-controller  Ensured load balancer


Name:              kubernetes
Namespace:         default
Labels:            component=apiserver
                   provider=kubernetes
Annotations:       <none>
Selector:          <none>
Type:              ClusterIP
IP Family Policy:  SingleStack
IP Families:       IPv4
IP:                10.100.0.1
IPs:               10.100.0.1
Port:              https  443/TCP
TargetPort:        443/TCP
Endpoints:         192.168.125.18:443,192.168.173.77:443
Session Affinity:  None
Events:            <none>
PS C:\Users\tache\OneDrive\Documents\Cloudformation-project\kubernetes-apache-webapp>
```

5- Screenshot showing the app running