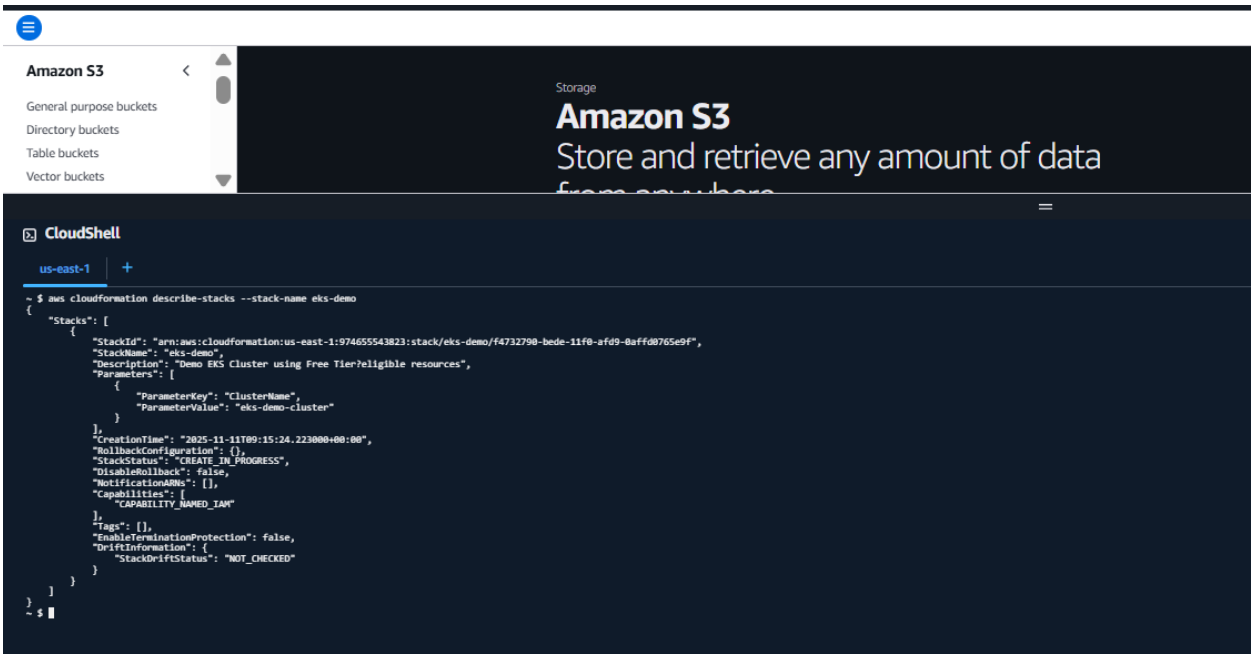
Demo of EKS Cluster Deploy Using CloudFormation

- **Run from your CLI:**

```
aws cloudformation create-stack \
 --stack-name eks-demo \
 --template-body file://eks-demo.yaml \
 --capabilities CAPABILITY_NAMED_IAM
```

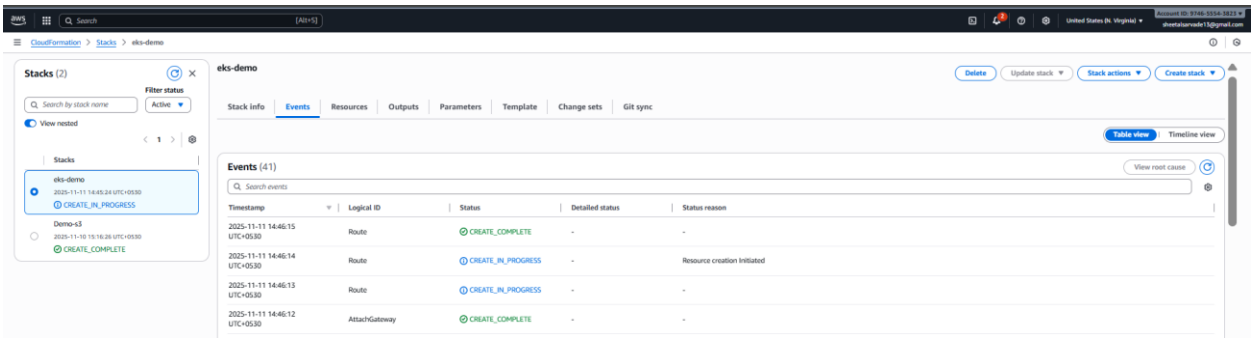
Output

```
"StackId": "arn:aws:cloudformation:us-east-1:974655543823:stack/eks-demo/f4732790-bede-11f0-afd9-0affd0765e9f"
```



- **Cluster creation Completed**

```
~ $ aws cloudformation describe-stacks --stack-name eks-demo
{
    "Stacks": [
        {
            "StackId": "arn:aws:cloudformation:us-east-1:974655543823:stack/eks-demo/f4732790-bede-11f0-afd9-0affd0765e9f",
            "StackName": "eks-demo",
            "Description": "Demo EKS Cluster using Free Tier?eligible resources",
            "Parameters": [
                {
                    "ParameterKey": "ClusterName",
                    "ParameterValue": "eks-demo-cluster"
                }
            ],
            "CreationTime": "2025-11-11T09:15:24.223000+00:00",
            "RollbackConfiguration": {},
            "StackStatus": "CREATE_COMPLETE",
            "DisableRollback": false,
            "NotificationARNs": [],
            "Capabilities": [
                "CAPABILITY_NAMED_IAM"
            ],
            "Outputs": [
                {
                    "OutputKey": "ClusterName",
                    "OutputValue": "eks-demo-cluster"
                },
                {
                    "OutputKey": "ClusterEndpoint",
                    "OutputValue": "https://2E49BD9C5A7C81122FE0A8F50DF4A01A.gr7.us-east-1.eks.amazonaws.com"
                }
            ],
            "Tags": [],
            "EnableTerminationProtection": false,
            "DriftInformation": {
                "StackDriftStatus": "NOT_CHECKED"
            }
        }
    ]
}
~ $
```



- **Connect to cluster**

```
~ $ aws eks update-kubeconfig --name eks-demo-cluster --region us-east-1
Added new context arn:aws:eks:us-east-1:974655543823:cluster/eks-demo-cluster to /home/cloudshell-user/.kube/config
~ $
~ $ kubectl get nodes

NAME                          STATUS   ROLES    AGE     VERSION
ip-10-0-1-164.ec2.internal    Ready    <none>   7m57s   v1.33.5-eks-c39b1d0
~ $
~ $
```

Test the Cluster

```
~ $ kubectl create deployment demo-app --image=nginx
deployment.apps/demo-app created
~ $ kubectl expose deployment demo-app --port=80 --type=LoadBalancer
service/demo-app exposed
~ $ kubectl get svc
NAME         TYPE           CLUSTER-IP       EXTERNAL-IP                                                                  PORT(S)        AGE
demo-app     LoadBalancer   172.20.178.206   ac7c5d1e1b1ff40f49d17db1c1cbbec0-1398656529.us-east-1.elb.amazonaws.com       80:31796/TCP   9s
kubernetes   ClusterIP      172.20.0.1       <none>                                                                       443/TCP        12m
~ $
```

- **Create Pods**

kubectl run nginx-pod --image=nginx --port=80

```
ip-10-0-1-164.ec2.internal   Ready    <none>   10m   v1.33.5-eks-c39b1d0
~ $ kubectl run nginx-pod --image=nginx --port=80
pod/nginx-pod created
~ $
```

```
~ $ kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
demo-app-65bd44c89b-s4k65     0/1     Pending   0          4m7s
nginx-pod                     0/1     Pending   0          2m10s
~ $ kubectl expose pod nginx-pod --type=LoadBalancer --port=80
```

```
~ $ kubectl get svc
NAME         TYPE           CLUSTER-IP       EXTERNAL-IP                                                                  PORT(S)        AGE
demo-app     LoadBalancer   172.20.178.206   ac7c5d1e1b1ff40f49d17db1c1cbbec0-1398656529.us-east-1.elb.amazonaws.com       80:31796/TCP   4m34s
kubernetes   ClusterIP      172.20.0.1       <none>                                                                       443/TCP        17m
nginx-pod    LoadBalancer   172.20.188.179   af768c41d6c934c8a8792a2749057ebf-2082763503.us-east-1.elb.amazonaws.com       80:31592/TCP   15s
~ $
```

```
~ $ kubectl apply -f nginx-deployment.yaml
deployment.apps/nginx-deployment created
~ $ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
demo-app-65bd44c89b-s4k65           0/1     Pending   0          7m51s
nginx-deployment-96b9d695-4vk5d     0/1     Pending   0          10s
nginx-deployment-96b9d695-5pqpr     0/1     Pending   0          10s
nginx-deployment-96b9d695-pchch     0/1     Pending   0          10s
```

```
~ $ kubectl get all
NAME                                      READY   STATUS    RESTARTS   AGE
pod/demo-app-65bd44c89b-s4k65             0/1     Pending   0          8m41s
pod/nginx-deployment-96b9d695-4vk5d       0/1     Pending   0          60s
pod/nginx-deployment-96b9d695-5pqpr       0/1     Pending   0          60s
pod/nginx-deployment-96b9d695-pchch       0/1     Pending   0          60s
pod/nginx-pod                             0/1     Pending   0          6m44s

NAME                 TYPE           CLUSTER-IP       EXTERNAL-IP                                                               PORT(S)        AGE
service/demo-app     LoadBalancer   172.20.178.206   ac7c5d1e1b1ff40f49d17db1c1cbbec0-1398656529.us-east-1.elb.amazonaws.com   80:31796/TCP   8m31s
service/kubernetes   ClusterIP      172.20.0.1       <none>                                                                    443/TCP        20m
service/nginx-pod    LoadBalancer   172.20.188.179   af768c41d6c934c8a8792a2749057ebf-2082763503.us-east-1.elb.amazonaws.com   80:31592/TCP   4m12s

NAME                                 READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/demo-app             0/1     1            0           8m41s
deployment.apps/nginx-deployment     0/3     3            0           60s

NAME                                            DESIRED   CURRENT   READY   AGE
replicaset.apps/demo-app-65bd44c89b             1         1         0       8m41s
replicaset.apps/nginx-deployment-96b9d695       3         3         0       60s
~ $
```

Delete Cloudformation stack