

K8s Workload

Exploring Pods

Lab: Explore Pod Parameters

Objective:

- Create a Pod using a detailed spec
- Observe behavior with environment variables, probes, scheduling, and volumes
- Inspect effects of Pod restart policy and security context

Steps

1. Create a detailed Pod manifest

Create a file called `detailed-pod.yaml`:

```
apiVersion: v1
kind: Pod
metadata:
  name: full-demo-pod
  labels:
    app: demo
spec:
  containers:
    - name: web
      image: nginx
      ports:
        - containerPort: 80
      env:
        - name: DEMO_MODE
          value: "true"
      resources:
        requests:
          cpu: "100m"
          memory: "64Mi"
        limits:
          cpu: "200m"
          memory: "128Mi"
      volumeMounts:
        - name: html
          mountPath: /usr/share/nginx/html
      livenessProbe:
        httpGet:
          path: /
          port: 80
        initialDelaySeconds: 5
        periodSeconds: 10
      readinessProbe:
        httpGet:
          path: /
          port: 80
        initialDelaySeconds: 3
        periodSeconds: 5
      securityContext:
        runAsUser: 1000
        allowPrivilegeEscalation: false
  volumes:
    - name: html
      emptyDir: {}
  nodeSelector:
    kubernetes.io/hostname: minikube
  restartPolicy: Always
```

2. Apply the manifest

```
kubectl apply -f detailed-pod.yaml
```

3. Check Pod status

```
kubectl get pod full-demo-pod -o wide
```

4. Verify liveness and readiness

```
kubectl describe pod full-demo-pod | grep -A5 "Liveness"  
kubectl describe pod full-demo-pod | grep -A5 "Readiness"
```

5. Inspect environment variables

```
kubectl exec full-demo-pod -- printenv | grep DEMO_MODE
```

6. Inspect volume mount

```
kubectl exec full-demo-pod -- ls /usr/share/nginx/html
```

7. Check scheduling rules

```
kubectl get pod full-demo-pod -o=jsonpath="{.spec.nodeSelector}"
```

8. View security context

```
kubectl get pod full-demo-pod -o=jsonpath="{.spec.containers[*].securityContext}"
```

9. Cleanup

```
kubectl delete pod full-demo-pod
```