

## Lab: Understanding and Working with PODs

```
anusha954@AnushaKubernetes:~  
Last login: Thu Aug 15 10:12:10 2024 from 60.243.120.182  
anusha954@AnushaKubernetes:~$ kubectl run web01 --image nginx  
Error from server (AlreadyExists): pods "web01" already exists  
anusha954@AnushaKubernetes:~$ kubectl get pods  
NAME                                READY   STATUS    RESTARTS   AGE  
nginx-web-54f478b58f-6q8br         1/1     Running   2 (8h ago)  27h  
web01                               1/1     Running   0           39m  
anusha954@AnushaKubernetes:~$ cat -n ~/kubernetes/pod-webserver.yml  
1  
cat: /home/anusha954/kubernetes/pod-webserver.yml: No such file or directory  
anusha954@AnushaKubernetes:~$ ls ~/kubernetes/  
ls: cannot access '/home/anusha954/kubernetes/': No such file or directory  
anusha954@AnushaKubernetes:~$ apiVersion: v1  
kind: Pod  
metadata:  
  name: webserver  
spec:  
  containers:  
  - name: webserver  
    image: nginx  
apiVersion: v1  
kind: Pod  
metadata:  
  name: webserver  
spec:  
  containers:  
  - name: webserver  
    image: nginx  
apiVersion: command not found  
kind: command not found  
metadata: command not found  
Command 'name:' not found, did you mean:  
  command 'namei' from deb util-linux (2.39.2-6ubuntu1)  
  command 'named' from deb bind9 (1:9.18.28-0ubuntu0.24.04.1)  
Try: sudo apt install <deb name>  
spec: command not found  
containers: command not found  
-: command not found
```

```
anusha954@AnushaKubernetes:~  
Try: sudo apt install <deb name>  
anusha954@AnushaKubernetes:~$ nano ~/kubernetes/pod-webserver.yml  
anusha954@AnushaKubernetes:~$ nano ~/kubernetes/pod-webserver.yml  
anusha954@AnushaKubernetes:~$ mkdir -p ~/kubernetes  
anusha954@AnushaKubernetes:~$ nano ~/kubernetes/pod-webserver.yml  
anusha954@AnushaKubernetes:~$ cat -n ~/kubernetes/pod-webserver.yml  
1  
1  apiVersion: v1  
2  kind: Pod  
3  metadata:  
4    name: webserver  
5  spec:  
6    containers:  
7    - name: webserver  
8      image: nginx  
9      ports:  
10     - containerPort: 80  
anusha954@AnushaKubernetes:~$ kubectl create -f ~/kubernetes/pod-webserver.yml  
pod/webserver created  
anusha954@AnushaKubernetes:~$ kubectl create -f ~/kubernetes/pod-webserver.yml  
Error from server (AlreadyExists): error when creating "/home/anusha954/kubernetes/pod-webserver.yml": pods "webserver" already exists  
anusha954@AnushaKubernetes:~$ kubectl get pods  
NAME                                READY   STATUS    RESTARTS   AGE  
nginx-web-54f478b58f-6q8br         1/1     Running   2 (8h ago)  27h  
web01                               1/1     Running   0           63m  
webserver                           1/1     Running   0           54s  
anusha954@AnushaKubernetes:~$ kubectl get pods -o wide  
NAME                                READY   STATUS    RESTARTS   AGE  
IP                                   NODE    NOMINATED NODE   READINESS GATES  
nginx-web-54f478b58f-6q8br         1/1     Running   2 (8h ago)  27h  
10.244.0.14                         minikube <none>          <none>  
web01                               1/1     Running   0           63m  
10.244.0.19                         minikube <none>          <none>  
webserver                           1/1     Running   0           71s  
10.244.0.20                         minikube <none>          <none>
```

```
anusha954@AnushaKubernetes: ~  
Try: sudo apt install <deb name>  
anusha954@AnushaKubernetes:~$ nano ~/kubernetes/pod-webserver.yml  
anusha954@AnushaKubernetes:~$ nano ~/kubernetes/pod-webserver.yml  
anusha954@AnushaKubernetes:~$ mkdir -p ~/kubernetes  
anusha954@AnushaKubernetes:~$ nano ~/kubernetes/pod-webserver.yml  
anusha954@AnushaKubernetes:~$ cat -n ~/kubernetes/pod-webserver.y  
1  
1  apiVersion: v1  
2  kind: Pod  
3  metadata:  
4    name: webserver  
5  spec:  
6    containers:  
7    - name: webserver  
8      image: nginx  
9      ports:  
10     - containerPort: 80  
anusha954@AnushaKubernetes:~$ kubectl create -f ~/kubernetes/pod-w  
ebserver.yml  
pod/webserver created  
anusha954@AnushaKubernetes:~$ kubectl create -f ~/kubernetes/pod-w  
ebserver.yml  
Error from server (AlreadyExists): error when creating "/home/anus  
ha954/kubernetes/pod-webserver.yml": pods "webserver" already exis  
ts  
anusha954@AnushaKubernetes:~$ kubectl get pods  
NAME                READY   STATUS    RESTARTS   AGE  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (8h ago)  27h  
web01                1/1     Running   0           63m  
webserver            1/1     Running   0           54s  
anusha954@AnushaKubernetes:~$ kubectl get pods -o wide  
NAME                READY   STATUS    RESTARTS   AGE  
IP                  NODE     NOMINATED NODE   READINESS GATES  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (8h ago)  27h  
10.244.0.14          minikube <none>         <none>  
web01                1/1     Running   0           63m  
10.244.0.19          minikube <none>         <none>  
webserver            1/1     Running   0           71s  
10.244.0.20          minikube <none>         <none>
```

```
anusha954@AnushaKubernetes: ~  
webserver            1/1     Running   0           71s  
10.244.0.20          minikube <none>         <none>  
anusha954@AnushaKubernetes:~$ kubectl get pod webserver -o yaml  
apiVersion: v1  
kind: Pod  
metadata:  
  creationTimestamp: "2024-08-15T10:39:08Z"  
  name: webserver  
  namespace: default  
  resourceVersion: "67232"  
  uid: 87dad41e-462b-43f7-abc-b8a8f3c1d0bc  
spec:  
  containers:  
  - image: nginx  
    imagePullPolicy: Always  
    name: webserver  
    ports:  
    - containerPort: 80  
      protocol: TCP  
    resources: {}  
    terminationMessagePath: /dev/termination-log  
    terminationMessagePolicy: File  
  volumeMounts:  
  - mountPath: /var/run/secrets/kubernetes.io/serviceaccount  
    name: kube-api-access-kjxd7  
    readOnly: true  
  dnsPolicy: ClusterFirst  
  enableServiceLinks: true  
  nodeName: minikube  
  preemptionPolicy: PreemptLowerPriority  
  priority: 0  
  restartPolicy: Always  
  schedulerName: default-scheduler  
  securityContext: {}  
  serviceAccount: default  
  serviceAccountName: default  
  terminationGracePeriodSeconds: 30  
  tolerations:  
  - effect: NoExecute
```

```
anusha954@AnushaKubernetes: ~  
- effect: NoExecute  
  key: node.kubernetes.io/not-ready  
  operator: Exists  
  tolerationSeconds: 300  
- effect: NoExecute  
  key: node.kubernetes.io/unreachable  
  operator: Exists  
  tolerationSeconds: 300  
volumes:  
- name: kube-api-access-kjxd7  
  projected:  
    defaultMode: 420  
    sources:  
    - serviceAccountToken:  
        expirationSeconds: 3607  
        path: token  
    - configMap:  
        items:  
        - key: ca.crt  
          path: ca.crt  
          name: kube-root-ca.crt  
    - downwardAPI:  
        items:  
        - fieldRef:  
            apiVersion: v1  
            fieldPath: metadata.namespace  
            path: namespace  
status:  
  conditions:  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:12Z"  
    status: "True"  
    type: PodReadyToStartContainers  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:08Z"  
    status: "True"  
    type: Initialized  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:12Z"
```

```
anusha954@AnushaKubernetes: ~  
- lastProbeTime: null  
  lastTransitionTime: "2024-08-15T10:39:12Z"  
  status: "True"  
  type: Ready  
- lastProbeTime: null  
  lastTransitionTime: "2024-08-15T10:39:12Z"  
  status: "True"  
  type: ContainersReady  
- lastProbeTime: null  
  lastTransitionTime: "2024-08-15T10:39:08Z"  
  status: "True"  
  type: PodScheduled  
containerStatuses:  
- containerID: docker://eadeaa193affb3ecf8b74493e27aa0d41a12f149  
  bf40a37c267a6ee9cc0997be  
  image: nginx:latest  
  imageID: docker-pullable://nginx@sha256:98f8ec75657d21b924fe4f  
  69b6b9bfff2f6550ea48838af479d8894a852000e40  
  lastState: {}  
  name: webserver  
  ready: true  
  restartCount: 0  
  started: true  
  state:  
    running:  
      startedAt: "2024-08-15T10:39:12Z"  
  hostIP: 192.168.49.2  
  hostIPs:  
  - ip: 192.168.49.2  
  phase: Running  
  podIP: 10.244.0.20  
  podIPs:  
  - ip: 10.244.0.20  
  qosClass: BestEffort  
  startTime: "2024-08-15T10:39:08Z"  
anusha954@AnushaKubernetes:~$ kubectl get pod webserver -o json  
{  
  "apiVersion": "v1",  
  "kind": "Pod",  
  "metadata": {  
    "name": "webserver",  
    "namespace": "default",  
    "uid": "eadeaa193affb3ecf8b74493e27aa0d41a12f149bf40a37c267a6ee9cc0997be",  
    "creationTimestamp": "2024-08-15T10:39:08Z"  
  },  
  "spec": {  
    "volumes": [  
      {  
        "name": "kube-api-access-kjxd7",  
        "projected": {  
          "sources": [  
            {  
              "serviceAccountToken": {  
                "path": "token",  
                "expirationSeconds": 3607  
              }  
            },  
            {  
              "configMap": {  
                "name": "kube-root-ca.crt",  
                "items": [  
                  {  
                    "key": "ca.crt",  
                    "path": "ca.crt"  
                  }  
                ],  
                "defaultMode": 420  
              }  
            },  
            {  
              "downwardAPI": {  
                "items": [  
                  {  
                    "fieldRef": {  
                      "apiVersion": "v1",  
                      "fieldPath": "metadata.namespace"  
                    }  
                  }  
                ],  
                "defaultMode": 420  
              }  
            }  
          ],  
          "defaultMode": 420  
        }  
      }  
    ],  
    "containers": [  
      {  
        "name": "webserver",  
        "image": "nginx:latest",  
        "ports": [  
          {  
            "containerPort": 80  
          }  
        ],  
        "volumeMounts": [  
          {  
            "name": "kube-api-access-kjxd7",  
            "readOnly": true  
          }  
        ],  
        "resources": {  
          "requests": {  
            "cpu": "100m",  
            "memory": "128Mi"  
          },  
          "limits": {}  
        },  
        "terminationMessagePath": "/dev/termination-log",  
        "imagePullPolicy": "Always"  
      }  
    ],  
    "securityContext": {  
      "seccompProfile": {  
        "type": "Default"  
      }  
    },  
    "serviceAccount": "default",  
    "schedulerName": "default-scheduler"  
  },  
  "status": {  
    "phase": "Running",  
    "conditions": [  
      {  
        "type": "Initialized",  
        "status": "True",  
        "lastProbeTime": null,  
        "lastTransitionTime": "2024-08-15T10:39:08Z"  
      },  
      {  
        "type": "ContainersReady",  
        "status": "True",  
        "lastProbeTime": null,  
        "lastTransitionTime": "2024-08-15T10:39:12Z"  
      },  
      {  
        "type": "PodReadyToStartContainers",  
        "status": "True",  
        "lastProbeTime": null,  
        "lastTransitionTime": "2024-08-15T10:39:12Z"  
      }  
    ],  
    "podIP": "10.244.0.20",  
    "podIPs": [  
      "10.244.0.20"  
    ],  
    "hostIP": "192.168.49.2",  
    "startTime": "2024-08-15T10:39:08Z",  
    "containerStatuses": [  
      {  
        "name": "webserver",  
        "state": {  
          "running": {  
            "startedAt": "2024-08-15T10:39:12Z"  
          }  
        },  
        "ready": true,  
        "restartCount": 0,  
        "image": "nginx:latest",  
        "imageID": "docker-pullable://nginx@sha256:98f8ec75657d21b924fe4f69b6b9bfff2f6550ea48838af479d8894a852000e40",  
        "containerID": "docker://eadeaa193affb3ecf8b74493e27aa0d41a12f149bf40a37c267a6ee9cc0997be"  
      }  
    ],  
    "hostIPs": [  
      "192.168.49.2"  
    ]  
  }  
}
```

```
anusha954@AnushaKubernetes: ~  
"kind": "Pod",  
"metadata": {  
  "creationTimestamp": "2024-08-15T10:39:08Z",  
  "name": "webserver",  
  "namespace": "default",  
  "resourceVersion": "67232",  
  "uid": "87dad41e-462b-43f7-abcb-b8a8f3c1d0bc"  
},  
"spec": {  
  "containers": [  
    {  
      "image": "nginx",  
      "imagePullPolicy": "Always",  
      "name": "webserver",  
      "ports": [  
        {  
          "containerPort": 80,  
          "protocol": "TCP"  
        }  
      ],  
      "resources": {},  
      "terminationMessagePath": "/dev/termination-log",  
      "terminationMessagePolicy": "File",  
      "volumeMounts": [  
        {  
          "mountPath": "/var/run/secrets/kubernetes.  
io/serviceaccount",  
          "name": "kube-api-access-kjxd7",  
          "readOnly": true  
        }  
      ]  
    }  
  ],  
  "dnsPolicy": "ClusterFirst",  
  "enableServiceLinks": true,  
  "nodeName": "minikube",  
  "preemptionPolicy": "PreemptLowerPriority",  
  "priority": 0,  
  "restartPolicy": "Always",  
}
```

```
anusha954@AnushaKubernetes: ~  
"nodeName": "minikube",  
"preemptionPolicy": "PreemptLowerPriority",  
"priority": 0,  
"restartPolicy": "Always",  
"schedulerName": "default-scheduler",  
"securityContext": {},  
"serviceAccount": "default",  
"serviceAccountName": "default",  
"terminationGracePeriodSeconds": 30,  
"tolerations": [  
  {  
    "effect": "NoExecute",  
    "key": "node.kubernetes.io/not-ready",  
    "operator": "Exists",  
    "tolerationSeconds": 300  
  },  
  {  
    "effect": "NoExecute",  
    "key": "node.kubernetes.io/unreachable",  
    "operator": "Exists",  
    "tolerationSeconds": 300  
  }  
],  
"volumes": [  
  {  
    "name": "kube-api-access-kjxd7",  
    "projected": {  
      "defaultMode": 420,  
      "sources": [  
        {  
          "serviceAccountToken": {  
            "expirationSeconds": 3607,  
            "path": "token"  
          }  
        }  
      ],  
      "configMap": {  
        "items": [  
          {  
            "key": "token",  
            "path": "token"  
          }  
        ]  
      }  
    }  
  }  
]
```

```
anusha954@AnushaKubernetes: ~  
  
    {  
      "key": "ca.crt",  
      "path": "ca.crt"  
    },  
    {  
      "key": "kube-root-ca.crt"  
    }  
  ],  
  "downwardAPI": {  
    "items": [  
      {  
        "fieldRef": {  
          "apiVersion": "v1",  
          "fieldPath": "metadata  
.namespace"  
        },  
        "path": "namespace"  
      }  
    ]  
  }  
},  
"status": {  
  "conditions": [  
    {  
      "lastProbeTime": null,  
      "lastTransitionTime": "2024-08-15T10:39:12Z",  
      "status": "True",  
      "type": "PodReadyToStartContainers"  
    },  
    {  
      "lastProbeTime": null,  
      "lastTransitionTime": "2024-08-15T10:39:08Z",  
      "status": "True",  
      "type": "PodReadyToStartContainers"  
    }  
  ]  
}
```

```
anusha954@AnushaKubernetes: ~  
  
    "lastTransitionTime": "2024-08-15T10:39:08Z",  
    "status": "True",  
    "type": "Initialized"  
  },  
  {  
    "lastProbeTime": null,  
    "lastTransitionTime": "2024-08-15T10:39:12Z",  
    "status": "True",  
    "type": "Ready"  
  },  
  {  
    "lastProbeTime": null,  
    "lastTransitionTime": "2024-08-15T10:39:12Z",  
    "status": "True",  
    "type": "ContainersReady"  
  },  
  {  
    "lastProbeTime": null,  
    "lastTransitionTime": "2024-08-15T10:39:08Z",  
    "status": "True",  
    "type": "PodScheduled"  
  }  
},  
"containerStatuses": [  
  {  
    "containerID": "docker://eadeaa193affb3ecf8b74493e  
27aa0d41a12f149bf40a37c267a6ee9cc0997be",  
    "image": "nginx:latest",  
    "imageID": "docker-pullable://nginx@sha256:98f8ec7  
5657d21b924fe4f69b6b9bfff2f6550ea48838af479d8894a852000e40",  
    "lastState": {},  
    "name": "webserver",  
    "ready": true,  
    "restartCount": 0,  
    "started": true,  
    "state": {  
      "running": {  
        "startedAt": "2024-08-15T10:39:12Z"  
      }  
    }  
  }  
]
```

```
anusha954@AnushaKubernetes: ~  
    "lastTransitionTime": "2024-08-15T10:39:08Z",  
    "status": "True",  
    "type": "PodScheduled"  
  },  
  "containerStatuses": [  
    {  
      "containerID": "docker://eadeaa193affb3ecf8b74493e  
27aa0d41a12f149bf40a37c267a6ee9cc0997be",  
      "image": "nginx:latest",  
      "imageID": "docker-pullable://nginx@sha256:98f8ec7  
5657d21b924fe4f69b6b9bfff2f6550ea48838af479d8894a852000e40",  
      "lastState": {},  
      "name": "webserver",  
      "ready": true,  
      "restartCount": 0,  
      "started": true,  
      "state": {  
        "running": {  
          "startedAt": "2024-08-15T10:39:12Z"  
        }  
      }  
    }  
  ],  
  "hostIP": "192.168.49.2",  
  "hostIPs": [  
    {  
      "ip": "192.168.49.2"  
    }  
  ],  
  "phase": "Running",  
  "podIP": "10.244.0.20",  
  "podIPs": [  
    {  
      "ip": "10.244.0.20"  
    }  
  ],  
  "qosClass": "BestEffort",  
  "startTime": "2024-08-15T10:39:08Z"  
}
```

```
anusha954@AnushaKubernetes: ~  
    {  
      "ip": "192.168.49.2"  
    }  
  ],  
  "phase": "Running",  
  "podIP": "10.244.0.20",  
  "podIPs": [  
    {  
      "ip": "10.244.0.20"  
    }  
  ],  
  "qosClass": "BestEffort",  
  "startTime": "2024-08-15T10:39:08Z"  
}  
}   
anusha954@AnushaKubernetes:~$ kubectl get pod webserver -o jsonpat  
h='{.status.podIP}'  
anusha954@AnushaKubernetes:~$ podIP=$(kubectl get pod webserver -o  
jsonpath='{.status.podIP}')  
> echo $podIP  
> ^C  
anusha954@AnushaKubernetes:~$ echo $podIP  
  
anusha954@AnushaKubernetes:~$ ^C  
anusha954@AnushaKubernetes:~$ kubectl get pod webserver -o jsonpat  
h='{.status.podIP}'  
anusha954@AnushaKubernetes:~$ podIP=$(kubectl get pod webserver -o jsonpath='{.status.podIP}')  
anusha954@AnushaKubernetes:~$ echo $podIP  
10.244.0.20  
anusha954@AnushaKubernetes:~$ curl $podIP  
^C  
anusha954@AnushaKubernetes:~$ kubectl get pods  
NAME          READY   STATUS    RESTARTS   AGE  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (9h ago)  27h  
web01         1/1     Running   0           75m  
webserver     1/1     Running   0           12m  
anusha954@AnushaKubernetes:~$ curl $podIP  
curl: (28) Failed to connect to 10.244.0.20 port 80 after 135892 ms: Couldn't connect to server  
anusha954@AnushaKubernetes:~$
```

```
anusha954@AnushaKubernetes:~$ curl $podIP
curl: (28) Failed to connect to 10.244.0.20 port 80 after 136059 ms: Couldn't connect to server
anusha954@AnushaKubernetes:~$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-web-54f478b58f-6q8br          1/1     Running   2 (9h ago)  27h
web01                                1/1     Running   0           86m
webserver                            1/1     Running   0           24m
anusha954@AnushaKubernetes:~$ kubectl logs webserver
Command 'kubetl' not found, did you mean:
  command 'kubectl' from snap kubectl (1.30.3)
See 'snap info <snapname>' for additional versions.
anusha954@AnushaKubernetes:~$ kubectl logs webserver
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/08/15 10:39:12 [notice] 1#1: using the "epoll" event method
2024/08/15 10:39:12 [notice] 1#1: nginx/1.27.0
2024/08/15 10:39:12 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2024/08/15 10:39:12 [notice] 1#1: OS: Linux 6.8.0-1012-azure
2024/08/15 10:39:12 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2024/08/15 10:39:12 [notice] 1#1: start worker processes
2024/08/15 10:39:12 [notice] 1#1: start worker process 29
2024/08/15 10:39:12 [notice] 1#1: start worker process 30
anusha954@AnushaKubernetes:~$ kubectl exec -it webserver -- curl 1
ocalhost:80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;

```

```

html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
anusha954@AnushaKubernetes:~$ kubectl create -f ~/kubernetes/pod-webserver.yml
Error from server (AlreadyExists): error when creating "/home/anusha954/kubernetes/pod-webserver.yml": pods "webserver" already exists
anusha954@AnushaKubernetes:~$ kubectl get pod webserver -o yaml
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: "2024-08-15T10:39:08Z"
  name: webserver
  namespace: default
  resourceVersion: "67232"
  uid: 87dad41e-462b-43f7-abcb-b8a8f3cld0bc
spec:
  containers:
  - image: nginx
    imagePullPolicy: Always
    name: webserver
    ports:

```

```
anusha954@AnushaKubernetes: ~  
name: webserver  
ports:  
- containerPort: 80  
  protocol: TCP  
resources: {}  
terminationMessagePath: /dev/termination-log  
terminationMessagePolicy: File  
volumeMounts:  
- mountPath: /var/run/secrets/kubernetes.io/serviceaccount  
  name: kube-api-access-kjxd7  
  readOnly: true  
dnsPolicy: ClusterFirst  
enableServiceLinks: true  
nodeName: minikube  
preemptionPolicy: PreemptLowerPriority  
priority: 0  
restartPolicy: Always  
schedulerName: default-scheduler  
securityContext: {}  
serviceAccount: default  
serviceAccountName: default  
terminationGracePeriodSeconds: 30  
tolerations:  
- effect: NoExecute  
  key: node.kubernetes.io/not-ready  
  operator: Exists  
  tolerationSeconds: 300  
- effect: NoExecute  
  key: node.kubernetes.io/unreachable  
  operator: Exists  
  tolerationSeconds: 300  
volumes:  
- name: kube-api-access-kjxd7  
  projected:  
    defaultMode: 420  
    sources:  
    - serviceAccountToken:  
        expirationSeconds: 3607  
        path: token
```

```
anusha954@AnushaKubernetes: ~  
- serviceAccountToken:  
  expirationSeconds: 3607  
  path: token  
- configMap:  
  items:  
  - key: ca.crt  
    path: ca.crt  
    name: kube-root-ca.crt  
- downwardAPI:  
  items:  
  - fieldRef:  
      apiVersion: v1  
      fieldPath: metadata.namespace  
      path: namespace  
status:  
  conditions:  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:12Z"  
    status: "True"  
    type: PodReadyToStartContainers  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:08Z"  
    status: "True"  
    type: Initialized  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:12Z"  
    status: "True"  
    type: Ready  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:12Z"  
    status: "True"  
    type: ContainersReady  
  - lastProbeTime: null  
    lastTransitionTime: "2024-08-15T10:39:08Z"  
    status: "True"  
    type: PodScheduled  
  containerStatuses:  
  - containerID: docker://eadeaa193affb3ecf8b74493e27aa0d41a2f149  
    bf40a37c267a6ee9cc0997be
```





```
anusha954@AnushaKubernetes: ~
ute op=Exists for 300s
Events:
  Type      Reason      Age   From          Message
  ----      -
Normal     Scheduled   36m   default-scheduler   Successfully assigne
d default/webserver to minikube
Normal     Pulling     36m   kubelet          Pulling image "nginx
"
Normal     Pulled      36m   kubelet          Successfully pulled
image "nginx" in 1.979s (1.979s including waiting). Image size: 18
7577972 bytes.
Normal     Created     36m   kubelet          Created container we
bserver
Normal     Started     36m   kubelet          Started container we
bserver
anusha954@AnushaKubernetes:~$ kubectl logs webserver
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will at
tempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entryp
oint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on
-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /et
c/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /
etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-reso
lvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-
on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-work
er-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/08/15 10:39:12 [notice] 1#1: using the "epoll" event method
2024/08/15 10:39:12 [notice] 1#1: nginx/1.27.0
2024/08/15 10:39:12 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2
.0-14)
2024/08/15 10:39:12 [notice] 1#1: OS: Linux 6.8.0-1012-azure
2024/08/15 10:39:12 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 104857
6:1048576
2024/08/15 10:39:12 [notice] 1#1: start worker processes
2024/08/15 10:39:12 [notice] 1#1: start worker process 29
2024/08/15 10:39:12 [notice] 1#1: start worker process 30
127.0.0.1 - - [15/Aug/2024:11:12:41 +0000] "GET / HTTP/1.1" 200 61
5 "-" "curl/7.88.1" "-"
anusha954@AnushaKubernetes:~$ kubectl run web02 --image nginx --dr
y-run=client
pod/web02 created (dry run)
anusha954@AnushaKubernetes:~$ kubectl run web02 --image nginx --dr
y-run=client -o yaml |
tee web02-pod.yml
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: web02
  name: web02
spec:
  containers:
  - image: nginx
    name: web02
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
anusha954@AnushaKubernetes:~$ kubectl run web02 --image nginx --dr
y-run=client -o json |
tee web02-pod.json
{
  "kind": "Pod",
  "apiVersion": "v1",
  "metadata": {
    "name": "web02",
    "creationTimestamp": null,
    "labels": {
      "run": "web02"
    }
  }
}
```

```
anusha954@AnushaKubernetes: ~
6:1048576
2024/08/15 10:39:12 [notice] 1#1: start worker processes
2024/08/15 10:39:12 [notice] 1#1: start worker process 29
2024/08/15 10:39:12 [notice] 1#1: start worker process 30
127.0.0.1 - - [15/Aug/2024:11:12:41 +0000] "GET / HTTP/1.1" 200 61
5 "-" "curl/7.88.1" "-"
anusha954@AnushaKubernetes:~$ kubectl run web02 --image nginx --dr
y-run=client
pod/web02 created (dry run)
anusha954@AnushaKubernetes:~$ kubectl run web02 --image nginx --dr
y-run=client -o yaml |
tee web02-pod.yml
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: null
  labels:
    run: web02
  name: web02
spec:
  containers:
  - image: nginx
    name: web02
    resources: {}
  dnsPolicy: ClusterFirst
  restartPolicy: Always
status: {}
anusha954@AnushaKubernetes:~$ kubectl run web02 --image nginx --dr
y-run=client -o json |
tee web02-pod.json
{
  "kind": "Pod",
  "apiVersion": "v1",
  "metadata": {
    "name": "web02",
    "creationTimestamp": null,
    "labels": {
      "run": "web02"
    }
  }
}
```

```
anusha954@AnushaKubernetes: ~  
    "run": "web02"  
  },  
  "spec": {  
    "containers": [  
      {  
        "name": "web02",  
        "image": "nginx",  
        "resources": {}  
      }  
    ],  
    "restartPolicy": "Always",  
    "dnsPolicy": "ClusterFirst"  
  },  
  "status": {}  
}  
anusha954@AnushaKubernetes:~$ kubectl create -f web02-pod.json  
pod/web02 created  
anusha954@AnushaKubernetes:~$ kubectl get pods  
NAME                READY   STATUS    RESTARTS   AGE  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (9h ago)  28h  
web01                1/1     Running   0           101m  
web02                1/1     Running   0           12s  
webserver            1/1     Running   0           39m  
anusha954@AnushaKubernetes:~$ kubectl get pods --show-labels  
NAME                READY   STATUS    RESTARTS   AGE  
LABELS  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (9h ago)  28h  
app=nginx-web,pod-template-hash=54f478b58f  
web01                1/1     Running   0           102m  
run=web01  
web02                1/1     Running   0           23s  
run=web02  
webserver            1/1     Running   0           39m  
<none>  
anusha954@AnushaKubernetes:~$ kubectl label pod webserver app=web  
server  
pod/webserver labeled  
anusha954@AnushaKubernetes:~$ kubectl get pods --show-labels
```

```
anusha954@AnushaKubernetes: ~  
NAME                READY   STATUS    RESTARTS   AGE  
LABELS  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (9h ago)  28h  
app=nginx-web,pod-template-hash=54f478b58f  
web01                1/1     Running   0           102m  
run=web01  
web02                1/1     Running   0           51s  
run=web02  
webserver            1/1     Running   0           40m  
app=webserver  
anusha954@AnushaKubernetes:~$ kubectl label pods web01 web02 app=webserver2  
pod/web01 labeled  
pod/web02 labeled  
anusha954@AnushaKubernetes:~$ kubectl get pods --show-labels  
NAME                READY   STATUS    RESTARTS   AGE  
LABELS  
nginx-web-54f478b58f-6q8br  1/1     Running   2 (9h ago)  28h  
app=nginx-web,pod-template-hash=54f478b58f  
web01                1/1     Running   0           103m  
app=webserver2,run=web01  
web02                1/1     Running   0           81s  
app=webserver2,run=web02  
webserver            1/1     Running   0           40m  
app=webserver  
anusha954@AnushaKubernetes:~$ kubectl get pods -l app=webserver2  
NAME                READY   STATUS    RESTARTS   AGE  
web01                1/1     Running   0           103m  
web02                1/1     Running   0           90s  
anusha954@AnushaKubernetes:~$ kubectl annotate pod webserver  
repository=https://raw.githubusercontent.com/EyesOnCloud/kuber  
netes/pod-webserver.yml  
error: at least one annotation update is required  
-bash: netes/pod-webserver.yml: No such file or directory  
anusha954@AnushaKubernetes:~$ kubectl annotate pod webserver  
repository=https://raw.githubusercontent.com/EyesOnCloud/kuber  
netes/pod-webserver.yml  
error: at least one annotation update is required  
-bash: netes/pod-webserver.yml: No such file or directory
```



```
anusha954@AnushaKubernetes: ~
7577972 bytes.
Normal Created 45m kubelet Created container we
bserver
Normal Started 44m kubelet Started container we
bserver
anusha954@AnushaKubernetes:~$ kubectl delete pod -l app=webserver
2
pod "web01" deleted
pod "web02" deleted
anusha954@AnushaKubernetes:~$ kubectl exec webserver -it -c webser
ver -- /bin/bash
root@webserver:/# ls
bin docker-entrypoint.d home media proc sbin tmp
boot docker-entrypoint.sh lib mnt root srv usr
dev etc lib64 opt run sys var
root@webserver:/# echo 'Hello Webserver' > /usr/share/nginx/html/i
ndex.html
root@webserver:/# curl http://localhost/
Hello Webserver
root@webserver:/# exit
exit
anusha954@AnushaKubernetes:~$ kubectl expose pod webserver --port=
80
service/webserver exposed
anusha954@AnushaKubernetes:~$ kubectl get service
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S)
kubernetes ClusterIP 10.96.0.1 <none> 443/TCP
nginx-web NodePort 10.107.164.220 <none> 80:31828/T
CP 28h
webserver ClusterIP 10.108.186.161 <none> 80/TCP
14s
anusha954@AnushaKubernetes:~$ curl 10.108.186.161
^X^C
anusha954@AnushaKubernetes:~$ curl 10.108.186.161
curl: (28) Failed to connect to 10.108.186.161 port 80 after 13325
5 ms: Couldn't connect to server
anusha954@AnushaKubernetes:~$
```

```
anusha954@AnushaKubernetes: ~
anusha954@AnushaKubernetes:~$ curl 10.108.186.161
curl: (28) Failed to connect to 10.108.186.161 port 80 after 13468
6 ms: Couldn't connect to server
anusha954@AnushaKubernetes:~$ kubectl get ep webserver
NAME ENDPOINTS AGE
webserver 10.244.0.20:80 17m
anusha954@AnushaKubernetes:~$ kubectl delete pod webserver
pod "webserver" deleted
anusha954@AnushaKubernetes:~$ kubectl delete service webserver
service "webserver" deleted
anusha954@AnushaKubernetes:~$ kubectl run temporary-pod -i -t --im
age=busybox:1.28.0 --rm
-- sh
^C--: command not found
anusha954@AnushaKubernetes:~$ kubectl run temporary-pod -i -t --image=busybox:1.28.0 --rm
-- sh
Error from server (AlreadyExists): pods "temporary-pod" already exists
--: command not found
anusha954@AnushaKubernetes:~$ kubectl run temporary-pod -i -t --im
age=busybox:1.28.0 --rm
-- sh
Error from server (AlreadyExists): pods "temporary-pod" already ex
ists
--: command not found
anusha954@AnushaKubernetes:~$ ls
kubernetes minikube-linux-amd64 web02-pod.json web02-pod.yml
anusha954@AnushaKubernetes:~$ ps
PID TTY TIME CMD
13317 pts/2 00:00:00 bash
31224 pts/2 00:00:00 ps
anusha954@AnushaKubernetes:~$ exit
```