

2&3-Web server pod creation with image nginx123 and it's status:

```
Editor  Tab 1  +
apiVersion: v1
kind: Pod
metadata:
  name: webserver
spec:
  containers:
  - name: nginx
    image: nginx123
```

```
controlplane $ kubectl describe pod webserver
Name:          webserver
Namespace:     default
Priority:       0
Service Account: default
Node:          node01/172.30.2.2
Start Time:    Fri, 03 Feb 2023 12:37:26 +0000
Labels:        <none>
Annotations:   cni.projectcalico.org/containerID: b50407d98358d5378e2
               cni.projectcalico.org/podIP: 192.168.1.4/32
               cni.projectcalico.org/podIPs: 192.168.1.4/32
Status:        Pending
IP:            192.168.1.4
```

4-state after changing image to nginx

```
controlplane $ kubectl describe pod webserver
Name:          webserver
Namespace:     default
Priority:       0
Service Account: default
Node:          node01/172.30.2.2
Start Time:    Fri, 03 Feb 2023 12:37:26 +0000
Labels:        <none>
Annotations:   cni.projectcalico.org/containerID: b50407d98358d5378e2
               cni.projectcalico.org/podIP: 192.168.1.4/32
               cni.projectcalico.org/podIPs: 192.168.1.4/32
Status:        Running
IP:            192.168.1.4
```

5-no of pods

```
controlplane $ kubectl get pod
NAME                READY   STATUS    RESTARTS   AGE
imperative-nginx    1/1     Running   0           16m
webserver           1/1     Running   0           7m40s
controlplane $
```

6-Ready meaning:

means that the container is running and ready to accept traffic

7-delete imperative pod

```
controlplane $ kubectl delete pod imperative-nginx
pod "imperative-nginx" deleted
controlplane $ kubectl get pod
NAME                READY   STATUS    RESTARTS   AGE
webserver           1/1     Running   0           12m
controlplane $
```

8-node that runs webserver pod

```
controlplane $ kubectl get pod -o wide
NAME        READY   STATUS    RESTARTS   AGE   IP           NODE   NOMINATED NODE   READINESS GATES
webserver   1/1     Running   0           27s   192.168.1.3  node01  <none>            <none>
controlplane $ kubectl describe pod webserver
Name:          webserver
Namespace:     default
Priority:       0
Service Account: default
Node:          node01/172.30.2.2
Start Time:    Fri, 03 Feb 2023 13:50:04 +0000
```

9- shell to the running container

```
controlplane $ kubectl exec --stdin --tty webserver -- /bin/bash
root@webserver:/#
```

10&11-

```
root@webserver:/# cat /etc/os-release
PRETTY_NAME="Debian GNU/Linux 11 (bullseye)"
NAME="Debian GNU/Linux"
VERSION_ID="11"
VERSION="11 (bullseye)"
VERSION_CODENAME=bullseye
ID=debian
HOME_URL="https://www.debian.org/"
SUPPORT_URL="https://www.debian.org/support"
BUG_REPORT_URL="https://bugs.debian.org/"
root@webserver:/# exit
exit
controlplane $
```

12-pod logs

The logs show information about the background activities or events completed or ongoing in your resources

```
controlplane $ 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: 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
2023/02/03 13:50:09 [notice] 1#1: using the "epoll" event method
2023/02/03 13:50:09 [notice] 1#1: nginx/1.23.3
2023/02/03 13:50:09 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2023/02/03 13:50:09 [notice] 1#1: OS: Linux 5.4.0-131-generic
2023/02/03 13:50:09 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/02/03 13:50:09 [notice] 1#1: start worker processes
2023/02/03 13:50:09 [notice] 1#1: start worker process 28
::1 - - [03/Feb/2023:13:55:12 +0000] "GET / HTTP/1.1" 200 615 "-" "curl/7.74.0" "-"
controlplane $
```

13- zero replica sets

```
controlplane $ kubectl get rs
No resources found in default namespace.
controlplane $
```

14- Replica Set

15&16- scaling

```

Editor  Tab1  +
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: replica-set-1
  labels:
    tier: frontend
spec:
  replicas: 3
  selector:
    matchLabels:
      tier: frontend
  template:
    metadata:
      labels:
        tier: frontend
    spec:
      containers:
        - name: busybox
          image: busybox
controlplane $ kubectl scale replicaset replica-set-1 --replicas 5
replicaset.apps/replica-set-1 scaled
controlplane $ kubectl get rs
NAME          DESIRED   CURRENT   READY   AGE
replica-set-1 5         5         0       2m15s
controlplane $

```

17- the replica set created a new pod instead of the deleted one as the number of desired pods is 5

```

controlplane $ kubectl get rs
NAME          DESIRED   CURRENT   READY   AGE
replica-set-1 5         5         0       4m7s
controlplane $ kubectl get pods
NAME          READY   STATUS             RESTARTS   AGE
replica-set-1-2nw2g  0/1     CrashLoopBackOff   5 (65s ago) 4m12s
replica-set-1-6xbbb  0/1     CrashLoopBackOff   5 (81s ago) 4m12s
replica-set-1-dn6mx  0/1     CrashLoopBackOff   4 (39s ago) 2m7s
replica-set-1-fq5g2  0/1     CrashLoopBackOff   4 (33s ago) 2m7s
replica-set-1-tq7z2  0/1     CrashLoopBackOff   5 (65s ago) 4m12s
webserver      1/1     Running             0           27m
controlplane $ kubectl delete pod replica-set-1-2nw2g
pod "replica-set-1-2nw2g" deleted
controlplane $ kubectl get pods
NAME          READY   STATUS             RESTARTS   AGE
replica-set-1-6xbbb  0/1     CrashLoopBackOff   5 (98s ago) 4m29s
replica-set-1-dn6mx  0/1     CrashLoopBackOff   4 (56s ago) 2m24s
replica-set-1-fq5g2  0/1     CrashLoopBackOff   4 (50s ago) 2m24s
replica-set-1-tncsx  0/1     Completed          1 (2s ago)  3s
replica-set-1-tq7z2  0/1     CrashLoopBackOff   5 (82s ago) 4m29s
webserver      1/1     Running             0           27m
controlplane $

```