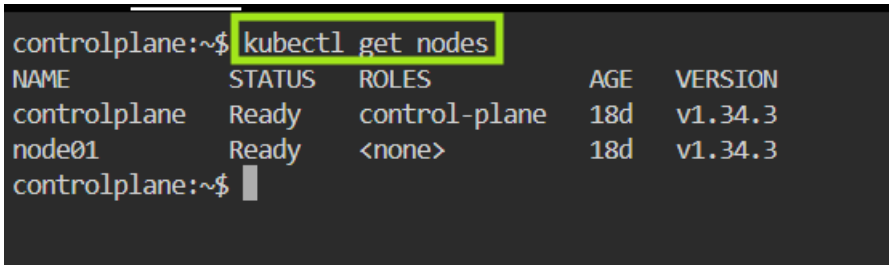
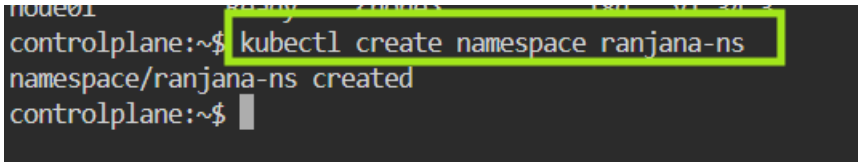
DEPLOYMENT

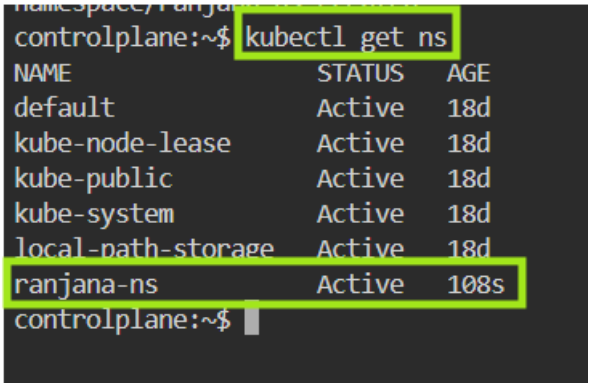
1. Check the nodes



2. Create a Namespace



3. Check the Namespace



4. Create the Deployment yml file

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  namespace: ranjana-ns
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - name: nginx-container
          image: nginx:latest
          ports:
            - containerPort: 3000
~
```

5. Apply the Deployment

```
controlplane:~$ kubectl apply -f deployment.yml
deployment.apps/nginx-deployment created
controlplane:~$
```

6. Check the Deployment

```
controlplane:~$ kubectl get deployment -n ranjana-ns
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   5/5     5            5           81s
controlplane:~$
```

7. Describe the Deployment

```
controlplane:~$ kubectl describe deployment nginx-deployment -n ranjana-ns
Name:                   nginx-deployment
Namespace:              ranjana-ns
CreationTimestamp:      Thu, 19 Feb 2026 13:04:36 +0000
Labels:                 <none>
Annotations:            deployment.kubernetes.io/revision: 1
Selector:               app=nginx
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=nginx
  Containers:
   nginx-container:
    Image:         nginx:latest
    Port:          3000/TCP
    Host Port:     0/TCP
    Environment:   <none>
    Mounts:        <none>
  Volumes:         <none>
  Node-Selectors:  <none>
  Tolerations:     <none>
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Available      True    MinimumReplicasAvailable
  Progressing    True    NewReplicaSetAvailable
OldReplicaSets:  <none>
NewReplicaSet:   nginx-deployment-6dd9d99b55 (5/5 replicas created)
Events:
  Type    Reason             Age    From                   Message
  ----    ------             ----   ----                   -------
  Normal  ScalingReplicaSet  6m37s  deployment-controller  Scaled up replica set nginx-deployment-6dd9d99b55 from 0 to 5
controlplane:~$
```

8. Check all resources are running

```
controlplane:~$ kubectl get all -n ranjana-ns
NAME                                    READY   STATUS    RESTARTS   AGE
pod/nginx-deployment-6dd9d99b55-8f5z8   1/1     Running   0          23m
pod/nginx-deployment-6dd9d99b55-f4tj5   1/1     Running   0          23m
pod/nginx-deployment-6dd9d99b55-hmgnp   1/1     Running   0          23m
pod/nginx-deployment-6dd9d99b55-ldf6f   1/1     Running   0          23m
pod/nginx-deployment-6dd9d99b55-pp7gw   1/1     Running   0          23m

NAME                               READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/nginx-deployment   5/5     5            5           23m

NAME                                          DESIRED   CURRENT   READY   AGE
replicaset.apps/nginx-deployment-6dd9d99b55   5         5         5       23m
controlplane:~$
```

9. Describing one of the pod

```
replicaset.apps/nginx-deployment-6dd9d99b55   5         5         5       23m
controlplane:~$ kubectl describe pod nginx-deployment-6dd9d99b55-pp7gw -n ranjana-ns
Name:             nginx-deployment-6dd9d99b55-pp7gw
Namespace:        ranjana-ns
Priority:         0
Service Account:  default
Node:             node01/172.30.2.2
Start Time:       Thu, 19 Feb 2026 13:04:36 +0000
Labels:           app=nginx
                  pod-template-hash=6dd9d99b55
Annotations:      cni.projectcalico.org/containerID: 592a5da02c88bfc9ea31757c57125265f1aae3aa45b3b8609ebc2b2215167aa8
                  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
IPs:
  IP:           192.168.1.4
Controlled By:  ReplicaSet/nginx-deployment-6dd9d99b55
Containers:
  nginx-container:
    Container ID:   containerd://5b3b768af8d49b35ecf0dd53ecf9ca7c514d4477cf11a911cf879101ff6cce77
    Image:          nginx:latest
    Image ID:       docker.io/library/nginx@sha256:341bf0f3ce6c5277d6002cf6e1fb0319fa4252add24ab6a0e262e0056d313208
    Port:           3000/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Thu, 19 Feb 2026 13:04:45 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-fbws6 (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
```

```
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-fbws6 (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-fbws6:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    Optional:                false
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
```

10. Changes in the deployment

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  namespace: ranjana-ns
spec:
  replicas: 2
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - name: nginx-container
          image: nginx:1.25
          ports:
            - containerPort: 3000
~
~
```

11. Check the Deployment

```
controlplane:~$ kubectl apply -f deployment.yml
deployment.apps/nginx-deployment configured
controlplane:~$ kubectl get deployment -n ranjana-ns
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   2/2     1            2           44m
```

12. Check rollout History

```
controlplane:~$ kubectl rollout history deployment nginx-deployment -n ranjana-ns
deployment.apps/nginx-deployment
REVISION  CHANGE-CAUSE
1         <none>
2         <none>

controlplane:~$
```

13. Check rollout undo

```
controlplane:~$ kubectl rollout undo deployment nginx-deployment -n ranjana-ns
deployment.apps/nginx-deployment rolled back
```

14. Check rollout status

```
controlplane:~$ kubectl rollout status deployment nginx-deployment -n ranjana-ns
deployment "nginx-deployment" successfully rolled out
controlplane:~$
```

15. Check all resources

```
controlplane:~$ kubectl get all -n ranjana-ns
NAME                                    READY   STATUS    RESTARTS   AGE
pod/nginx-deployment-6dd9d99b55-6cq6v   1/1     Running   0          2m58s
pod/nginx-deployment-6dd9d99b55-kwwkx   1/1     Running   0          3m

NAME                               READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/nginx-deployment   2/2     2            2           11m

NAME                                          DESIRED   CURRENT   READY   AGE
replicaset.apps/nginx-deployment-5b6f544dd    0         0         0       6m58s
replicaset.apps/nginx-deployment-6dd9d99b55   2         2         2       11m
controlplane:~$
```