Kubernetes Assignment

Commands

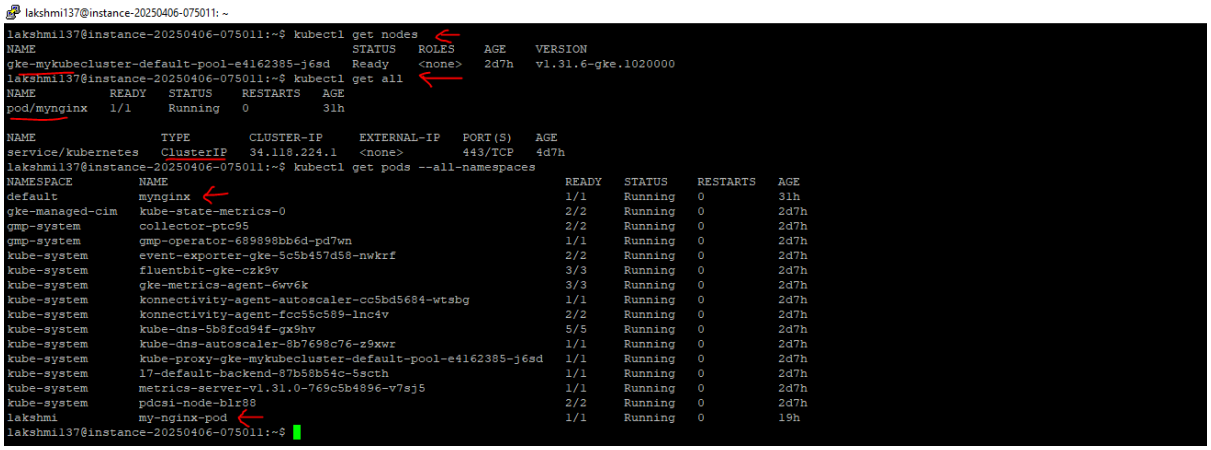
```
lakshmi137@instance-20250406-075011:~$ kubectl cluster-info
Kubernetes control plane is running at https://34.16.76.141
GLBCDefaultBackend is running at https://34.16.76.141/api/v1/namespaces/kube-system/services/default-http-backend:http/proxy
KubeDNS is running at https://34.16.76.141/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
Metrics-server is running at https://34.16.76.141/api/v1/namespaces/kube-system/services/https:metrics-server:/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
lakshmi137@instance-20250406-075011:~$ kubectl version
Client Version: v1.31.6-dispatcher
Kustomize Version: v5.4.2
Server Version: v1.31.6-gke.1020000
lakshmi137@instance-20250406-075011:~$ kubectl config view
apiVersion: v1
clusters:
- cluster:
    certificate-authority-data: DATA+OMITTED
    server: https://34.16.76.141
  name: gke_rock-verbena-238702_us-central1-c_mykubecluster
contexts:
- context:
    cluster: gke_rock-verbena-238702_us-central1-c_mykubecluster
    user: gke_rock-verbena-238702_us-central1-c_mykubecluster
  name: gke_rock-verbena-238702_us-central1-c_mykubecluster
current-context: gke_rock-verbena-238702_us-central1-c_mykubecluster
kind: Config
preferences: {}
users:
- name: gke_rock-verbena-238702_us-central1-c_mykubecluster
  user:
    exec:
      apiVersion: client.authentication.k8s.io/v1beta1
      args: null
      command: gke-gcloud-auth-plugin
      env: null
      installHint: Install gke-gcloud-auth-plugin for use with kubectl by following
        https://cloud.google.com/kubernetes-engine/docs/how-to/cluster-access-for-kubectl#install_plugin
      interactiveMode: IfAvailable
      provideClusterInfo: true
lakshmi137@instance-20250406-075011:~$
```

lakshmi137@instance-20250406-075011: ~

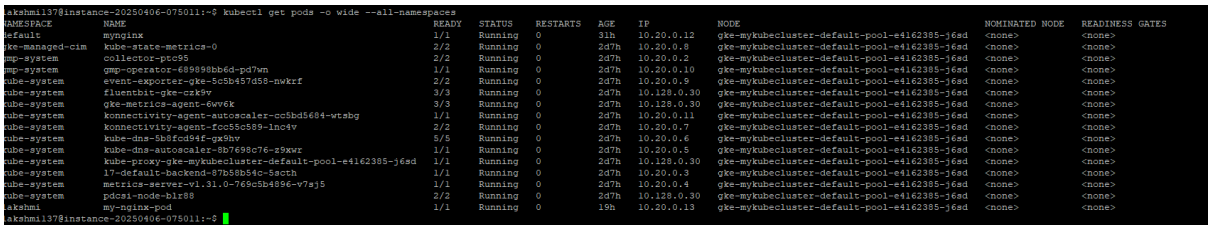
```
lakshmi137@instance-20250406-075011:~$ kubectl api-resources
NAME                              SHORTNAMES          APIVERSION                             NAMESPACED   KIND
bindings                                              v1                                     true         Binding
componentstatuses                 cs                  v1                                     false        ComponentStatus
configmaps                        cm                  v1                                     true         ConfigMap
endpoints                         ep                  v1                                     true         Endpoints
events                            ev                  v1                                     true         Event
limitranges                       limits              v1                                     true         LimitRange
namespaces                        ns                  v1                                     false        Namespace
nodes                             no                  v1                                     false        Node
persistentvolumeclaims            pvc                 v1                                     true         PersistentVolumeClaim
persistentvolumes                 pv                  v1                                     false        PersistentVolume
pods                              po                  v1                                     true         Pod
podtemplates                                          v1                                     true         PodTemplate
replicationcontrollers            rc                  v1                                     true         ReplicationController
resourcequotas                    quota               v1                                     true         ResourceQuota
secrets                                               v1                                     true         Secret
serviceaccounts                   sa                  v1                                     true         ServiceAccount
services                          svc                 v1                                     true         Service
mutatingwebhookconfigurations                         admissionregistration.k8s.io/v1        false        MutatingWebhookConfiguration
validatingadmissionpolicies                           admissionregistration.k8s.io/v1        false        ValidatingAdmissionPolicy
validatingadmissionpolicybindings                     admissionregistration.k8s.io/v1        false        ValidatingAdmissionPolicyBinding
validatingwebhookconfigurations                       admissionregistration.k8s.io/v1        false        ValidatingWebhookConfiguration
customresourcedefinitions         crd,crds            apiextensions.k8s.io/v1                false        CustomResourceDefinition
apiservices                                           apiregistration.k8s.io/v1              false        APIService
controllerrevisions                                   apps/v1                                true         ControllerRevision
daemonsets                        ds                  apps/v1                                true         DaemonSet
deployments                       deploy              apps/v1                                true         Deployment
replicasets                       rs                  apps/v1                                true         ReplicaSet
statefulsets                      sts                 apps/v1                                true         StatefulSet
selfsubjectreviews                                    authentication.k8s.io/v1               false        SelfSubjectReview
tokenreviews                                          authentication.k8s.io/v1               false        TokenReview
localsubjectaccessreviews                             authorization.k8s.io/v1                true         LocalSubjectAccessReview
selfsubjectaccessreviews                              authorization.k8s.io/v1                false        SelfSubjectAccessReview
selfsubjectrulesreviews                               authorization.k8s.io/v1                false        SelfSubjectRulesReview
subjectaccessreviews                                  authorization.k8s.io/v1                false        SubjectAccessReview
allowlistedv2workloads                                auto.gke.io/v1                         false        AllowlistedV2Workload
allowlistedworkloads                                  auto.gke.io/v1                         false        AllowlistedWorkload
workloadallowlists                                    auto.gke.io/v1                         false        WorkloadAllowlist
horizontalpodautoscalers          hpa                 autoscaling/v2                         true         HorizontalPodAutoscaler
provisioningrequests              provreq,provreqs    autoscaling.x-k8s.io/v1                true         ProvisioningRequest
cronjobs                          cj                  batch/v1                               true         CronJob
jobs                                                  batch/v1                               true         Job
certificatesigningrequests        csr                 certificates.k8s.io/v1                 false        CertificateSigningRequest
backendconfigs                    bc                  cloud.google.com/v1                    true         BackendConfig
computeclasses                    cc,ccs              cloud.google.com/v1                    false        ComputeClass
leases                                                coordination.k8s.io/v1                 true         Lease
```

Pods



```
lakshmi137@instance-20250406-075011: ~
lakshmi137@instance-20250406-075011:~$ kubectl get nodes
NAME                                          STATUS   ROLES    AGE    VERSION
gke-mykubecluster-default-pool-e4162385-j6sd   Ready    <none>   2d7h   v1.31.6-gke.1020000
lakshmi137@instance-20250406-075011:~$ kubectl get all
NAME          READY   STATUS    RESTARTS   AGE
pod/mynginx   1/1     Running   0          31h

NAME                 TYPE        CLUSTER-IP     EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   34.118.224.1   <none>        443/TCP   4d7h
lakshmi137@instance-20250406-075011:~$ kubectl get pods --all-namespaces
NAMESPACE         NAME                                                       READY   STATUS    RESTARTS   AGE
default           mynginx                                                    1/1     Running   0          31h
gke-managed-cim   kube-state-metrics-0                                       2/2     Running   0          2d7h
gmp-system        collector-ptc95                                            2/2     Running   0          2d7h
gmp-system        gmp-operator-689898bb6d-pd7wn                              1/1     Running   0          2d7h
kube-system       event-exporter-gke-5c5b457d58-nwkrf                        2/2     Running   0          2d7h
kube-system       fluentbit-gke-czk9v                                        3/3     Running   0          2d7h
kube-system       gke-metrics-agent-6wv6k                                    3/3     Running   0          2d7h
kube-system       konnectivity-agent-autoscaler-cc5bd5684-wtsbg              1/1     Running   0          2d7h
kube-system       konnectivity-agent-fcc55c589-lnc4v                         2/2     Running   0          2d7h
kube-system       kube-dns-5b8fcd94f-gx9hv                                   5/5     Running   0          2d7h
kube-system       kube-dns-autoscaler-8b7698c76-z9xwr                        1/1     Running   0          2d7h
kube-system       kube-proxy-gke-mykubecluster-default-pool-e4162385-j6sd    1/1     Running   0          2d7h
kube-system       l7-default-backend-87b58b54c-5scth                         1/1     Running   0          2d7h
kube-system       metrics-server-v1.31.0-769c5b4896-v7sj5                    1/1     Running   0          2d7h
kube-system       pdcsi-node-blr88                                           2/2     Running   0          2d7h
lakshmi           my-nginx-pod                                               1/1     Running   0          19h
lakshmi137@instance-20250406-075011:~$
```

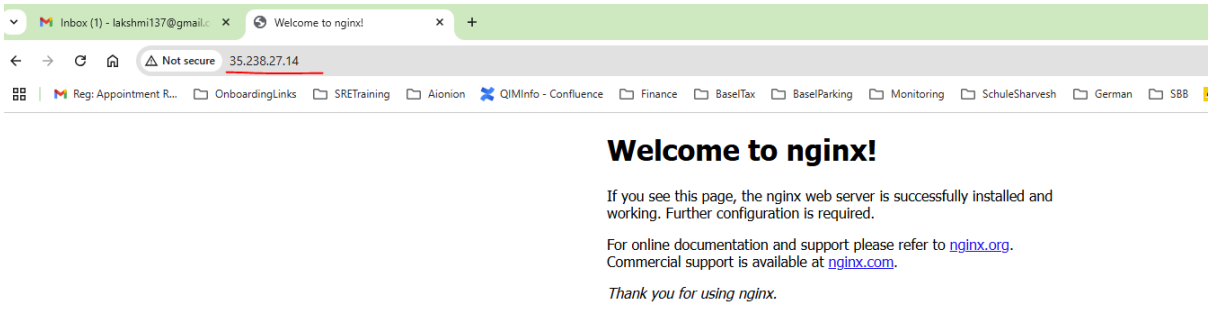


```
lakshmi137@instance-20250406-075011:~$ kubectl get pods -o wide --all-namespaces
NAMESPACE         NAME                                                       READY   STATUS    RESTARTS   AGE   IP             NODE                                                NOMINATED NODE   READINESS GATES
default           mynginx                                                    1/1     Running   0          31h   10.20.0.12     gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
gke-managed-cim   kube-state-metrics-0                                       2/2     Running   0          2d7h  10.20.0.8      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
gmp-system        collector-ptc95                                            2/2     Running   0          2d7h  10.20.0.2      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
gmp-system        gmp-operator-689898bb6d-pd7wn                              1/1     Running   0          2d7h  10.20.0.10     gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       event-exporter-gke-5c5b457d58-nwkrf                        2/2     Running   0          2d7h  10.20.0.9      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       fluentbit-gke-czk9v                                        3/3     Running   0          2d7h  10.128.0.30    gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       gke-metrics-agent-6wv6k                                    3/3     Running   0          2d7h  10.128.0.30    gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       konnectivity-agent-autoscaler-cc5bd5684-wtsbg              1/1     Running   0          2d7h  10.20.0.11     gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       konnectivity-agent-fcc55c589-lnc4v                         2/2     Running   0          2d7h  10.20.0.7      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       kube-dns-5b8fcd94f-gx9hv                                   5/5     Running   0          2d7h  10.20.0.6      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       kube-dns-autoscaler-8b7698c76-z9xwr                        1/1     Running   0          2d7h  10.20.0.5      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       kube-proxy-gke-mykubecluster-default-pool-e4162385-j6sd    1/1     Running   0          2d7h  10.128.0.30    gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       l7-default-backend-87b58b54c-5scth                         1/1     Running   0          2d7h  10.20.0.3      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       metrics-server-v1.31.0-769c5b4896-v7sj5                    1/1     Running   0          2d7h  10.20.0.4      gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
kube-system       pdcsi-node-blr88                                           2/2     Running   0          2d7h  10.128.0.30    gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
lakshmi           my-nginx-pod                                               1/1     Running   0          19h   10.20.0.13     gke-mykubecluster-default-pool-e4162385-j6sd        <none>           <none>
lakshmi137@instance-20250406-075011:~$
```

```
lakshmi137@instance-20250406-075011:~$ kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
mynginx   1/1     Running   0          31h
lakshmi137@instance-20250406-075011:~$ kubectl describe pod mynginx
Name:             mynginx
Namespace:        default
Priority:         0
Service Account:  default
Node:             gke-mykubecluster-default-pool-e4162385-j6sd/10.128.0.30
Start Time:       Tue, 08 Apr 2025 07:02:02 +0000
Labels:           run=mynginx
Annotations:      <none>
Status:           Running
IP:               10.20.0.12
IPs:
  IP:  10.20.0.12
Containers:
  mynginx:
    Container ID:   containerd://254c0aad8af9ddeeb667a8cd2738001e436c3aabfaaf3ea3ae761661d9994699
    Image:          nginx:latest
    Image ID:       docker.io/library/nginx@sha256:09369da6b10306312cd908661320086bf87fbae1b6b0c49a1f50ba531fef2eab
    Port:           8080/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Tue, 08 Apr 2025 07:02:08 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-bxhtk (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-bxhtk:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:                      <none>
lakshmi137@instance-20250406-075011:~$
```

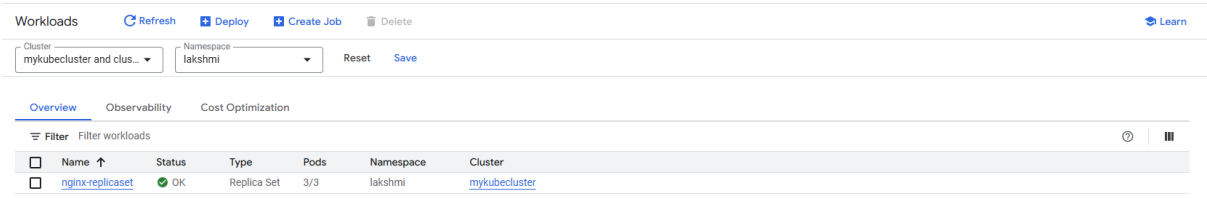
Services

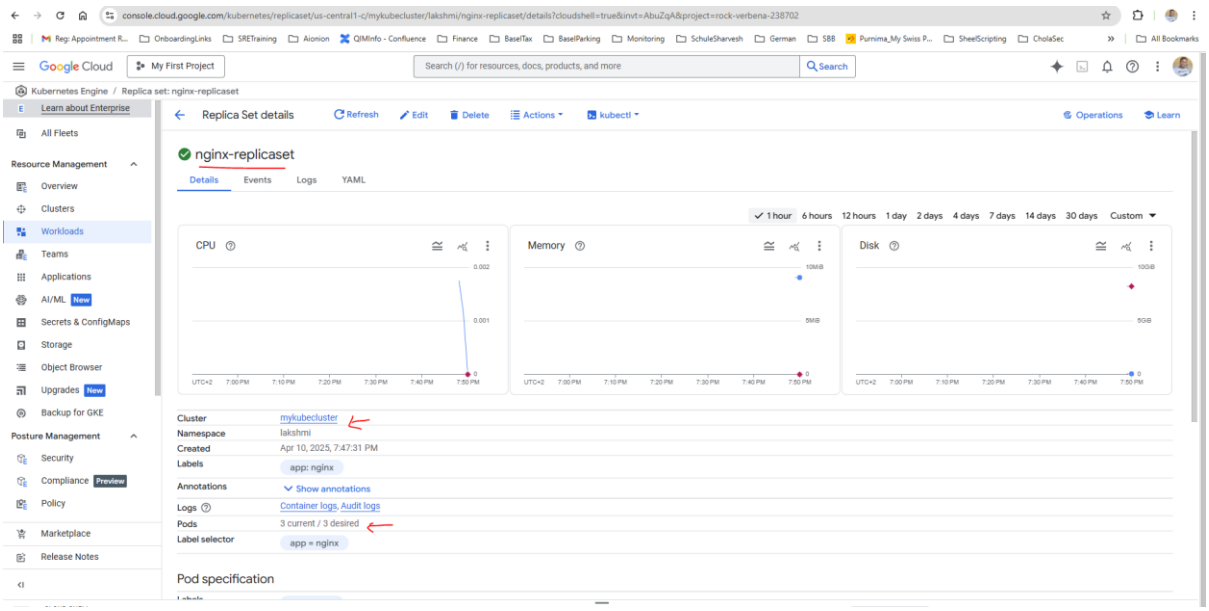
```
lakshmi137@instance-20250406-075011:~$ kubectl get services --all-namespaces
NAMESPACE     NAME                   TYPE           CLUSTER-IP       EXTERNAL-IP    PORT(S)             AGE
default       kubernetes             ClusterIP      34.118.224.1     <none>         443/TCP             4d7h
gmp-system    alertmanager           ClusterIP      None             <none>         9093/TCP            4d7h
gmp-system    gmp-operator           ClusterIP      34.118.233.180   <none>         8443/TCP,443/TCP    4d7h
kube-system   default-http-backend   NodePort       34.118.232.18    <none>         80:31545/TCP        4d7h
kube-system   kube-dns               ClusterIP      34.118.224.10    <none>         53/UDP,53/TCP       4d7h
kube-system   metrics-server         ClusterIP      34.118.231.23    <none>         443/TCP             4d7h
lakshmi       my-nginx-service       LoadBalancer   34.118.225.153   35.238.27.14   80:30895/TCP        19h
lakshmi137@instance-20250406-075011:~$
```

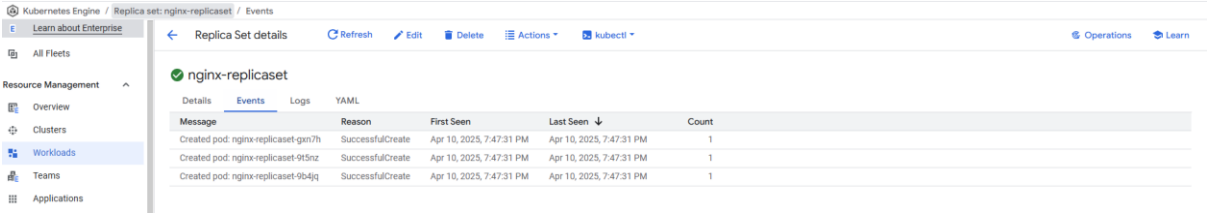


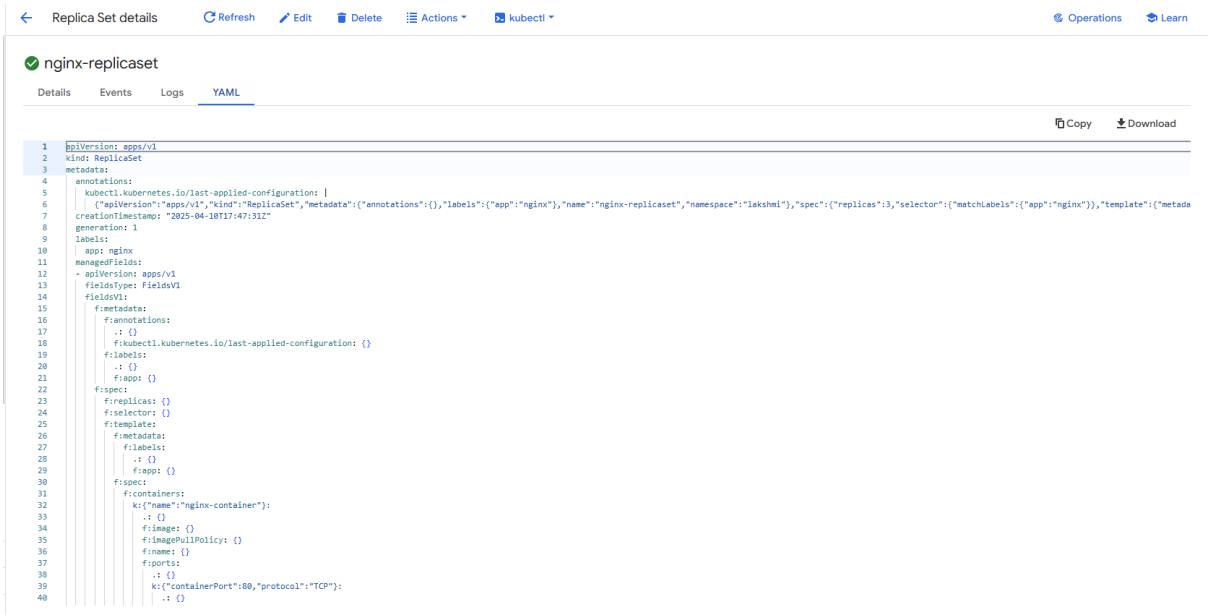

```
root@instance-20250406-075011:/home/lakshmi137/LakshmiYaml s# kubectl describe pod my-nginx-pod -n lakshmi
Name:             my-nginx-pod
Namespace:        lakshmi
Priority:         0
Service Account:  default
Node:             gke-mykubecluster-default-pool-e4162385-j6sd/10.128.0.30
Start Time:       Thu, 10 Apr 2025 06:08:00 +0000
Labels:           app=nginx
                  operations=sre
                  team=PerfTest
Annotations:      <none>
Status:           Running
IP:               10.20.0.14
IPs:
  IP:  10.20.0.14
Containers:
  my-nginx-pod:
    Container ID:   containerd://656ff9d7f1ab35b717743a7f969f09e17e881881478e8535897c3e6aefdf8fd0
    Image:          nginx
    Image ID:       docker.io/library/nginx@sha256:09369da6b10306312cd908661320086bf87fbae1b6b0c49a1f50ba531fef2eab
    Port:           80/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Thu, 10 Apr 2025 06:08:01 +0000
    Ready:          True
    Restart Count:  0
    Limits:
      cpu:     200m
      memory:  512Mi
    Requests:
      cpu:        100m
      memory:     255Mi
    Environment:  <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-7n5df (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-7n5df:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   Burstable
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age    From               Message
  ----    ------     ----   ----               -------
  Normal  Scheduled  2m28s  default-scheduler  Successfully assigned lakshmi/my-nginx-pod to gke-mykubecluster-default-pool-e4162385-j6sd
  Normal  Pulling    2m28s  kubelet            Pulling image "nginx"
  Normal  Pulled     2m28s  kubelet            Successfully pulled image "nginx" in 158ms (158ms including waiting). Image size: 72207578 bytes.
  Normal  Created    2m28s  kubelet            Created container: my-nginx-pod
  Normal  Started    2m28s  kubelet            Started container my-nginx-pod
root@instance-20250406-075011:/home/lakshmi137/LakshmiYaml s#
```

ReplicaSet


Workloads
Refresh
Deploy
Create Job
Delete
Learn
Cluster
mykubecluster and clus...
Namespace
lakshmi
Reset
Save
Overview
Observability
Cost Optimization
Filter
Filter workloads
Name
Status
Type
Pods
Namespace
Cluster
nginx-replicaset
OK
Replica Set
3/3
lakshmi
mykubecluster

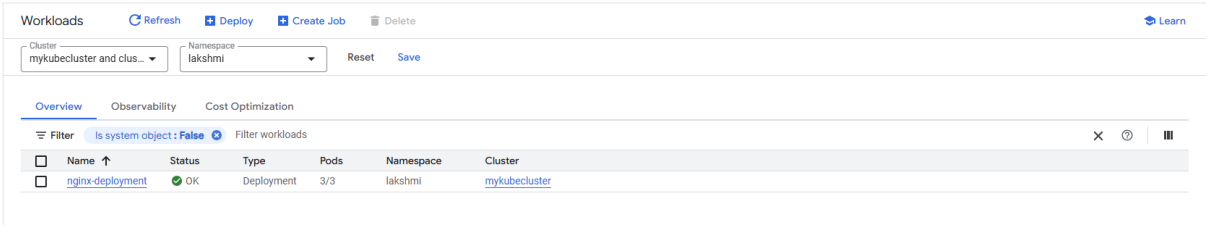

Google Cloud
My First Project
Search
Kubernetes Engine / Replica set: nginx-replicaset
Replica Set details
Refresh
Edit
Delete
Actions
kubectl
Operations
Learn
nginx-replicaset
Details
Events
Logs
YAML
CPU
Memory
Disk
Cluster
mykubecluster
Namespace
lakshmi
Created
Apr 10, 2025, 7:47:31 PM
Labels
app: nginx
Annotations
Show annotations
Logs
Container logs, Audit logs
Pods
3 current / 3 desired
Label selector
app = nginx
Pod specification

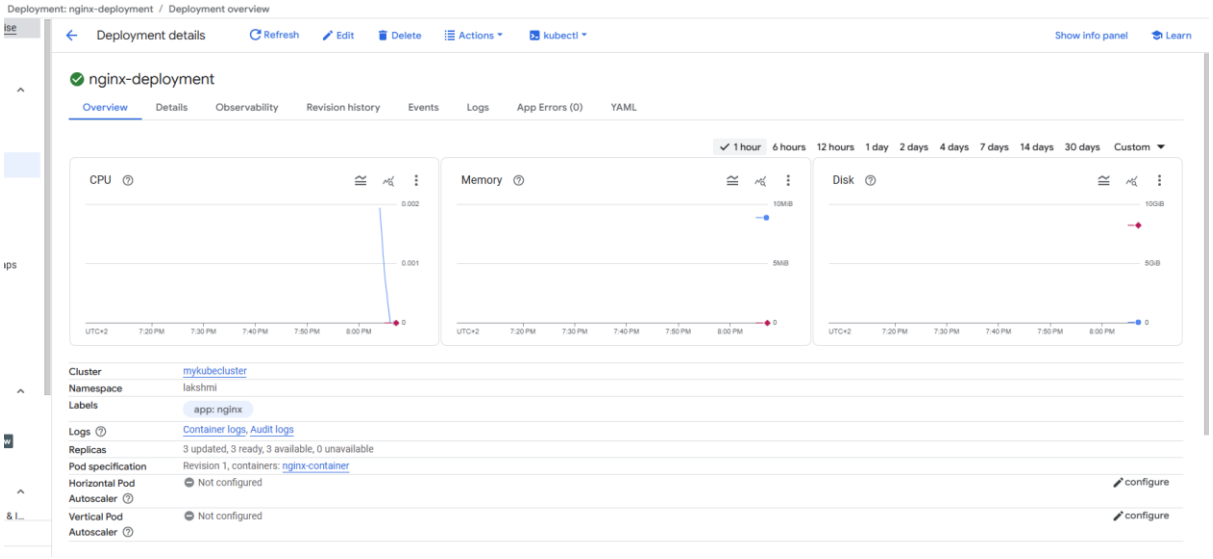

Kubernetes Engine / Replica set: nginx-replicaset / Events
Replica Set details
Refresh
Edit
Delete
Actions
kubectl
Operations
Learn
nginx-replicaset
Details
Events
Logs
YAML
Message
Reason
First Seen
Last Seen
Count
Created pod: nginx-replicaset-gxn7h
SuccessfulCreate
Apr 10, 2025, 7:47:31 PM
Created pod: nginx-replicaset-9t5nz
SuccessfulCreate
Apr 10, 2025, 7:47:31 PM
Created pod: nginx-replicaset-9b4jq
SuccessfulCreate
Apr 10, 2025, 7:47:31 PM

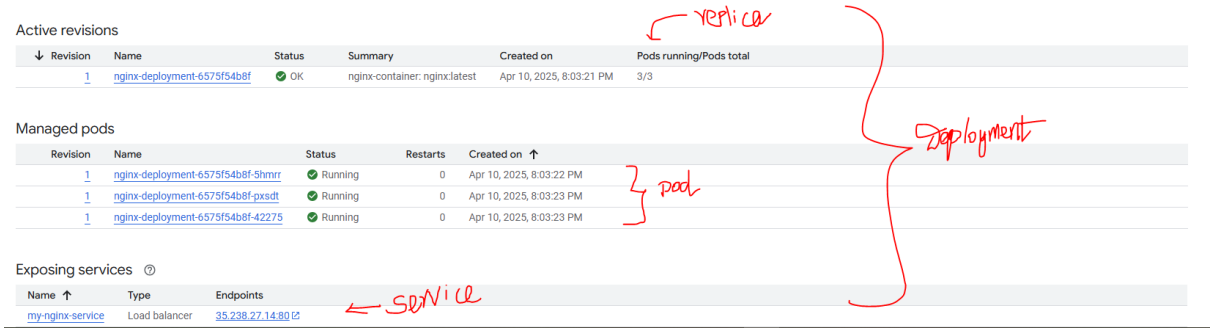


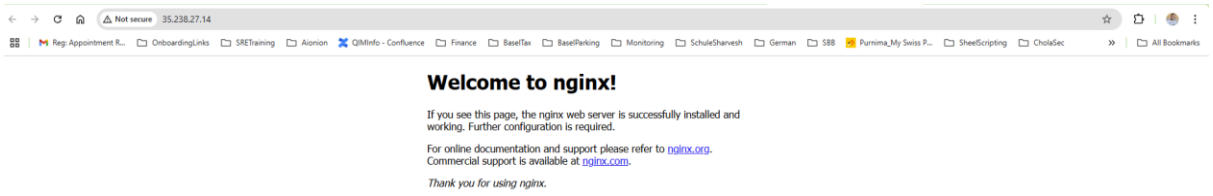
Deployments

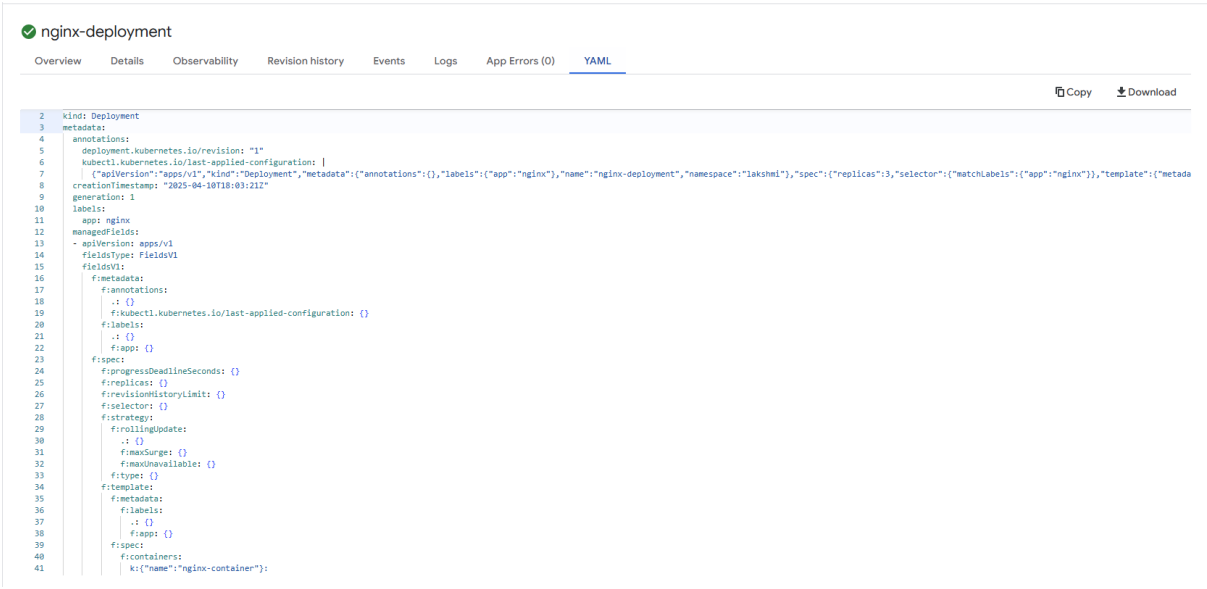
```
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl delete -f ReplicaSet.yaml
replicaset.apps "nginx-replicaset" deleted
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
No resources found in lakshmi namespace.
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl apply -f Deployment.yaml
deployment.apps/nginx-deployment created
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6575f54b8f-42275   1/1     Running   0          2s
nginx-deployment-6575f54b8f-5hmrr   1/1     Running   0          3s
nginx-deployment-6575f54b8f-pxsdt   1/1     Running   0          2s
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls#
```




Deployment: nginx-deployment / Deployment overview
Deployment details
Refresh
Edit
Delete
Actions
kubectl
Show info panel
Learn
nginx-deployment
Overview
Details
Observability
Revision history
Events
Logs
App Errors (0)
YAML
1 hour
6 hours
12 hours
1 day
2 days
4 days
7 days
14 days
30 days
Custom
CPU
Memory
Disk
Cluster
mykubecluster
Namespace
lakshmi
Labels
app: nginx
Logs
Container logs, Audit logs
Replicas
3 updated, 3 ready, 3 available, 0 unavailable
Pod specification
Revision 1, containers: nginx-container
Horizontal Pod Autoscaler
Not configured
configure
Vertical Pod Autoscaler
Not configured
configure


Active revisions
Revision
Name
Status
Summary
Created on
Pods running/Pods total
1
nginx-deployment-6575f54b8f
OK
nginx-container: nginx:latest
Apr 10, 2025, 8:03:21 PM
3/3
Managed pods
Revision
Name
Status
Restarts
Created on
1
nginx-deployment-6575f54b8f-5hmrr
Running
0
Apr 10, 2025, 8:03:22 PM
1
nginx-deployment-6575f54b8f-pxsdt
Running
0
Apr 10, 2025, 8:03:23 PM
1
nginx-deployment-6575f54b8f-42275
Running
0
Apr 10, 2025, 8:03:23 PM
Exposing services
Name
Type
Endpoints
my-nginx-service
Load balancer
35.238.27.14:80


Not secure
35.238.27.14
Welcome to nginx!
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.
Thank you for using nginx.



Availability of Replica set -tested by deleting one by one pod manually

```
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6575f54b8f-42275   1/1     Running   0          12m
nginx-deployment-6575f54b8f-5hmrr   1/1     Running   0          12m
nginx-deployment-6575f54b8f-pxsdt   1/1     Running   0          12m
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl delete pod nginx-deployment-6575f54b8f-42275 -n lakshmi
pod "nginx-deployment-6575f54b8f-42275" deleted
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6575f54b8f-46tk6   1/1     Running   0          5s
nginx-deployment-6575f54b8f-5hmrr   1/1     Running   0          13m
nginx-deployment-6575f54b8f-pxsdt   1/1     Running   0          13m
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl delete pod nginx-deployment-6575f54b8f-5hmrr -n lakshmi
pod "nginx-deployment-6575f54b8f-5hmrr" deleted
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6575f54b8f-46tk6   1/1     Running   0          28s
nginx-deployment-6575f54b8f-6szv7   1/1     Running   0          3s
nginx-deployment-6575f54b8f-pxsdt   1/1     Running   0          13m
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl delete pod nginx-deployment-6575f54b8f-pxsdt -n lakshmi
pod "nginx-deployment-6575f54b8f-pxsdt" deleted
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6575f54b8f-46tk6   1/1     Running   0          48s
nginx-deployment-6575f54b8f-6szv7   1/1     Running   0          23s
nginx-deployment-6575f54b8f-qc7w8   1/1     Running   0          4s
```

Describe Deployments

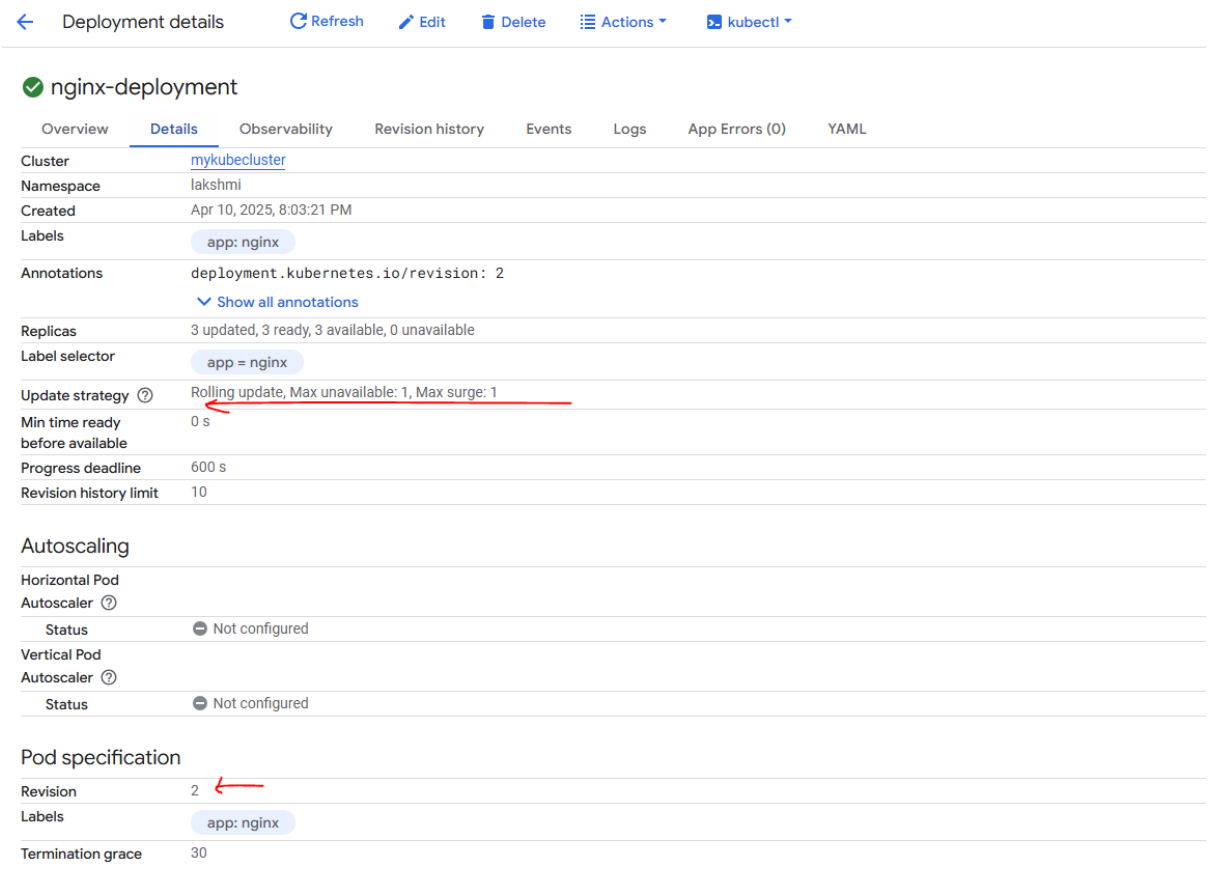
```
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get deployments -o wide -n lakshmi
NAME               READY   UP-TO-DATE   AVAILABLE   AGE   CONTAINERS         IMAGES         SELECTOR
nginx-deployment   3/3     3            3           16m   nginx-container   nginx:latest   app=nginx
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl describe deployments nginx-deployment
Error from server (NotFound): deployments.apps "nginx-deployment" not found
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl describe deployments nginx-deployment -n lakshmi
Name:                   nginx-deployment
Namespace:              lakshmi
CreationTimestamp:      Thu, 10 Apr 2025 18:03:21 +0000
Labels:                 app=nginx
Annotations:            deployment.kubernetes.io/revision: 1
Selector:               app=nginx
Replicas:               3 desired | 3 updated | 3 total | 3 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:          80/TCP
    Host Port:     0/TCP
    Environment:   <none>
    Mounts:        <none>
  Volumes:         <none>
  Node-Selectors:  <none>
  Tolerations:     <none>
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Progressing    True    NewReplicaSetAvailable
  Available      True    MinimumReplicasAvailable
OldReplicaSets:  <none>
NewReplicaSet:   nginx-deployment-6575f54b8f (3/3 replicas created)
Events:
  Type    Reason             Age   From                   Message
  ----    ------             ----  ----                   -------
  Normal  ScalingReplicaSet  16m   deployment-controller  Scaled up replica set nginx-deployment-6575f54b8f to 3
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls#
```

Pods| Services|Deployment

```
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-6575f54b8f-46tk6   1/1     Running   0          7m24s
nginx-deployment-6575f54b8f-6szv7   1/1     Running   0          6m59s
nginx-deployment-6575f54b8f-qc7w8   1/1     Running   0          6m40s
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get services -n lakshmi
NAME               TYPE           CLUSTER-IP       EXTERNAL-IP     PORT(S)        AGE
my-nginx-service   LoadBalancer   34.118.225.153   35.238.27.14    80:30895/TCP   47h
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get deployment -n lakshmi
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   3/3     3            3           20m
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls#
```

RollingUpdate Strategy update

```
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# cat Deployment.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  labels:
    app: nginx
  namespace: lakshmi
spec:
 replicas: 3 # Ensure 3 pods are running at a time
 selector:
   matchLabels:
     app: nginx # Match the Pod Lable
 strategy:
   type: RollingUpdate
   rollingUpdate:
     maxUnavailable: 1
     maxSurge: 1
 template:
   metadata:
     labels:
       app: nginx
   spec:
     containers:
       - name: nginx-container
         image: nginx:1.25
         ports:
           - containerPort: 80
```


Deployment details
Refresh
Edit
Delete
Actions
kubectl
nginx-deployment
Overview
Details
Observability
Revision history
Events
Logs
App Errors (0)
YAML
Cluster
mykubecluster
Namespace
lakshmi
Created
Apr 10, 2025, 8:03:21 PM
Labels
app: nginx
Annotations
deployment.kubernetes.io/revision: 2
Show all annotations
Replicas
3 updated, 3 ready, 3 available, 0 unavailable
Label selector
app = nginx
Update strategy
Rolling update, Max unavailable: 1, Max surge: 1
Min time ready before available
0 s
Progress deadline
600 s
Revision history limit
10
Autoscaling
Horizontal Pod Autoscaler
Status
Not configured
Vertical Pod Autoscaler
Status
Not configured
Pod specification
Revision
2
Labels
app: nginx
Termination grace
30

lakshmi137@instance-20250406-075011: ~

```
^[[A^Croot@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pods -n lakshmi --watch
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-79b7594c78-9vsz5   1/1     Running   0          7m57s
nginx-deployment-79b7594c78-bnwmd   1/1     Running   0          7m55s
nginx-deployment-79b7594c78-s2n8m   1/1     Running   0          7m57s
^Croot@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pod nginx-deployment-79b7594c78-9vsz5 -o yaml
Error from server (NotFound): pods "nginx-deployment-79b7594c78-9vsz5" not found
root@instance-20250406-075011:/home/lakshmi137/LakshmiYamls# kubectl get pod nginx-deployment-79b7594c78-9vsz5 -n lakshmi -o yaml
apiVersion: v1
kind: Pod
metadata:
  creationTimestamp: "2025-04-10T18:31:40Z"
  generateName: nginx-deployment-79b7594c78-
  labels:
    app: nginx
    pod-template-hash: 79b7594c78
  name: nginx-deployment-79b7594c78-9vsz5
  namespace: lakshmi
  ownerReferences:
  - apiVersion: apps/v1
    blockOwnerDeletion: true
    controller: true
    kind: ReplicaSet
    name: nginx-deployment-79b7594c78
    uid: c6ae59d8-feb1-49e0-b557-e4f3905bab98
  resourceVersion: "5113108"
  uid: 8335b3b8-1da2-46ca-9c61-3f11497e1365
spec:
  containers:
  - image: nginx:1.25
    imagePullPolicy: Always
    name: nginx-container
    ports:
    - containerPort: 80
      protocol: TCP
    resources: {}
    terminationMessagePath: /dev/termination-log
    terminationMessagePolicy: File
    volumeMounts:
    - mountPath: /var/run/secrets/kubernetes.io/serviceaccount
      name: kube-api-access-xq5ml
      readOnly: true
  dnsPolicy: ClusterFirst
  enableServiceLinks: true
  nodeName: gke-mykubecluster-default-pool-e4162385-j6sd
  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:
```