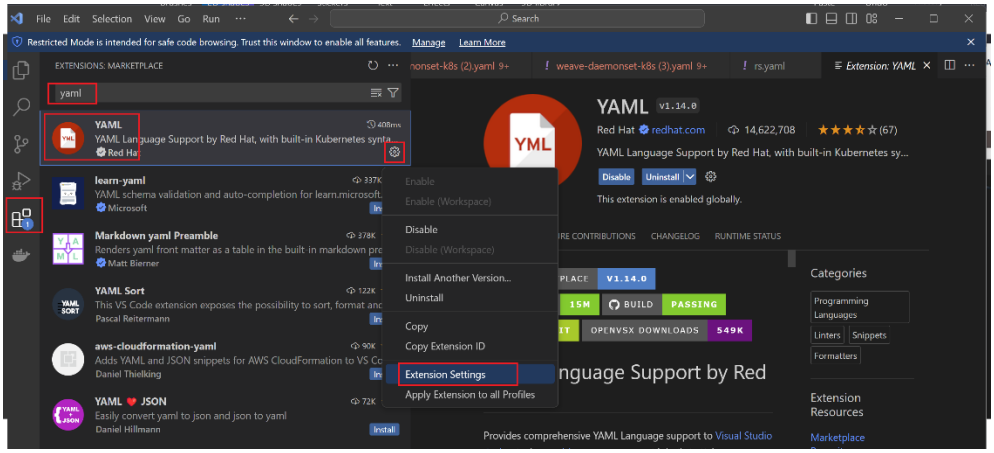
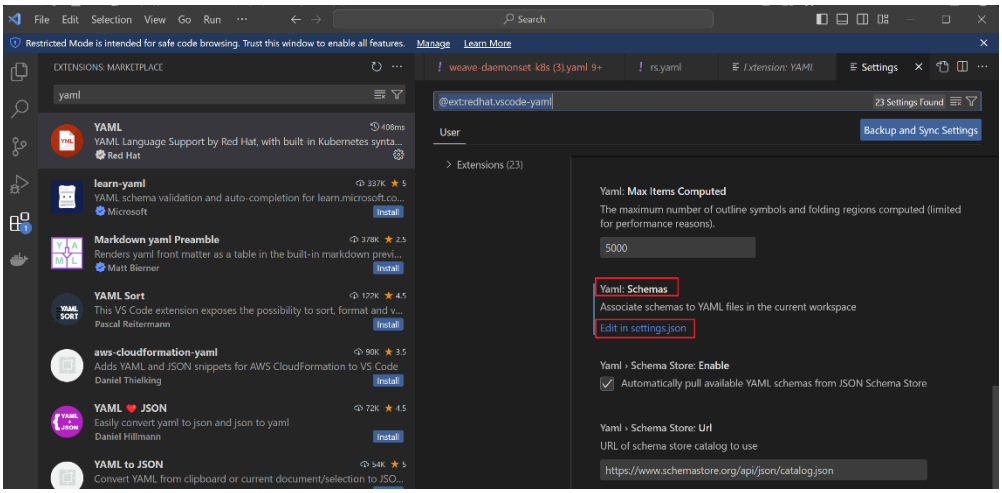
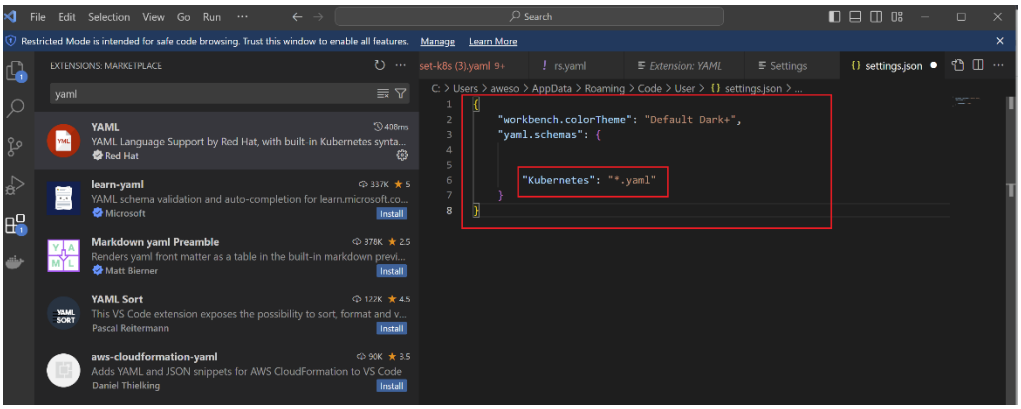
Yaml extension add in vs code



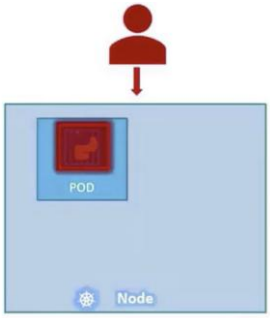
Sroll down and click Edit in setting under Yaml: Schemas



Now add the following line as show in the below image
“Kubernetes”: “*.yaml”

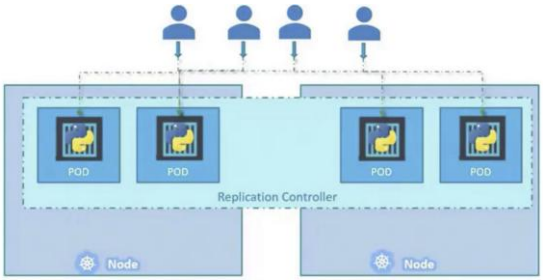


Replication Controller and Replicasets



High Availability

Load Balancing & Scaling

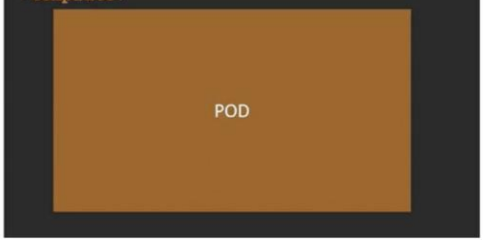


Replication Controllers and ReplicaSets

old	New
Replication Controller	Replica Set

rc-definition.yml

```yaml
apiVersion: v1
kind: ReplicationController
metadata:
  name: myapp-rc
  labels:
      app: myapp
      type: front-end
spec:
  template:
```



pod-definition.yml

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: myapp-pod
  labels:
     app: myapp
     type: front-end
spec:
  containers:
  - name: nginx-container
    image: nginx
```

rc-definition.yml

```yaml
apiVersion: v1
kind: ReplicationController
metadata:
  name: myapp-rc
  labels:
      app: myapp
      type: front-end
spec:
  template:
    metadata:
      name: myapp-pod
      labels:
         app: myapp
         type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx
  replicas: 3
```

```
> kubectl create -f rc-definition.yml
replicationcontroller "myapp-rc" created

> kubectl get replicationcontroller
NAME       DESIRED   CURRENT   READY     AGE
myapp-rc   3         3         3         19s

> kubectl get pods
NAME             READY     STATUS    RESTARTS   AGE
myapp-rc-4lvk9   1/1       Running   0          20s
myapp-rc-mc2mf   1/1       Running   0          20s
myapp-rc-px9pz   1/1       Running   0          20s
```

replicaset-definition.yml

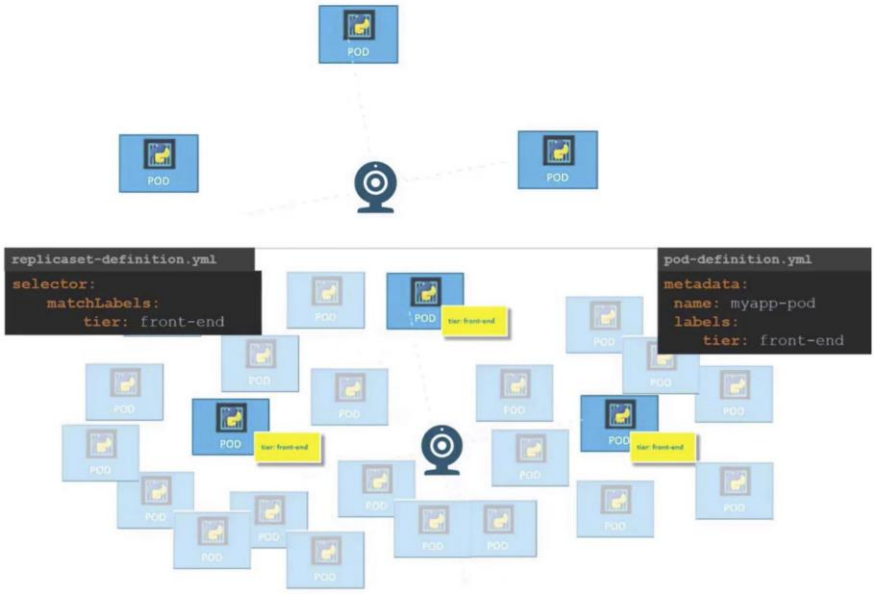
```yaml
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: myapp-replicaset
  labels:
      app: myapp
      type: front-end
spec:
  template:
    metadata:
      name: myapp-pod
      labels:
         app: myapp
         type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx
  replicas: 3
  selector:
     matchLabels:
        type: front-end
```

```
> kubectl create -f replicaset-definition.yml
replicaset "myapp-replicaset" created

> kubectl get replicaset
NAME              DESIRED   CURRENT   READY     AGE
myapp-replicaset  3         3         3         19s

> kubectl get pods
NAME                     READY     STATUS    RESTARTS   AGE
myapp-replicaset-9dd19   1/1       Running   0          45s
myapp-replicaset-9jtpx   1/1       Running   0          45s
myapp-replicaset-hq84m   1/1       Running   0          45s
```

Labels and Selectors



Scale

best one because its wrote in a file so if i run it next time same 6 will scale

```
> kubectl replace -f replicaset-definition.yml
```

OR

```
> kubectl scale --replicas=6 -f replicaset-definition.yml
```

OR

```
> kubectl scale --replicas=6 replicaset myapp-replicaset
```

TYPE NAME

replicaset-definition.yml

```
apiVersion: apps/v1
kind: ReplicaSet
metadata:
  name: myapp-replicaset
  labels:
    app: myapp
    type: front-end
spec:
  template:
    metadata:
      name: myapp-pod
      labels:
        app: myapp
        type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx
  replicas: 6
  selector:
    matchLabels:
      type: front-end
```

commands

```
> kubectl create -f replicaset-definition.yml
> kubectl get replicaset
> kubectl delete replicaset myapp-replicaset
> kubectl replace -f replicaset-definition.yml
> kubectl scale --replicas=6 -f replicaset-definition.yml
```

*Also deletes all underlying PODs

#kubectl edit replicalset myapp-replicaset

#kubectl scale replicaset myapp-replicaset --replicas=2

kubectl delete rs myapp-replicaset

kubectl create -f replicaset-definition-1.yaml

kubectl get replicasets

kubectl explain replicaset

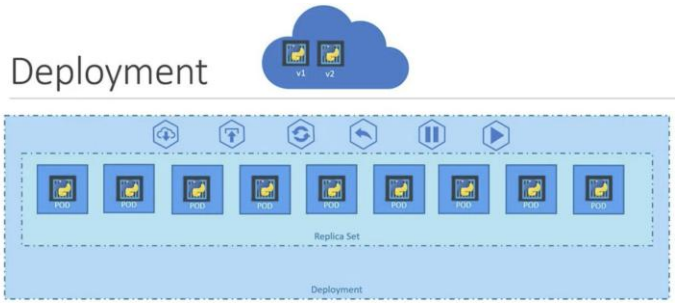
kubectl descripe replicaset new-replica-set

kubectl scale rs new-replica-set --replicas=5

Or

kubectl edit rs new-replica-set

Deployment



Definition

```
> kubectl create -f deployment-definition.yml
deployment "myapp-deployment" created
```

```
> kubectl get deployments
NAME              DESIRED   CURRENT   UP-TO-DATE   AVAILABLE   AGE
myapp-deployment  3         3         3            3           21s
```

```
> kubectl get replicaset
NAME                          DESIRED   CURRENT   READY   AGE
myapp-deployment-6795844b58   3         3         3       2m
```

```
> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
myapp-deployment-6795844b58-5rbjl   1/1     Running   0          2m
myapp-deployment-6795844b58-h4w55   1/1     Running   0          2m
myapp-deployment-6795844b58-1fjhv   1/1     Running   0          2m
```

deployment-definition.yml

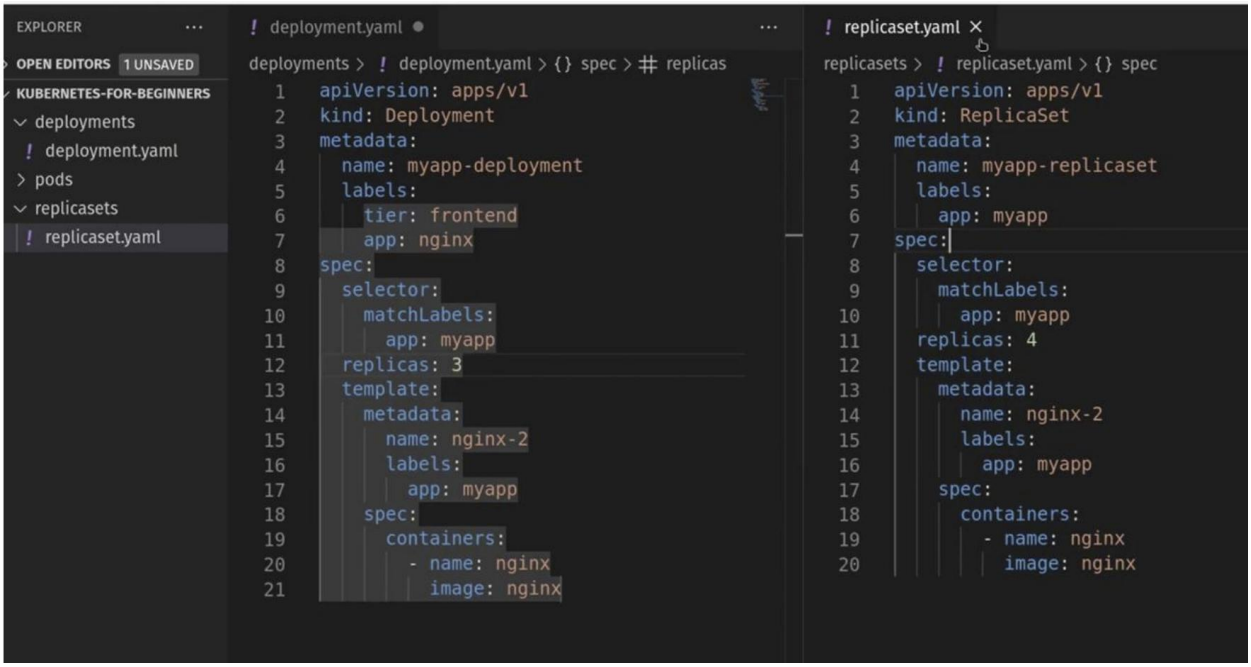
```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp-deployment
  labels:
      app: myapp
      type: front-end
spec:
  template:
    metadata:
      name: myapp-pod
      labels:
        app: myapp
        type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx
  replicas: 3
  selector:
    matchLabels:
      type: front-end
```

commands

```
> kubectl get all
NAME                        DESIRED   CURRENT   UP-TO-DATE   AVAILABLE   AGE
deploy/myapp-deployment     3         3         3            3           9h

NAME                                DESIRED   CURRENT   READY   AGE
rs/myapp-deployment-6795844b58      3         3         3       9h

NAME                                    READY   STATUS    RESTARTS   AGE
po/myapp-deployment-6795844b58-5rbjl    1/1     Running   0          9h
po/myapp-deployment-6795844b58-h4w55    1/1     Running   0          9h
po/myapp-deployment-6795844b58-1fjhv    1/1     Running   0          9h
```



Command:

kubectl create deployment httpd-frontend --image=httpd:2.4-alpine --replicas=3

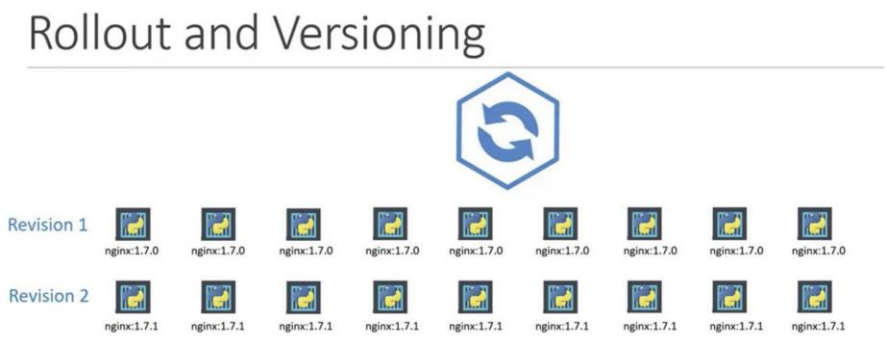
or

#kubectl create deployment -f deploy-file.yaml

#kubectl get deployment

#kubectl delete deployment
#kubectl edit deployment <deployment-name>

Rollout and Rollback

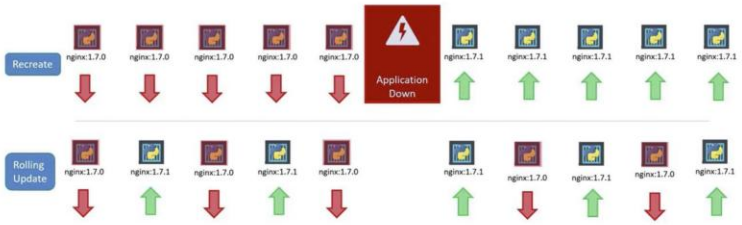


Rollout Command

```
> kubectl rollout status deployment/myapp-deployment
Waiting for rollout to finish: 0 of 10 updated replicas are available...
Waiting for rollout to finish: 1 of 10 updated replicas are available...
Waiting for rollout to finish: 2 of 10 updated replicas are available...
Waiting for rollout to finish: 3 of 10 updated replicas are available...
Waiting for rollout to finish: 4 of 10 updated replicas are available...
Waiting for rollout to finish: 5 of 10 updated replicas are available...
Waiting for rollout to finish: 6 of 10 updated replicas are available...
Waiting for rollout to finish: 7 of 10 updated replicas are available...
Waiting for rollout to finish: 8 of 10 updated replicas are available...
Waiting for rollout to finish: 9 of 10 updated replicas are available...
deployment "myapp-deployment" successfully rolled out
```

```
> kubectl rollout history deployment/myapp-deployment
deployments "myapp-deployment"
REVISION  CHANGE-CAUSE
1         <none>
2         kubectl apply --filename=deployment-definition.yml --record=true
```

Deployment Strategy



The default rollback strategy is Rolling update.

Kubectl apply

```
> kubectl apply -f deployment-definition.yml
deployment "myapp-deployment" configured
```

```
> kubectl set image deployment/myapp-deployment \
                nginx-container=nginx:1.9.1
deployment "myapp-deployment" image is updated
```

deployment-definition.yml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp-deployment
  labels:
     app: myapp
     type: front-end
spec:
  template:
    metadata:
     name: myapp-pod
     labels:
        app: myapp
        type: front-end
    spec:
      containers:
      - name: nginx-container
        image: nginx:1.7.1
  replicas: 3
  selector:
     matchLabels:
        type: front-end
```

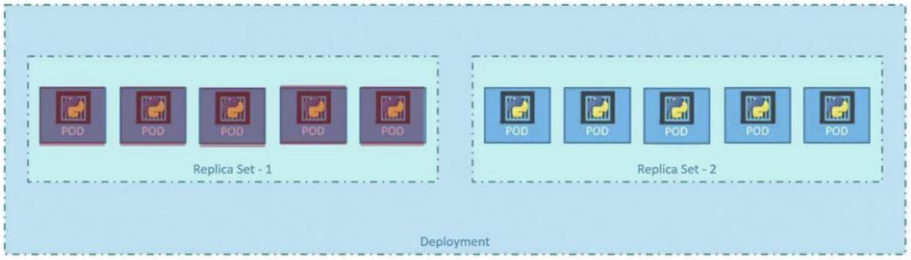
```
C:\Kubernetes>kubectl describe deployment myapp-deployment
Name:                   myapp-deployment
Namespace:              default
CreationTimestamp:      Sat, 03 Mar 2018 17:01:55 +0800
Labels:                 app=myapp
                        type=front-end
Annotations:            deployment.kubernetes.io/revision=2
                        kubectl.kubernetes.io/last-applied-configuration={"apiVersion":"apps/v1","kind":"Deployment","m
s\\Google...
                        kubernetes.io/change-cause=kubectl apply --filename=d:\Mumshad Files\Google Drive\Udemy\Kubernet
Selector:               type=front-end
Replicas:               5 desired | 5 updated | 5 total | 5 available | 0 unavailable
StrategyType:           Recreate
MinReadySeconds:        0
Pod Template:
  Labels:  app=myapp
           type=front-end
  Containers:
   nginx-container:
    Image:        nginx:1.7.1
    Port:         <none>
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Available      True    MinimumReplicasAvailable
  Progressing    True    NewReplicaSetAvailable
OldReplicaSets:  <none>
NewReplicaSet:   myapp-deployment-54c7d6ccc (5/5 replicas created)
Events:
  Type    Reason             Age   From                   Message
  ----    ------             ----  ----                   -------
  Normal  ScalingReplicaSet  11m   deployment-controller  Scaled up replica set myapp-deployment-6795844b58 to 5
  Normal  ScalingReplicaSet  1m    deployment-controller  Scaled down replica set myapp-deployment-6795844b58 to 0
  Normal  ScalingReplicaSet  56s   deployment-controller  Scaled up replica set myapp-deployment-54c7d6ccc to 5
```

```
C:\Kubernetes>kubectl describe deployment myapp-deployment
Name:                   myapp-deployment
Namespace:              default
CreationTimestamp:      Sat, 03 Mar 2018 17:16:53 +0800
Labels:                 app=myapp
                        type=front-end
Annotations:            deployment.kubernetes.io/revision=2
                        kubectl.kubernetes.io/last-applied-configuration={"apiVersion":"apps/v1","kind":"Deployment","metad
Files\\Google...
                        kubernetes.io/change-cause=kubectl apply --filename=d:\Mumshad Files\Google Drive\Udemy\Kubernetes\
Selector:               type=front-end
Replicas:               5 desired | 5 updated | 6 total | 4 available | 2 unavailable
StrategyType:           RollingUpdate
MinReadySeconds:        0
RollingUpdateStrategy:  25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=myapp
           type=front-end
  Containers:
   nginx-container:
    Image:        nginx
    Port:         <none>
    Environment:  <none>
    Mounts:       <none>
  Volumes:        <none>
Conditions:
  Type           Status  Reason
  ----           ------  ------
  Available      True    MinimumReplicasAvailable
  Progressing    True    ReplicaSetUpdated
OldReplicaSets:  myapp-deployment-67c749c58c (1/1 replicas created)
NewReplicaSet:   myapp-deployment-7d57dbdb8d (5/5 replicas created)
Events:
  Type    Reason             Age   From                   Message
  ----    ------             ----  ----                   -------
  Normal  ScalingReplicaSet  1m    deployment-controller  Scaled up replica set myapp-deployment-67c749c58c to 5
  Normal  ScalingReplicaSet  1s    deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 2
  Normal  ScalingReplicaSet  1s    deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 4
  Normal  ScalingReplicaSet  1s    deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 3
  Normal  ScalingReplicaSet  0s    deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 3
  Normal  ScalingReplicaSet  0s    deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 4
  Normal  ScalingReplicaSet  0s    deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 2
  Normal  ScalingReplicaSet  0s    deployment-controller  Scaled up replica set myapp-deployment-7d57dbdb8d to 5
  Normal  ScalingReplicaSet  0s    deployment-controller  Scaled down replica set myapp-deployment-67c749c58c to 1
```

Recreate

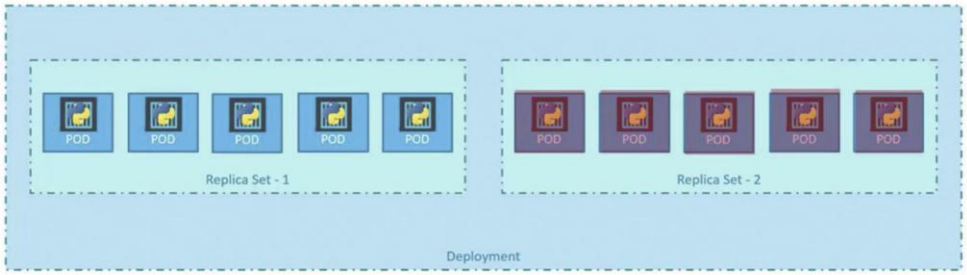
RollingUpdate

Upgrades




```
> kubectl get replicasets
NAME                          DESIRED   CURRENT   READY     AGE
myapp-deployment-67c749c58c   0         0         0         22m
myapp-deployment-7d57dbdb8d   5         5         5         20m
```

Rollback




```
> kubectl rollout undo deployment/myapp-deployment
deployment "myapp-deployment" rolled back
```

Summarize Commands

Rollback and Rollout command

Command	Description
#kubectl create -f deployment-defination.yaml	create deployment
#kubectl apply -f deployment-defination.yaml	create deployment
#kubectl get deployment	show all deployment
#kubectl get deployment <deployment_name> -o yaml	Get deployment in yaml
#kubectl get deployment myapp-deployment	show myapp-deployment deployment
#kubectl get deployment <deployment_name> -o wide	Get deployment wide information
#kubectl describe deployment myapp-deployment	show details myapp-deployment
#kubectl edit deployment <deployment_name>	Edit deployment
#kubectl edit deployment myapp-deployment --record	edit myapp-deployment and record it for history
#kubectl set image deployment <deployment_name> <container_name>=<new_image_name>	Update image
#kubectl set image deployment myapp-deployment nginx=ngin:1.9.1	Edit running deployment container image
#kubectl rollout status deployment myapp-deployment	See the rollout status
#kubectl rollout undo deployment myapp-deployment	Undo the rollout to previous stage
#kubectl rollout history deployment myapp-deployment	See the history of rollout
#kubectl scale deployment <deployment_name> --replicas <replicas>	Scale deployment with replicas
#kubectl delete deployment <deployment_name>	Delete deployment
#kubectl logs deployment/deployment_name -f	Log deployment