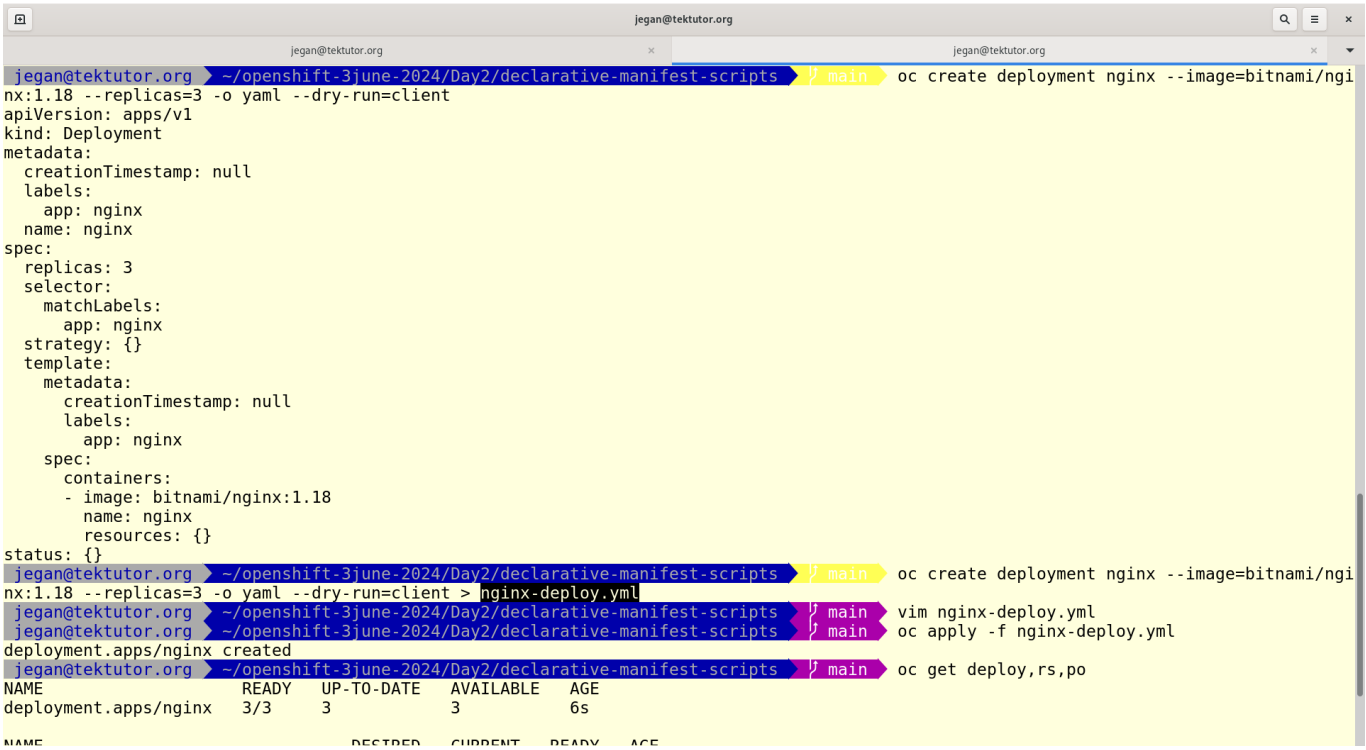
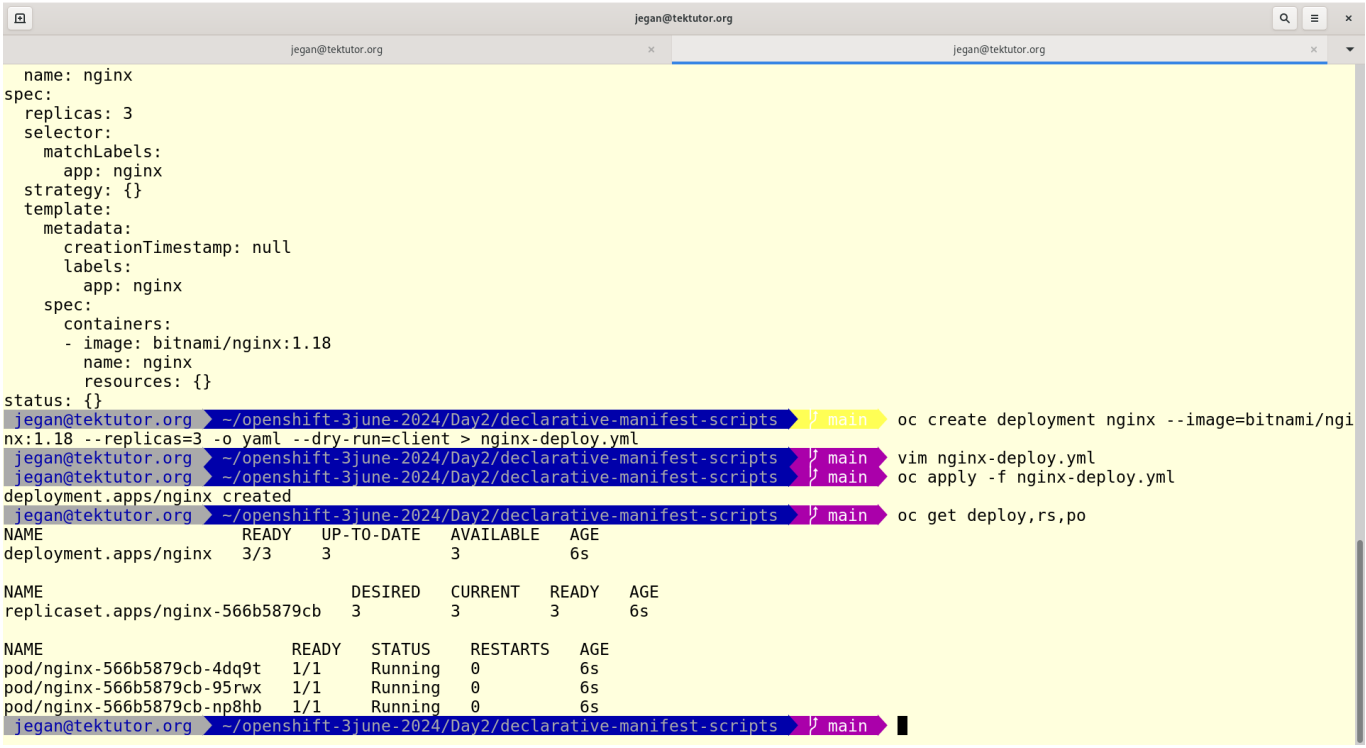
Day 2

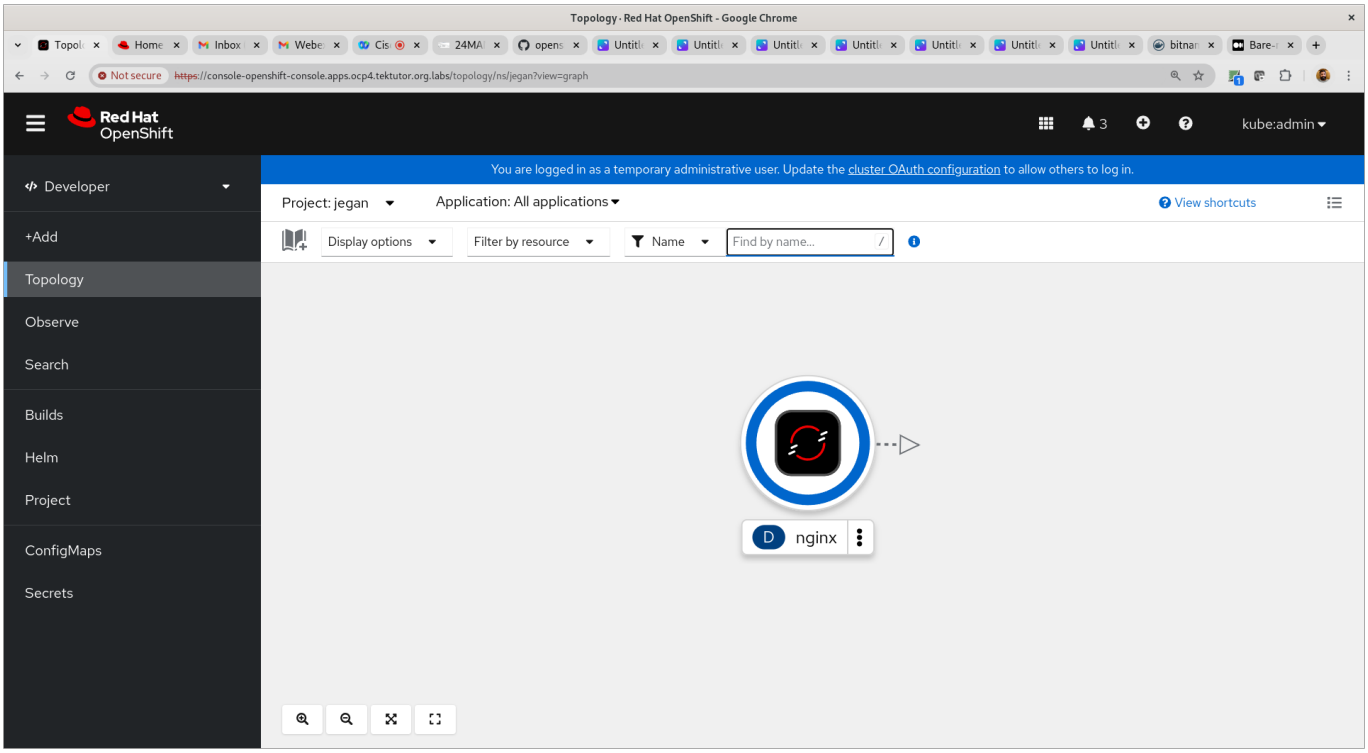
Lab - Deploying nginx in declarative style

```
cd ~
oc create deployment nginx --image=bitnami/nginx:1.18 -o yaml --dry-
run=client
oc create deployment nginx --image=bitnami/nginx:1.18 -o yaml --dry-
run=client > nginx-deploy.yml
oc apply -f nginx-deploy.yml
oc get deploy,rs,po
```

Expected output







Lab - Generating declarative manifest scripts for clusterip, nodeport and loadbalancer services

```
oc get deploy
oc expose deploy/nginx --type=ClusterIP --port=8080 -o yaml --dry-
run=client
oc expose deploy/nginx --type=ClusterIP --port=8080 -o yaml --dry-
run=client > nginx-clusterip-svc.yml
oc expose deploy/nginx --type=NodePort --port=8080 -o yaml --dry-run=client
> nginx-nodeport-svc.yml
oc expose deploy/nginx --type=LoadBalancer --port=8080 -o yaml --dry-
```

```
run=client > nginx-lb-svc.yml
ls
```

Expected output

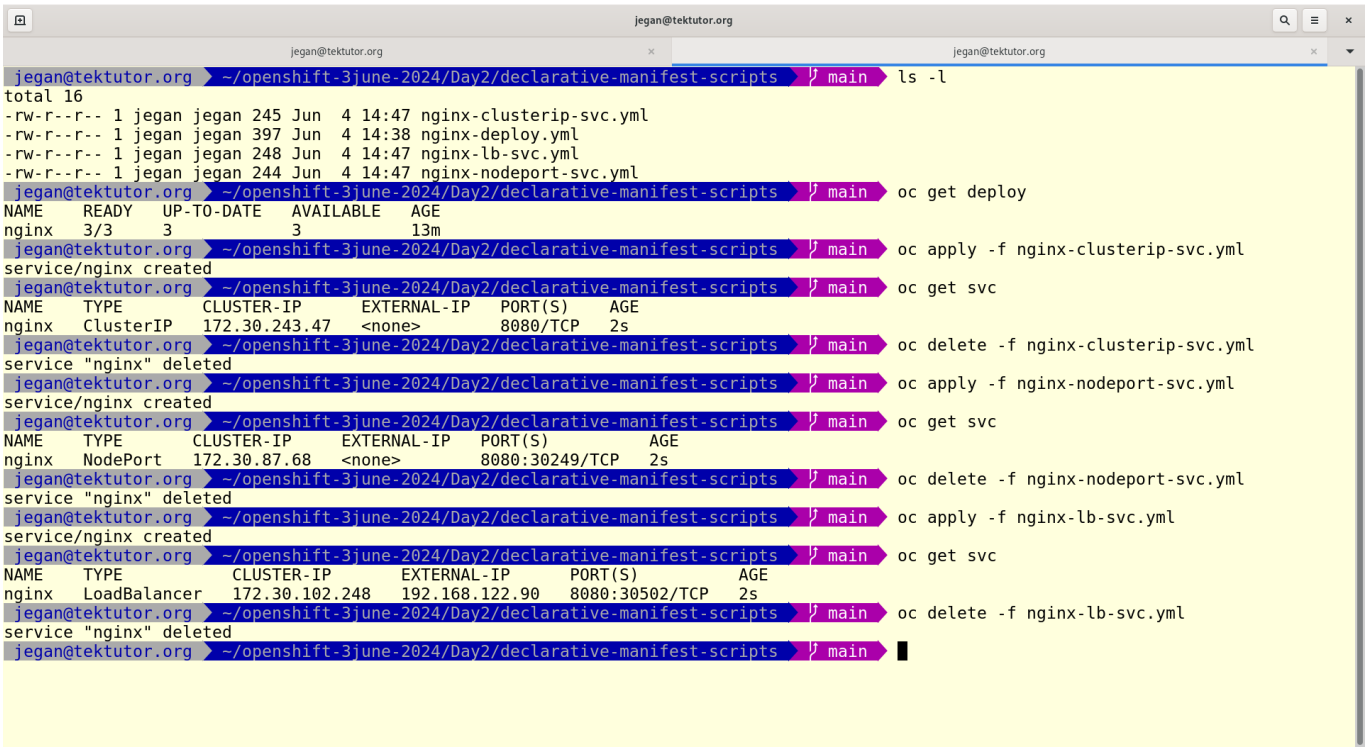
Lab - Creating clusterip internal service in declarative style

```
oc expose deploy/nginx --type=ClusterIP --port=8080 -o yaml --dry-
run=client > nginx-clusterip-svc.yml
ls -l
oc apply -f nginx-clusterip-svc.yml
oc get svc
```

You can also delete the service in declarative style

```
oc delete -f nginx-clusterip-svc.yml
oc get svc
```

Expected output



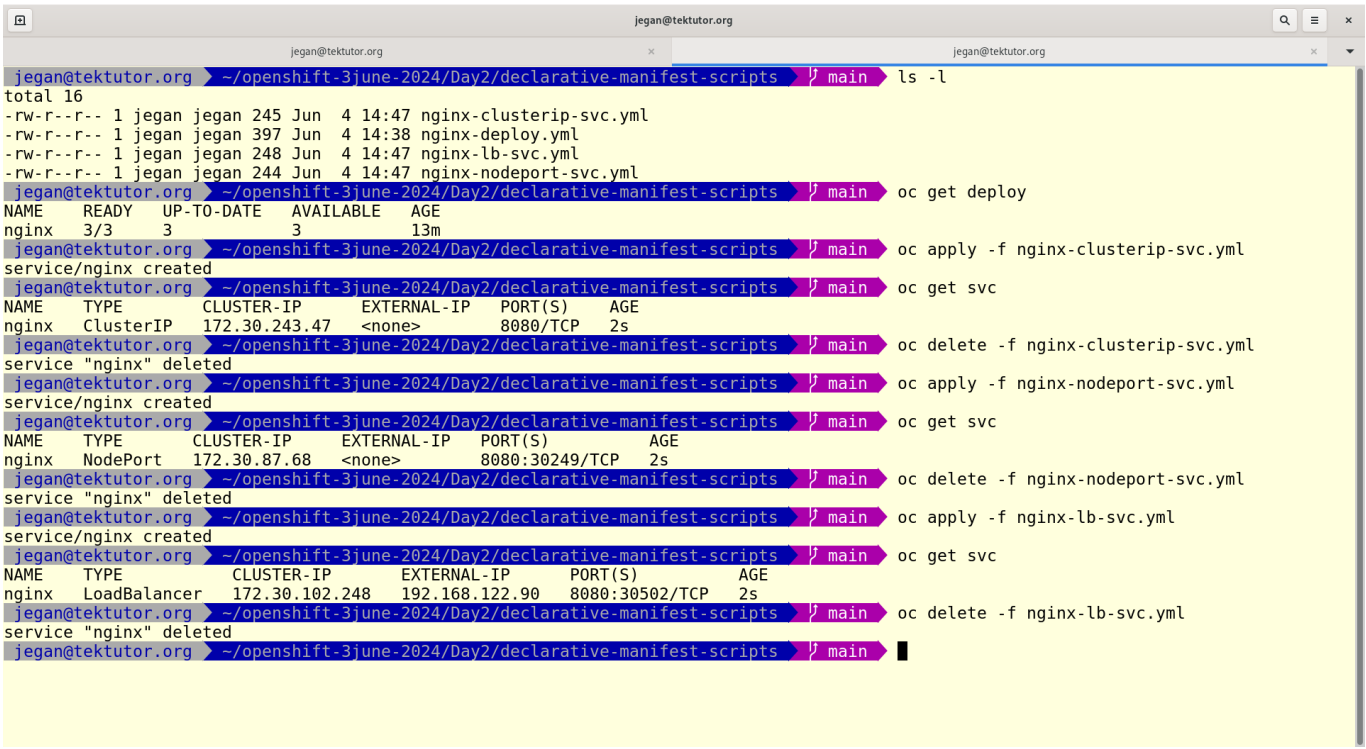
Lab - Creating nodeport external service in declarative style

```
oc expose deploy/nginx --type=NodePort --port=8080 -o yaml --dry-run=client
> nginx-nodeport-svc.yml
ls -l
oc apply -f nginx-nodeport-svc.yml
oc get svc
```

You can also delete the service in declarative style

```
oc delete -f nginx-nodeport-svc.yml
oc get svc
```

Expected output



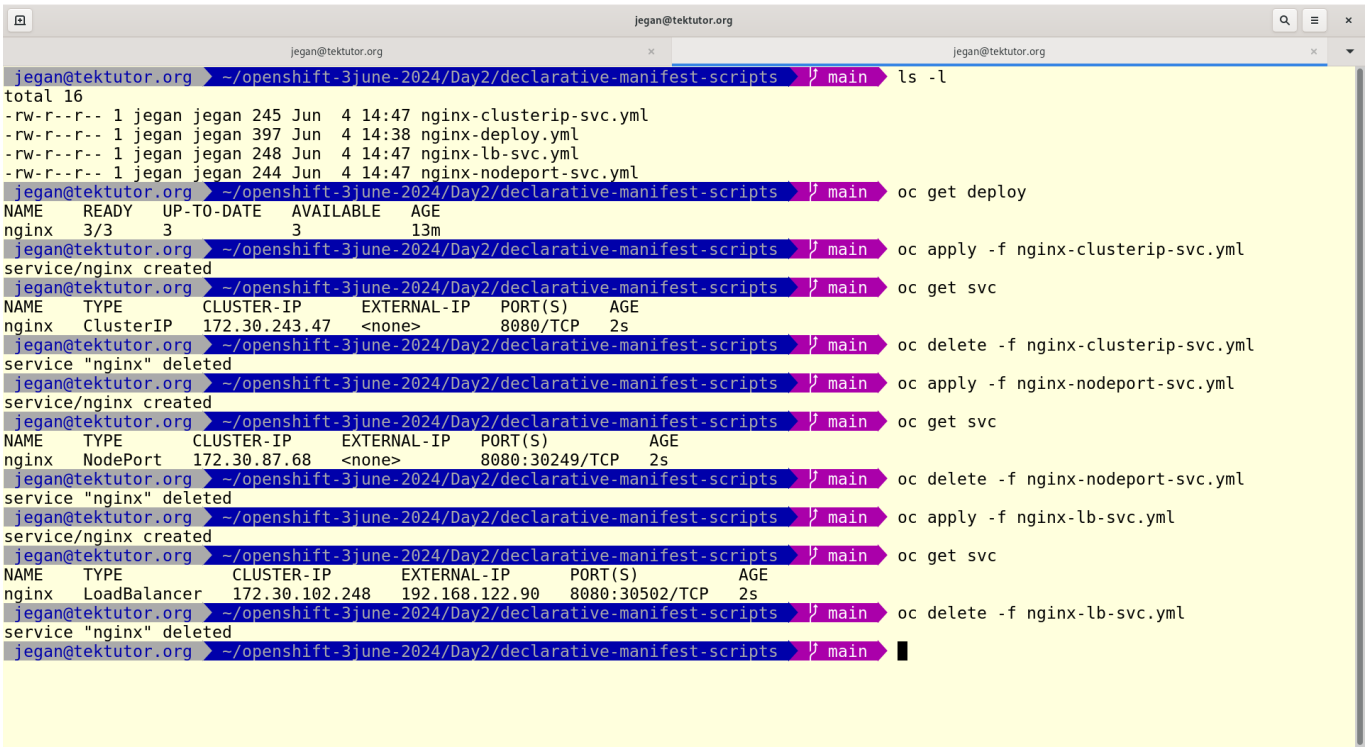
Lab - Creating loadbalancer external service in declarative style

```
oc expose deploy/nginx --type=LoadBalancer --port=8080 -o yaml --dry-
run=client > nginx-lb-svc.yml
ls -l
oc apply -f nginx-lb-svc.yml
oc get svc
```

You can also delete the service in declarative style

```
oc delete -f nginx-lb-svc.yml
oc get svc
```

Expected output

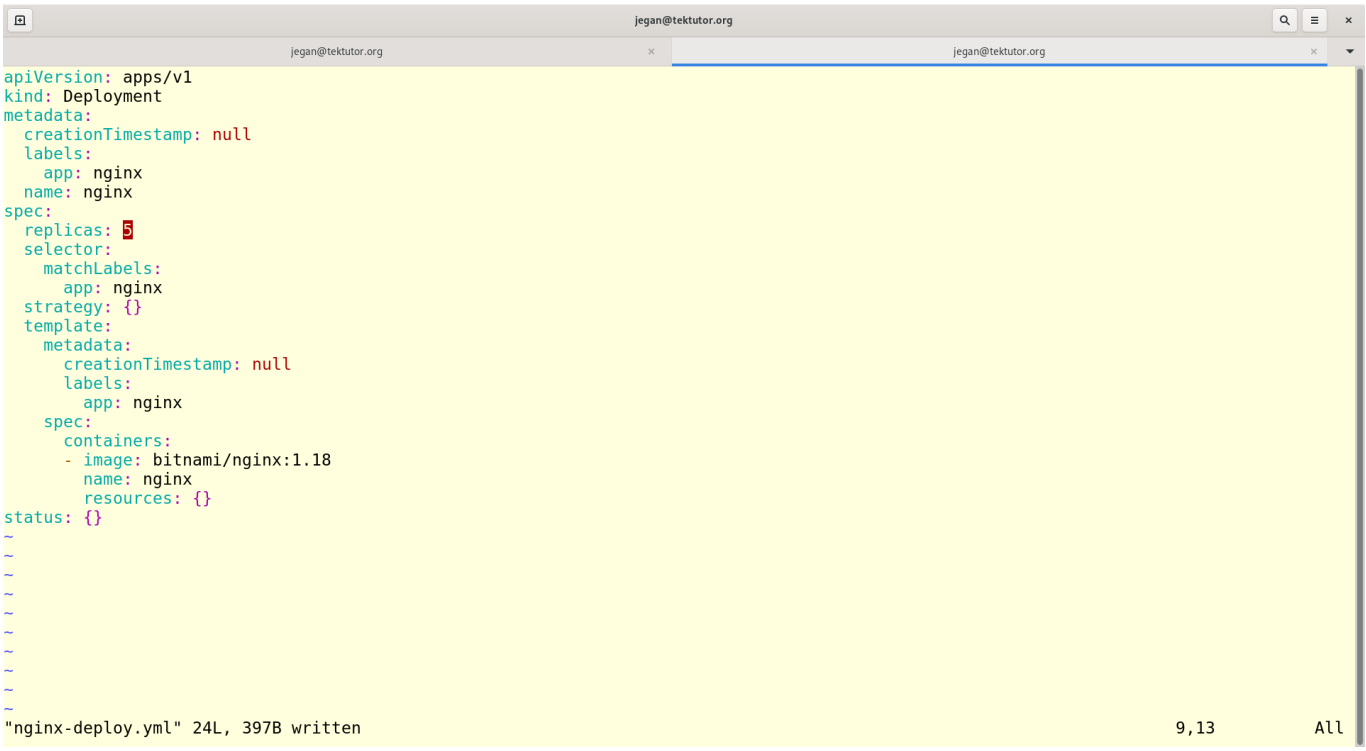


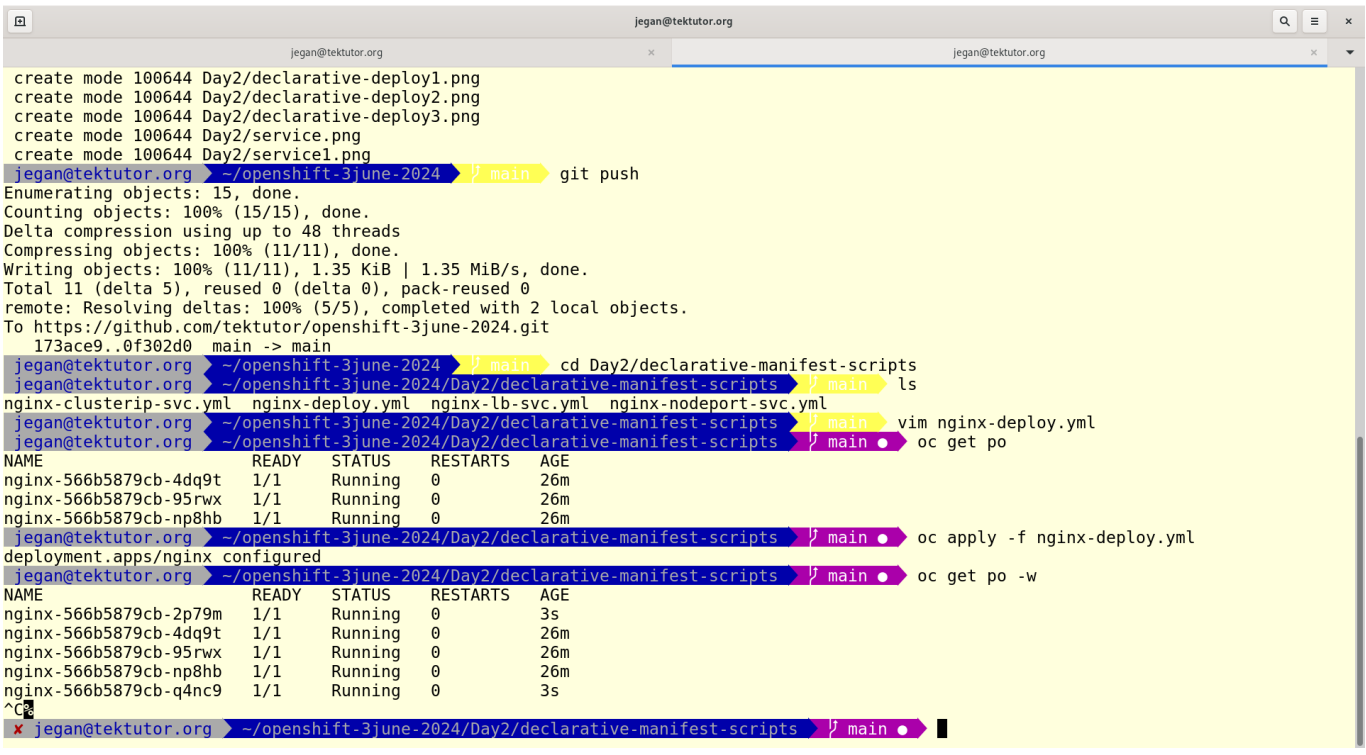
Lab - Scaling up/down deployment in declarative style

Scale up the nginx deployment from 3 pods to 5 pods. You need to edit the nginx-deploy.yml file, replace the replicas from 3 to 5, save and apply as shown below.

```
cd ~/openshift-3june-2024
git pull
cd Day2/declarative-manifest-scripts
cat nginx-deploy.yml
oc get po
oc apply -f nginx-deploy.yml
oc get po
```

Expected output

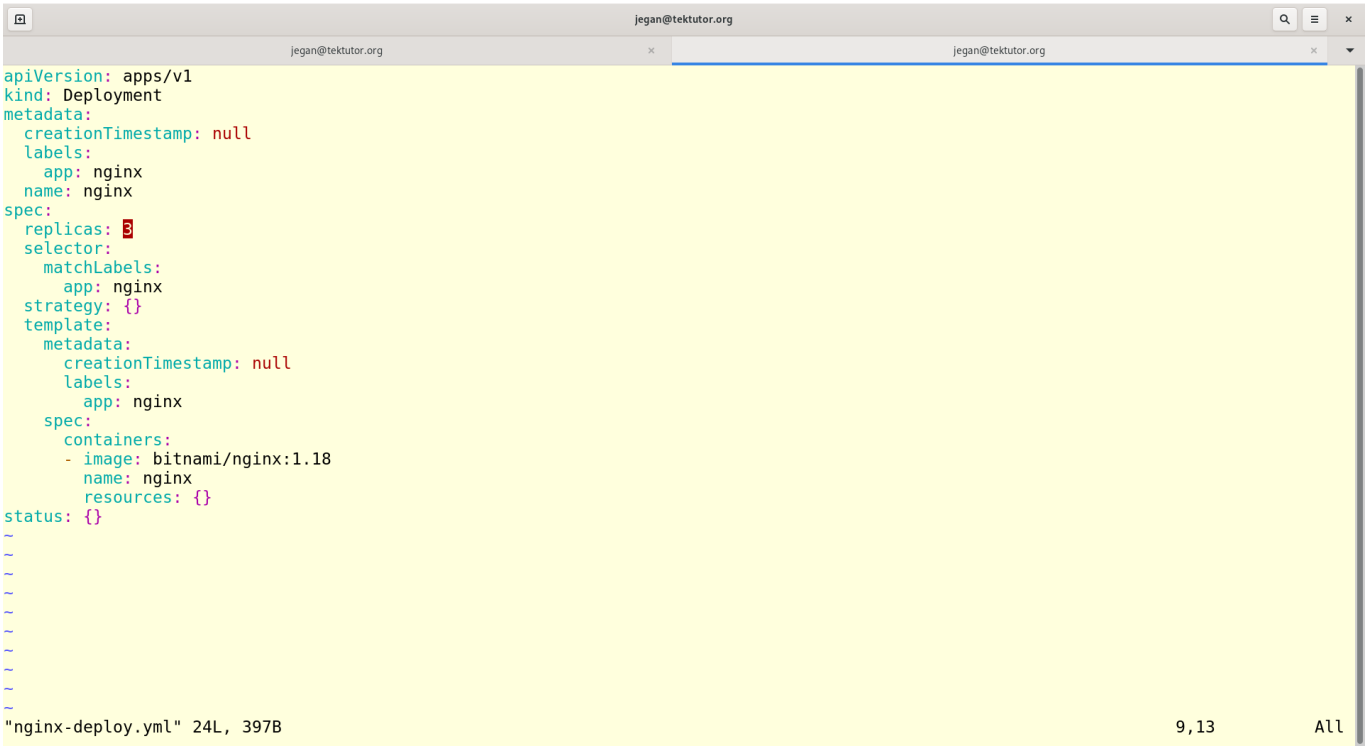


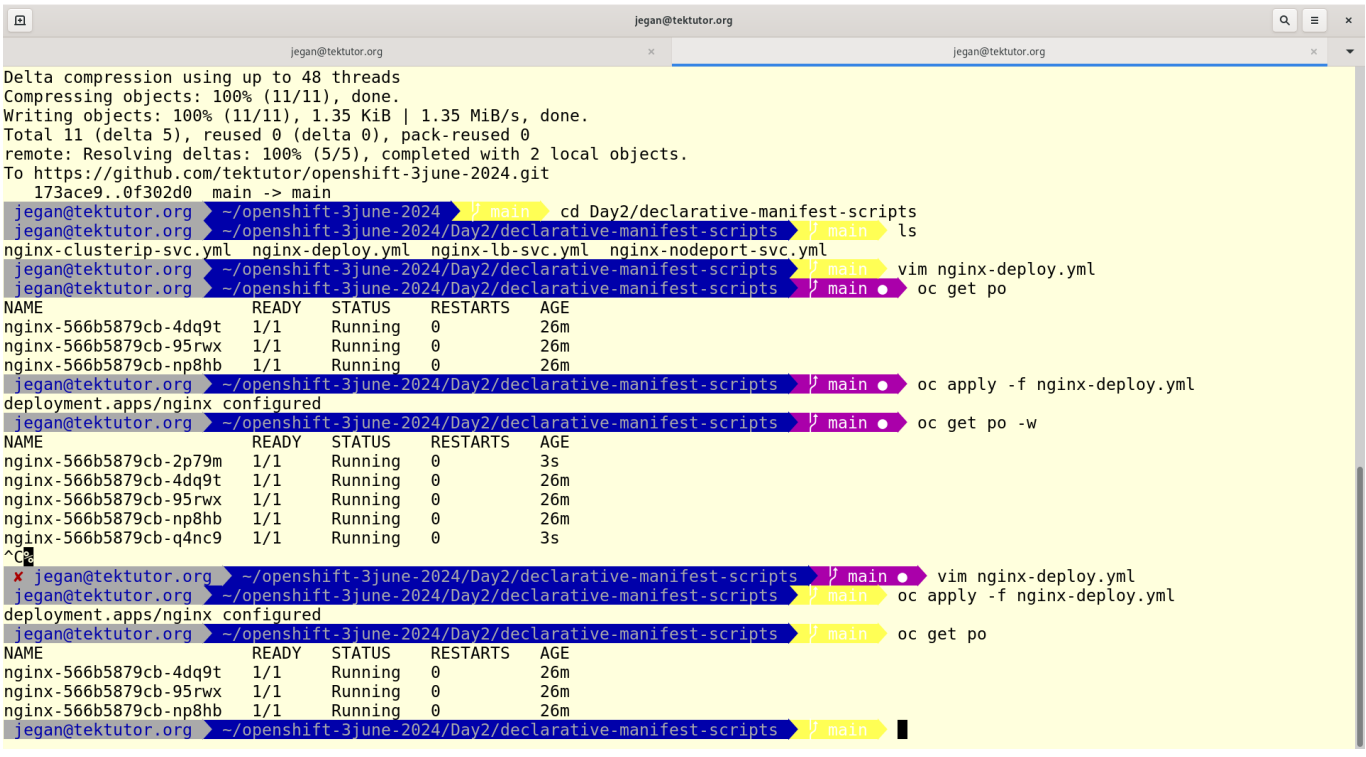


Scale down the nginx deployment from 5 pods to 3 pods. You need to edit the nginx-deploy.yml file, replace the replicas from 5 to 3, save and apply as shown below.

```
cd ~/openshift-3june-2024
git pull
cd Day2/declarative-manifest-scripts
cat nginx-deploy.yml
oc get po
oc apply -f nginx-deploy.yml
oc get po
```

Expected output





Lab - Rolling update to upgrade your live application from one version to other without any downtime

You need to edit nginx-deploy.yml and update the image version from 1.18 to 1.19, save it and apply

```
cd ~/openshift-3june-2024
git pull
cd Day2/declarative-manifest-scripts
cat nginx-deploy.yml
oc apply -f nginx-deploy.yml
```

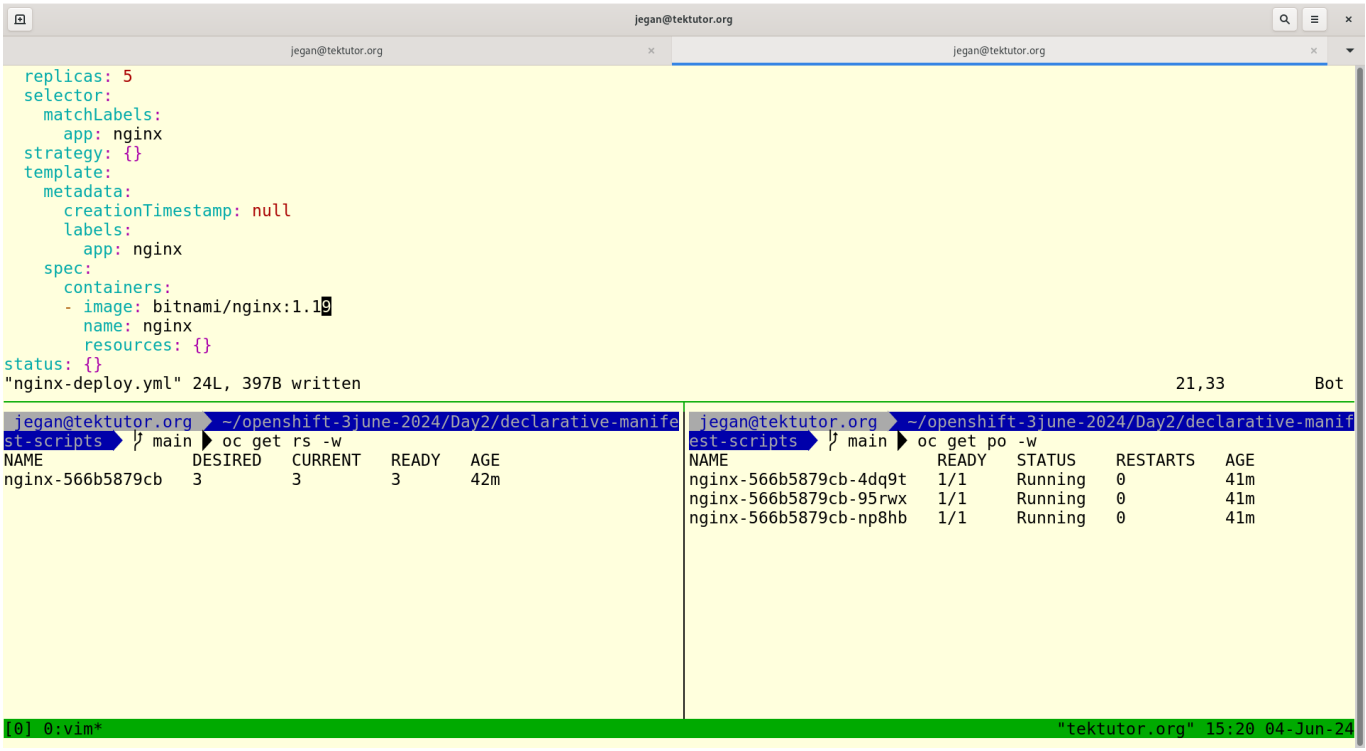
To check the status of rolling update

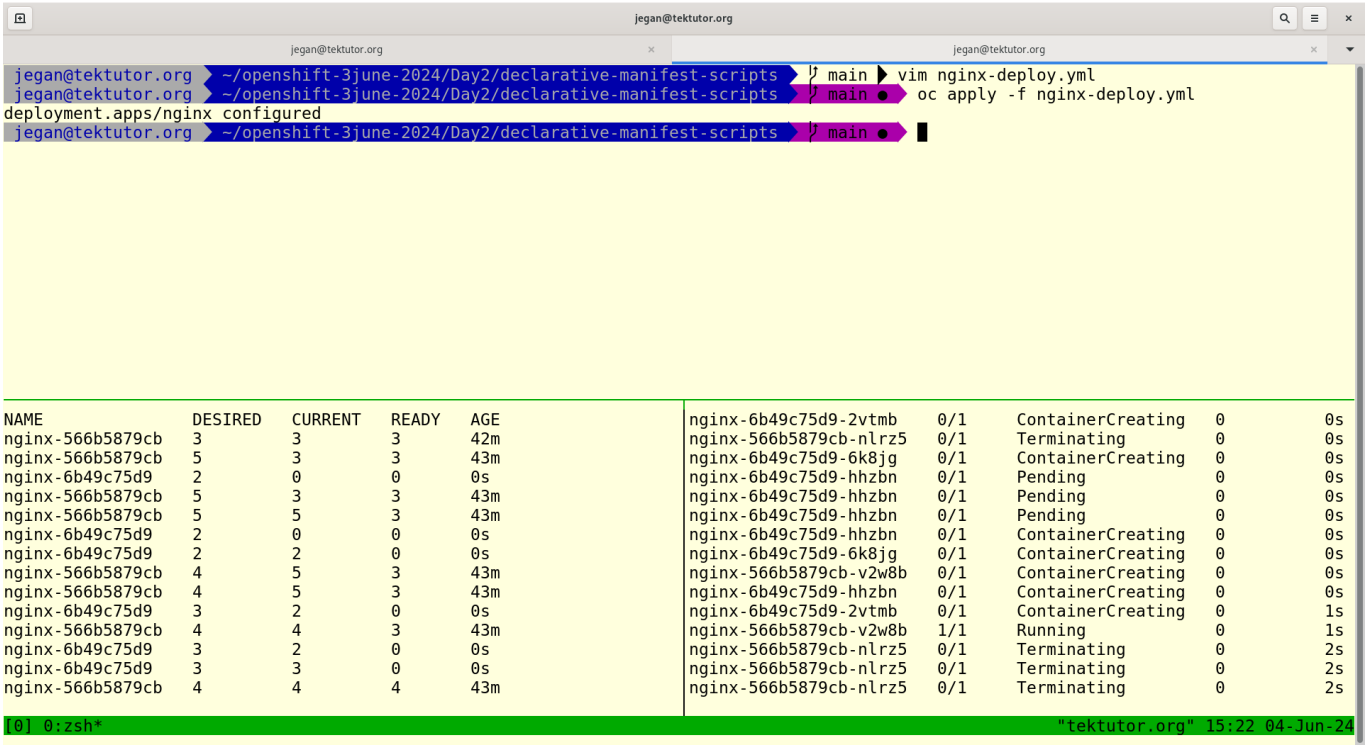
```
oc rollout status deploy/nginx
oc rollout history deploy/nginx
```

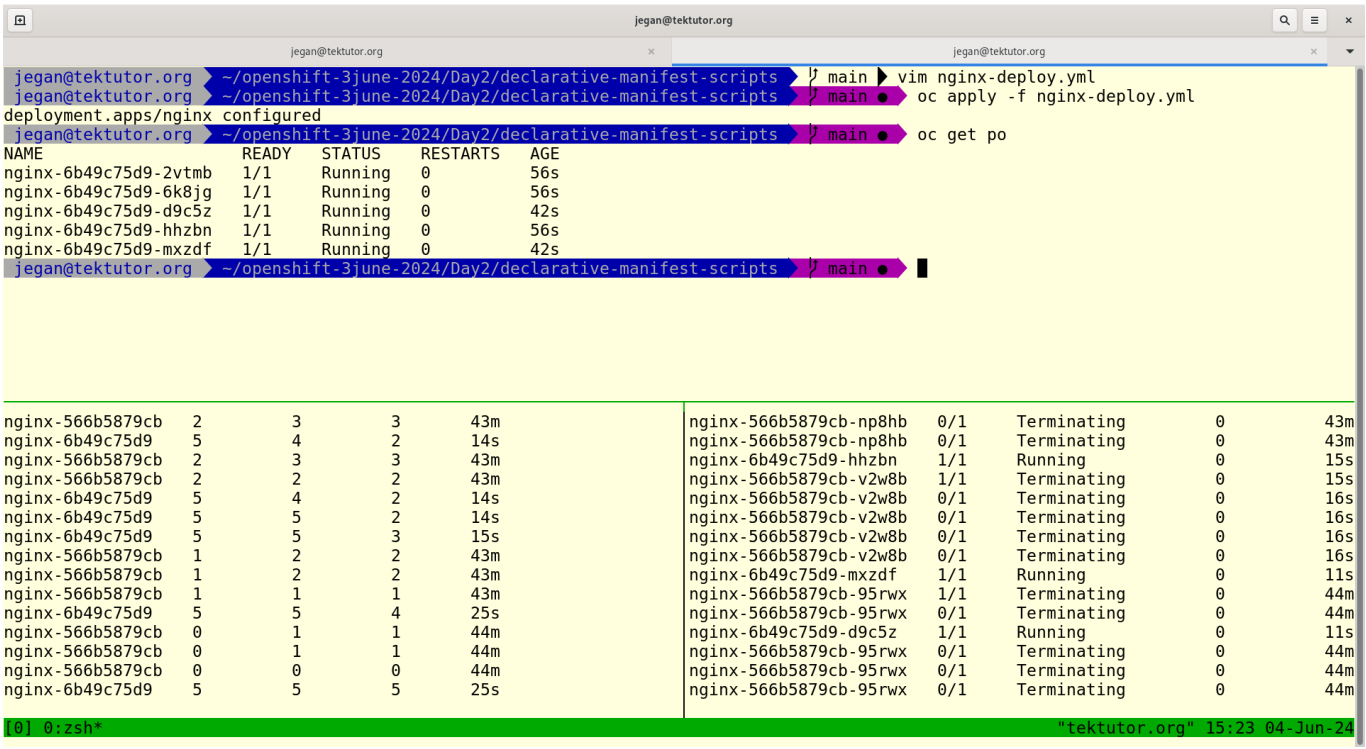
To rollback to previous version

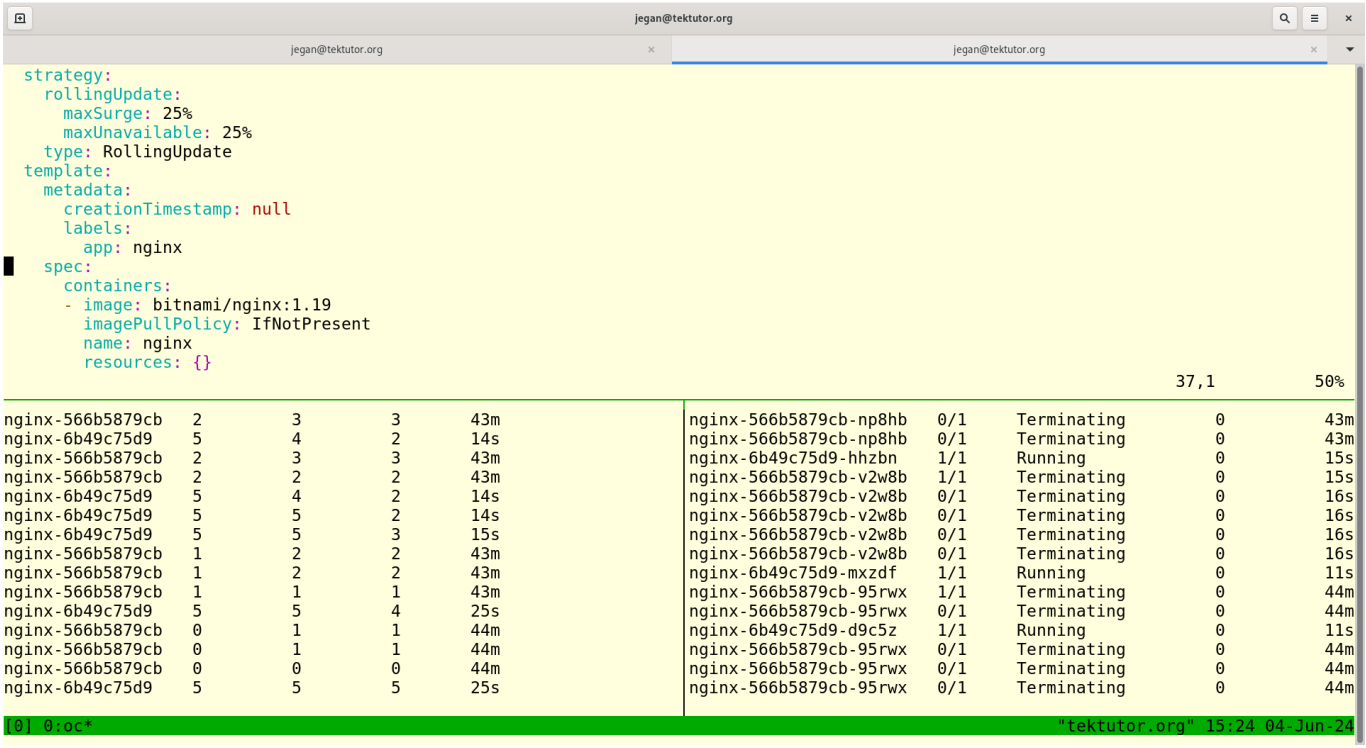
```
oc rollout undo deploy/nginx
```

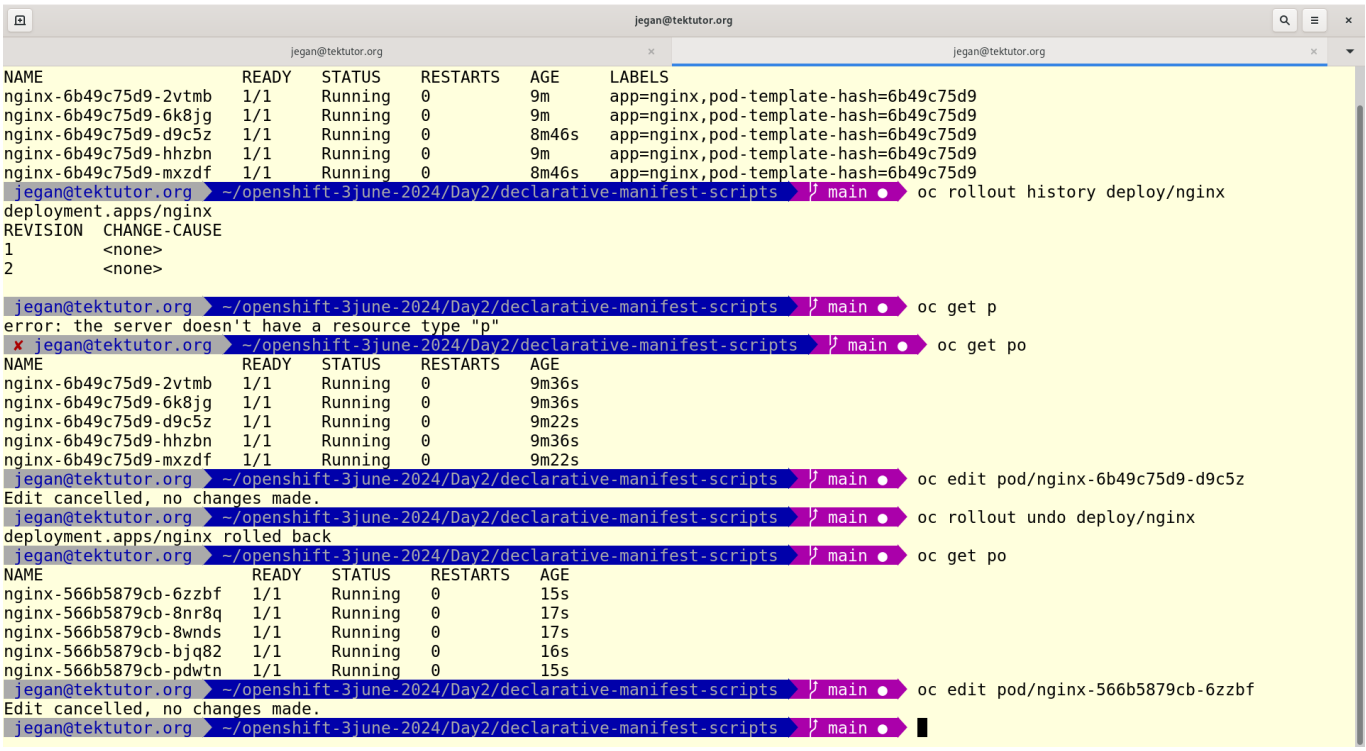
Expected output




jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main vim nginx-deploy.yml
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main oc apply -f nginx-deploy.yml
deployment.apps/nginx configured
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main
NAME DESIRED CURRENT READY AGE
nginx-566b5879cb 3 3 3 42m
nginx-566b5879cb 5 3 3 43m
nginx-6b49c75d9 2 0 0 0s
nginx-566b5879cb 5 3 3 43m
nginx-566b5879cb 5 5 3 43m
nginx-6b49c75d9 2 0 0 0s
nginx-6b49c75d9 2 2 0 0s
nginx-566b5879cb 4 5 3 43m
nginx-566b5879cb 4 5 3 43m
nginx-6b49c75d9 3 2 0 0s
nginx-566b5879cb 4 4 3 43m
nginx-6b49c75d9 3 2 0 0s
nginx-6b49c75d9 3 3 0 0s
nginx-566b5879cb 4 4 4 43m
nginx-6b49c75d9-2vtmb 0/1 ContainerCreating 0 0s
nginx-566b5879cb-nlrz5 0/1 Terminating 0 0s
nginx-6b49c75d9-6k8jg 0/1 ContainerCreating 0 0s
nginx-6b49c75d9-hhzbn 0/1 Pending 0 0s
nginx-6b49c75d9-hhzbn 0/1 Pending 0 0s
nginx-6b49c75d9-hhzbn 0/1 Pending 0 0s
nginx-6b49c75d9-hhzbn 0/1 ContainerCreating 0 0s
nginx-6b49c75d9-6k8jg 0/1 ContainerCreating 0 0s
nginx-566b5879cb-v2w8b 0/1 ContainerCreating 0 0s
nginx-6b49c75d9-hhzbn 0/1 ContainerCreating 0 0s
nginx-6b49c75d9-2vtmb 0/1 ContainerCreating 0 1s
nginx-566b5879cb-v2w8b 1/1 Running 0 1s
nginx-566b5879cb-nlrz5 0/1 Terminating 0 2s
nginx-566b5879cb-nlrz5 0/1 Terminating 0 2s
nginx-566b5879cb-nlrz5 0/1 Terminating 0 2s
[0] 0:zsh*
"tektutor.org" 15:22 04-Jun-24


jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main vim nginx-deploy.yml
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main oc apply -f nginx-deploy.yml
deployment.apps/nginx configured
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main oc get po
NAME READY STATUS RESTARTS AGE
nginx-6b49c75d9-2vtmb 1/1 Running 0 56s
nginx-6b49c75d9-6k8jg 1/1 Running 0 56s
nginx-6b49c75d9-d9c5z 1/1 Running 0 42s
nginx-6b49c75d9-hhzbn 1/1 Running 0 56s
nginx-6b49c75d9-mxzdf 1/1 Running 0 42s
jegan@tektutor.org ~/openshift-3june-2024/Day2/declarative-manifest-scripts main
nginx-566b5879cb 2 3 3 43m
nginx-6b49c75d9 5 4 2 14s
nginx-566b5879cb 2 3 3 43m
nginx-566b5879cb 2 2 2 43m
nginx-6b49c75d9 5 4 2 14s
nginx-6b49c75d9 5 5 2 14s
nginx-6b49c75d9 5 5 3 15s
nginx-566b5879cb 1 2 2 43m
nginx-566b5879cb 1 2 2 43m
nginx-566b5879cb 1 1 1 43m
nginx-6b49c75d9 5 5 4 25s
nginx-566b5879cb 0 1 1 44m
nginx-566b5879cb 0 1 1 44m
nginx-566b5879cb 0 0 0 44m
nginx-6b49c75d9 5 5 5 25s
nginx-566b5879cb-np8hb 0/1 Terminating 0 43m
nginx-566b5879cb-np8hb 0/1 Terminating 0 43m
nginx-6b49c75d9-hhzbn 1/1 Running 0 15s
nginx-566b5879cb-v2w8b 1/1 Terminating 0 15s
nginx-566b5879cb-v2w8b 0/1 Terminating 0 16s
nginx-566b5879cb-v2w8b 0/1 Terminating 0 16s
nginx-566b5879cb-v2w8b 0/1 Terminating 0 16s
nginx-566b5879cb-v2w8b 0/1 Terminating 0 16s
nginx-6b49c75d9-mxzdf 1/1 Running 0 11s
nginx-566b5879cb-95rwx 1/1 Terminating 0 44m
nginx-566b5879cb-95rwx 0/1 Terminating 0 44m
nginx-6b49c75d9-d9c5z 1/1 Running 0 11s
nginx-566b5879cb-95rwx 0/1 Terminating 0 44m
nginx-566b5879cb-95rwx 0/1 Terminating 0 44m
nginx-566b5879cb-95rwx 0/1 Terminating 0 44m
[0] 0:zsh*
"tektutor.org" 15:23 04-Jun-24





Lab - Creating a replicaset in declarative style without deployment

First let's delete any deployment running

```
cd ~/openshift-3june-2024
git pull
cd Day2/declarative-manifest-scripts
oc delete -f nginx-deploy.yml
```

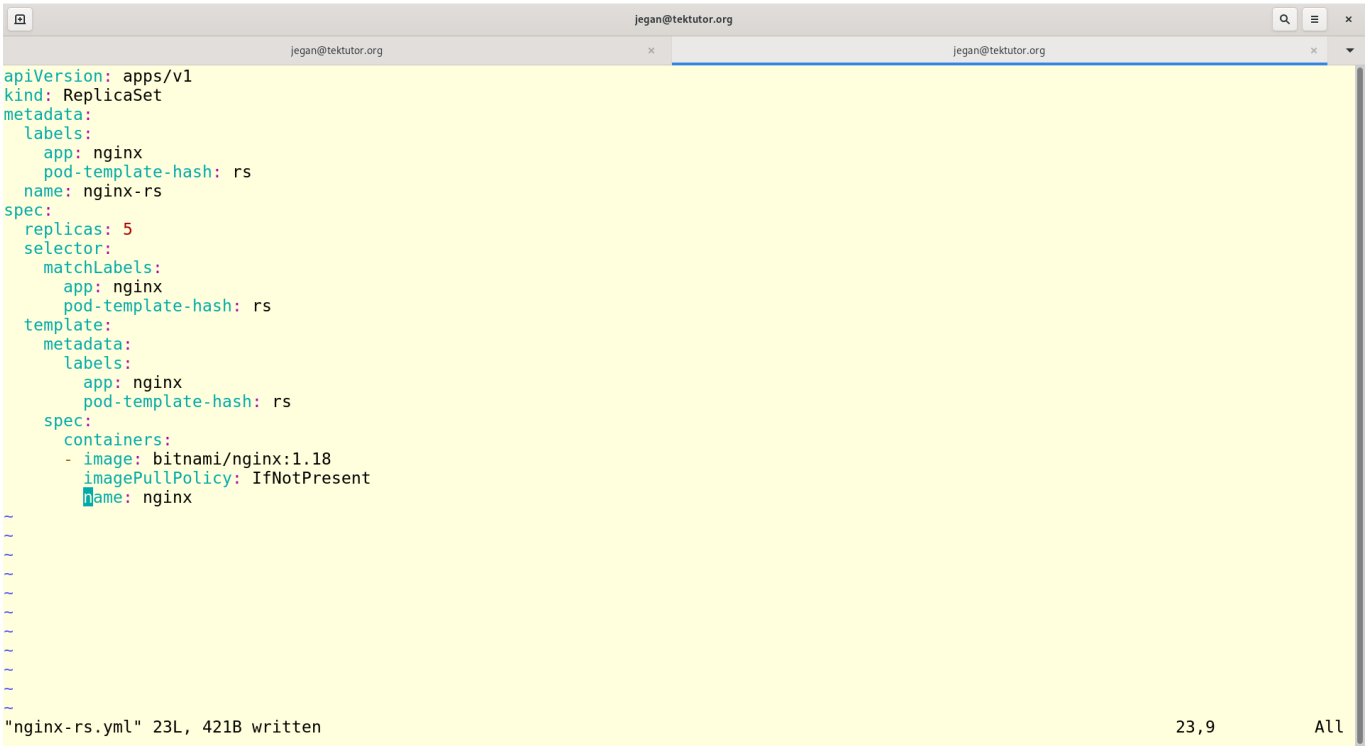
Let's create the replicaset

```
cd ~/openshift-3june-2024
cd Day2/declarative-manifest-scripts
cat nginx-rs.yml
oc apply -f nginx-rs
oc get deploy,rs,po
```

Once you are done, you may delete the replicaset declaratively

```
cd ~/openshift-3june-2024
cd Day2/declarative-manifest-scripts
oc delete -f nginx-rs
oc get rs,po
```

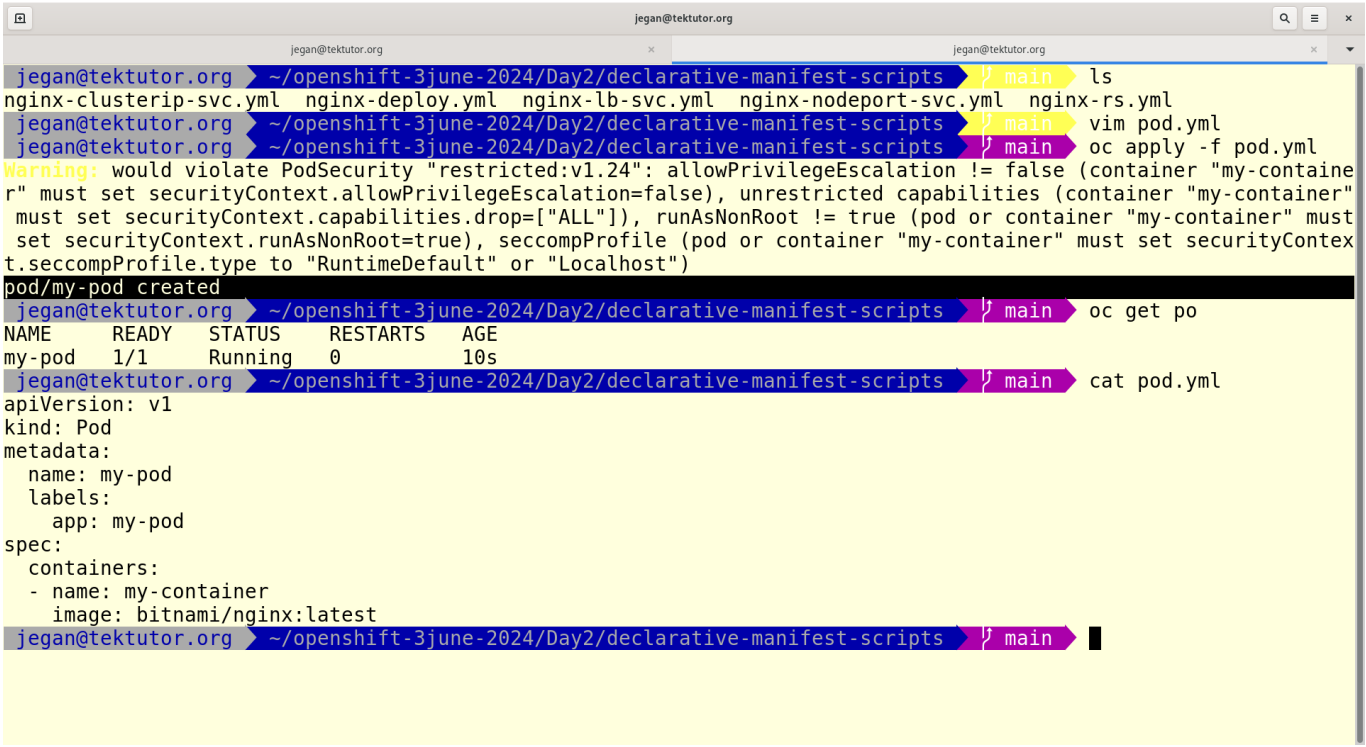
Expected output



Lab - Creating a pod in declaratively style without replicaset and deployment

```
cd ~/openshift-3june-2024
git pull
cd Day2/declarative-manifest-scripts
cat pod.yml
oc apply -f pod.yml
oc get pod
```

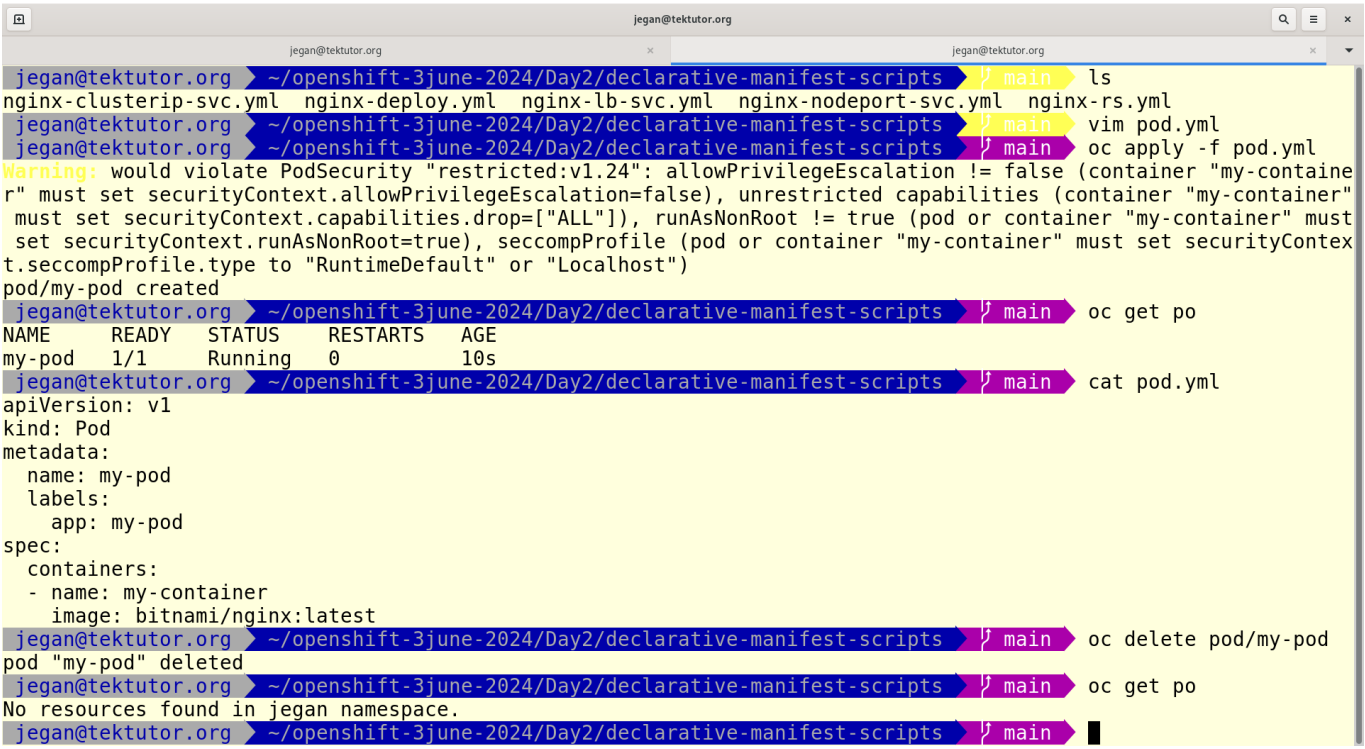
Expected output



Once you are done with this exercise, you may delete the pod declaratively as shown below

```
cd ~/openshift-3june-2024
cd Day2/declarative-manifest-scripts
oc delete -f pod.yml
oc get pod
```

Expected output



Lab - Creating a route to expose the clusterip service with a convenient public url

As we discussed, the nodeport service is neither end-user friendly nor developer friendly. Also it forces us to open ports in the firewall it leads to security issues.

Route is the solution to the nodeport service issues.

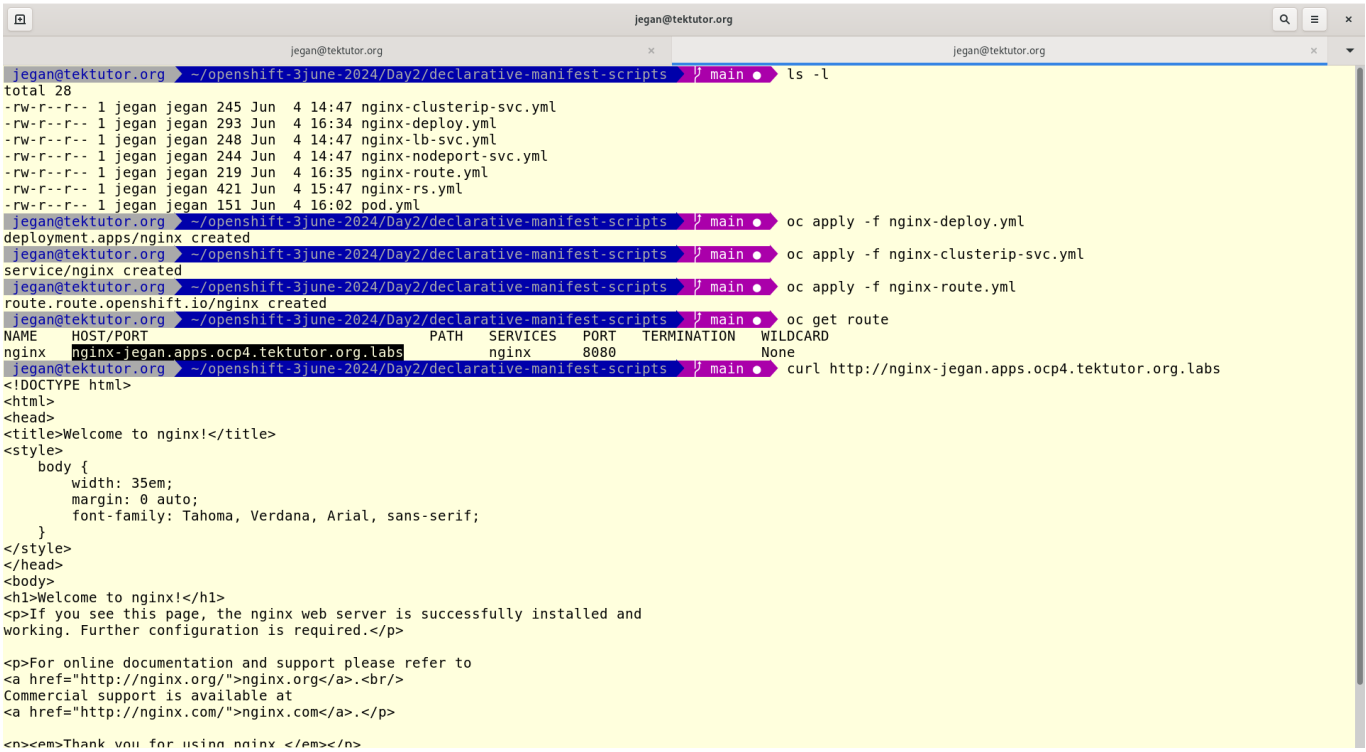
Let's create a route

```
cd ~/openshift-3june-2024
git pull
cd Day2/declarative-manifest-scripts
ls -l
oc apply -f nginx-deploy.yml
oc apply -f nginx-clusterip-svc.yml
oc expose svc/nginx -o yaml --dry-run=client
oc expose svc/nginx -o yaml --dry-run=client > nginx-route.yml
oc apply -f nginx-route.yml

oc get route
```

You may access the route as shown below

```
curl http://nginx-jegan.apps.ocp4.tektutor.org.labs
```

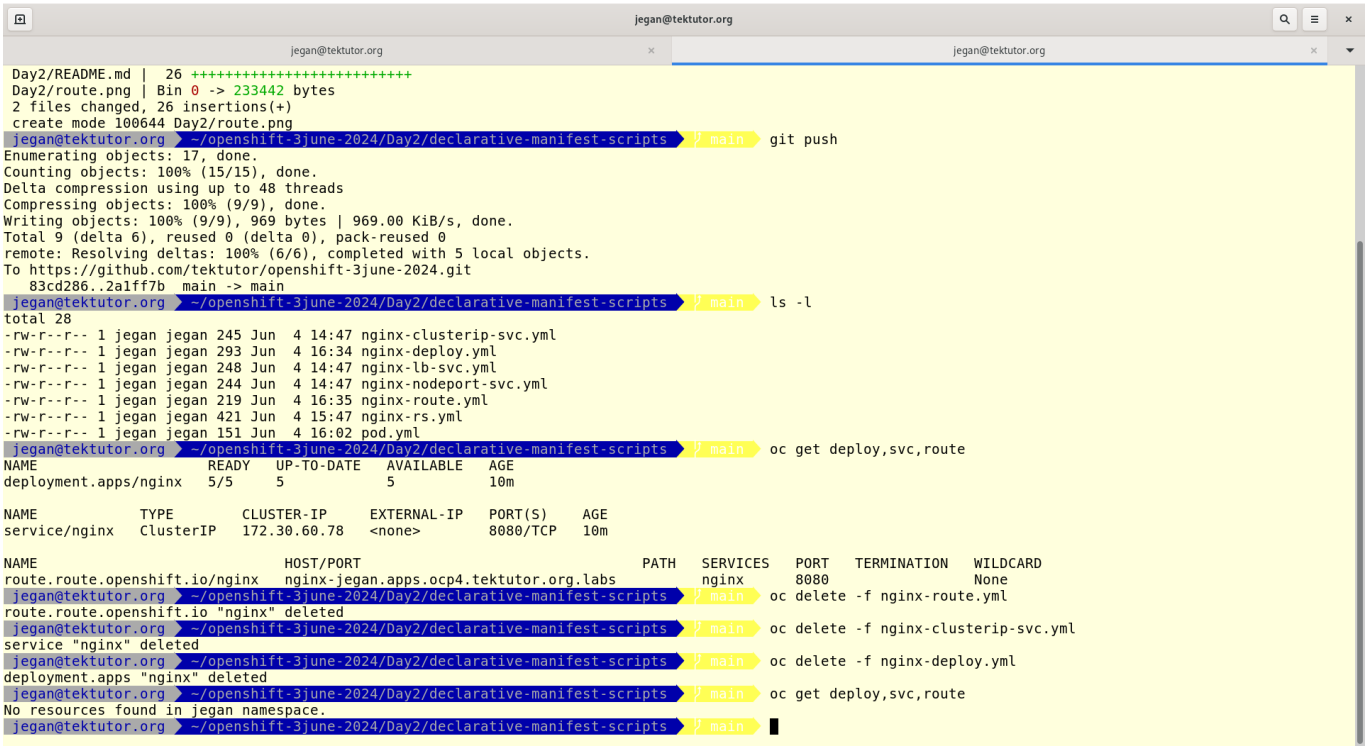
Expected output



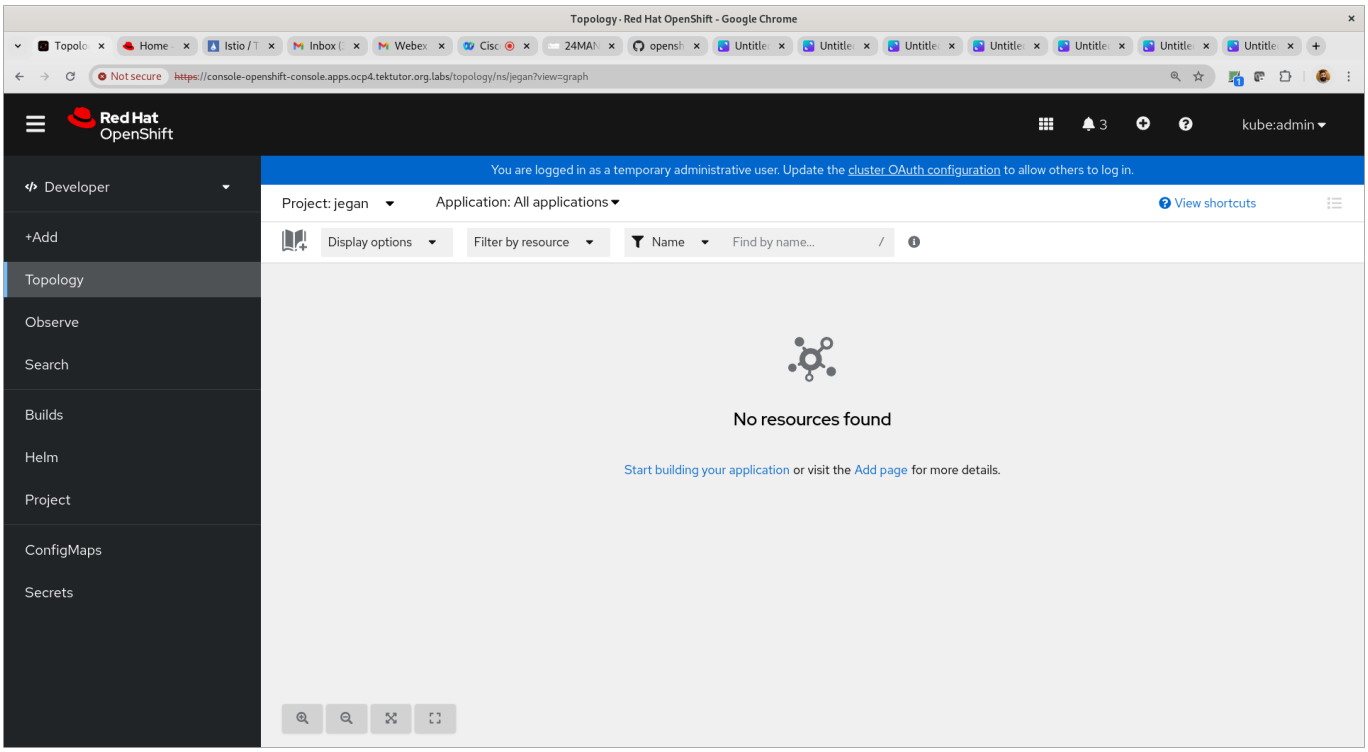
Once you are done with this exercise, you may delete the resources as shown below

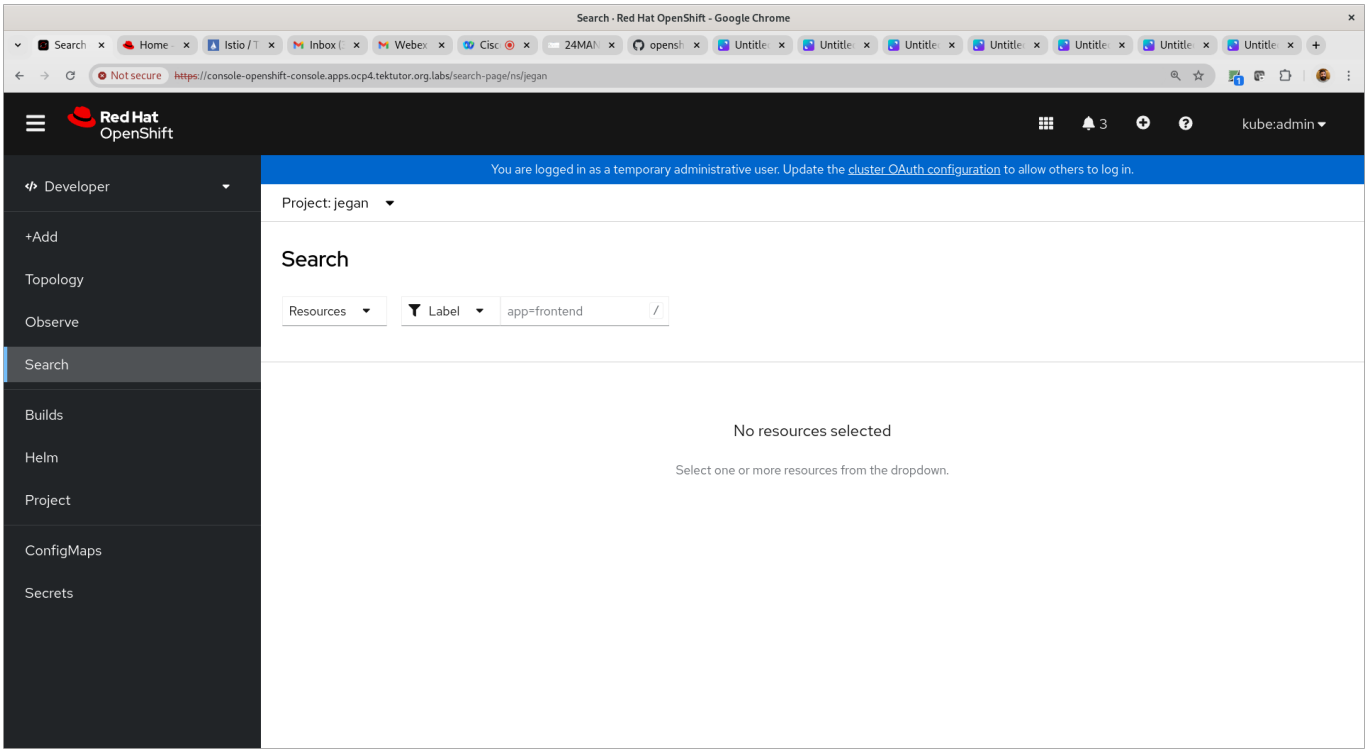
```
cd ~/openshift-3june-2024
cd Day2/declarative-manifest-scripts
ls -l

oc get deploy,svc,route
oc delete -f nginx-route.yml
oc delete -f nginx-clusterip-svc.yml
oc delete -f nginx-deploy.yml
oc get deploy,svc,route
```

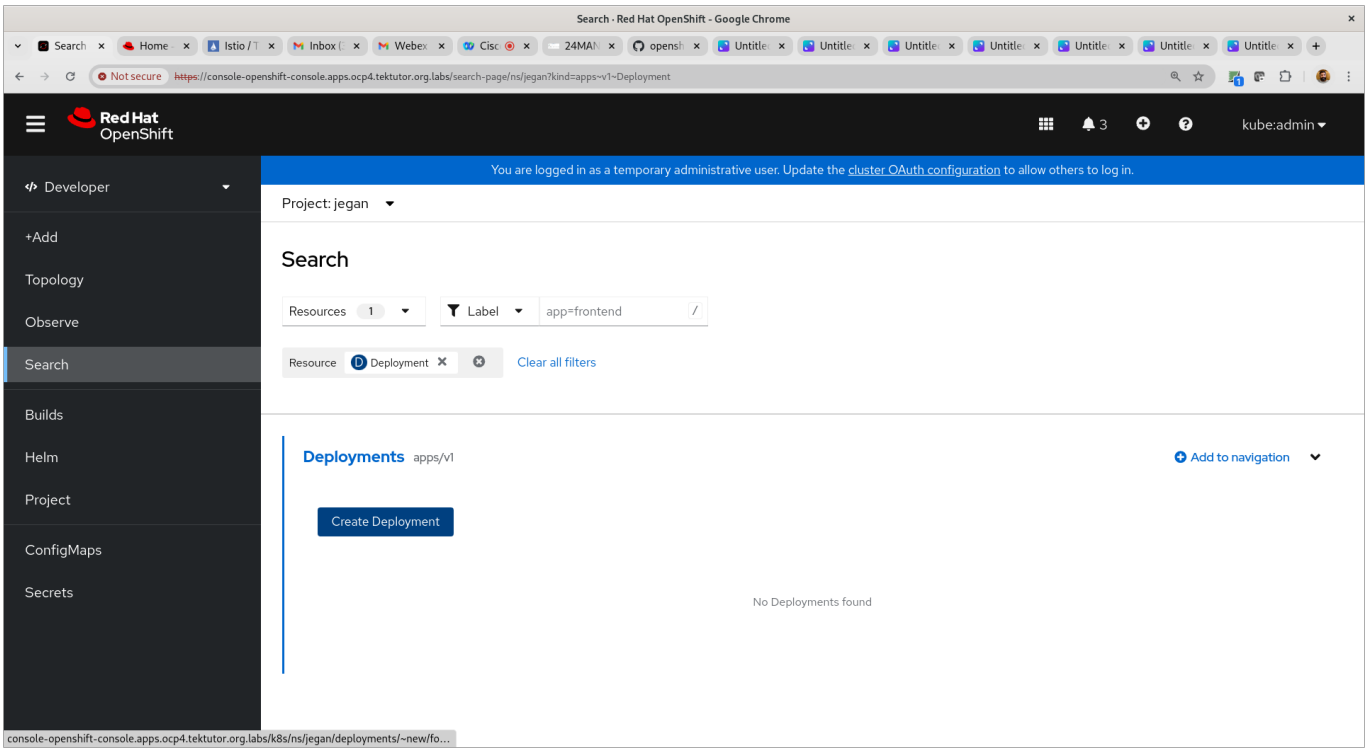
Expected output

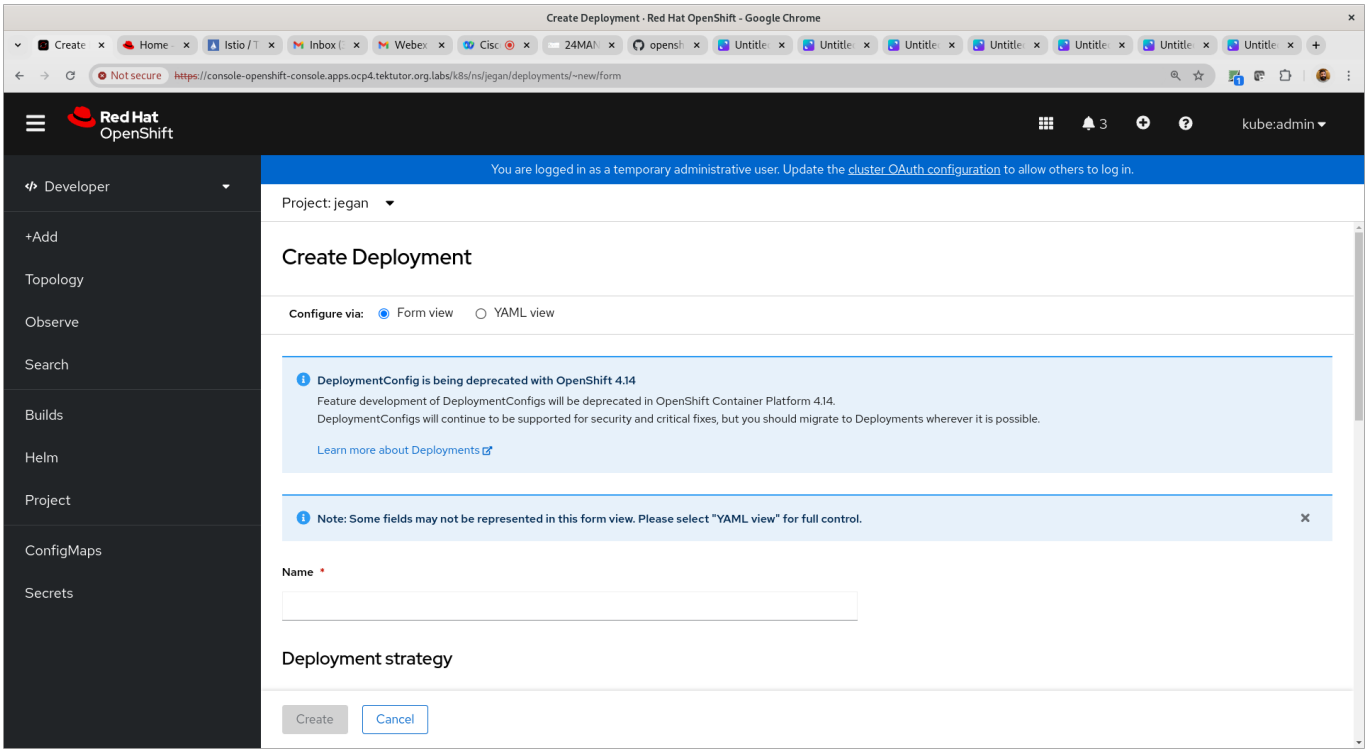


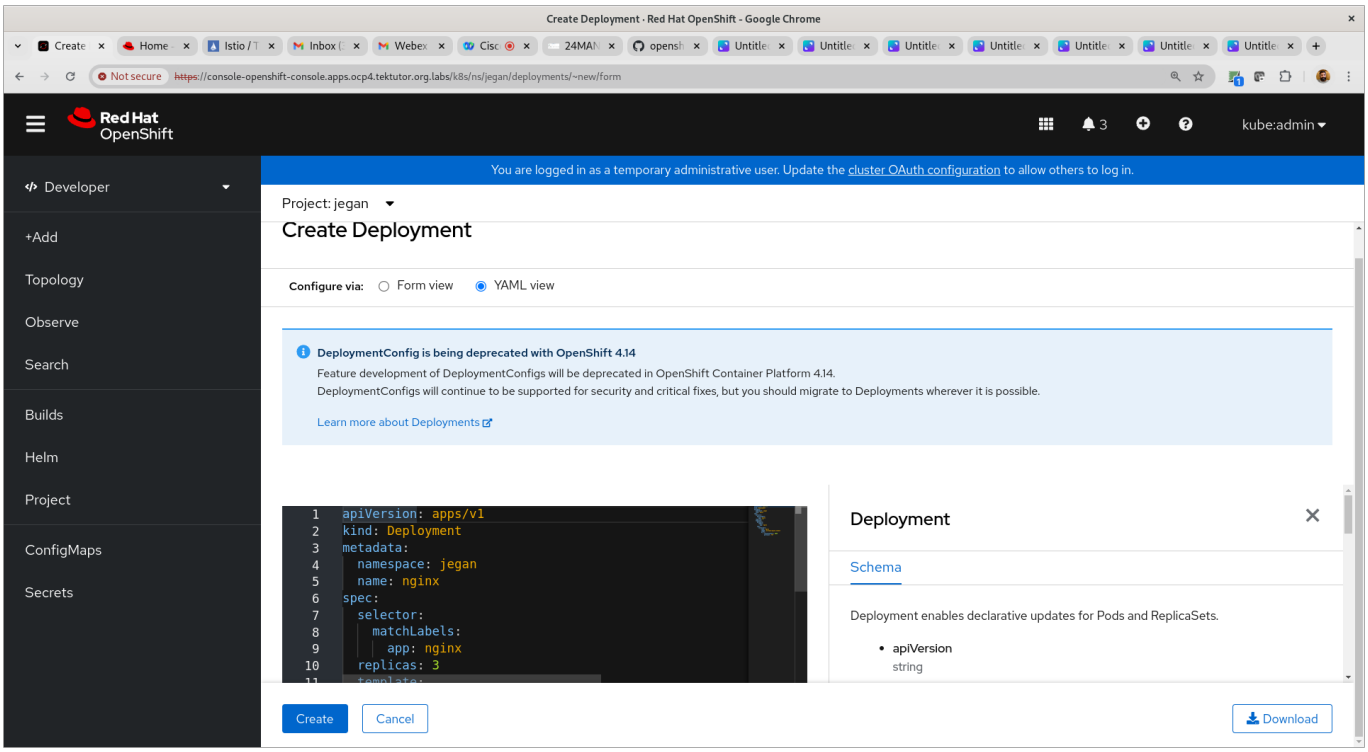
Lab - Deploying an application in declarative style from Webconsole in developer context

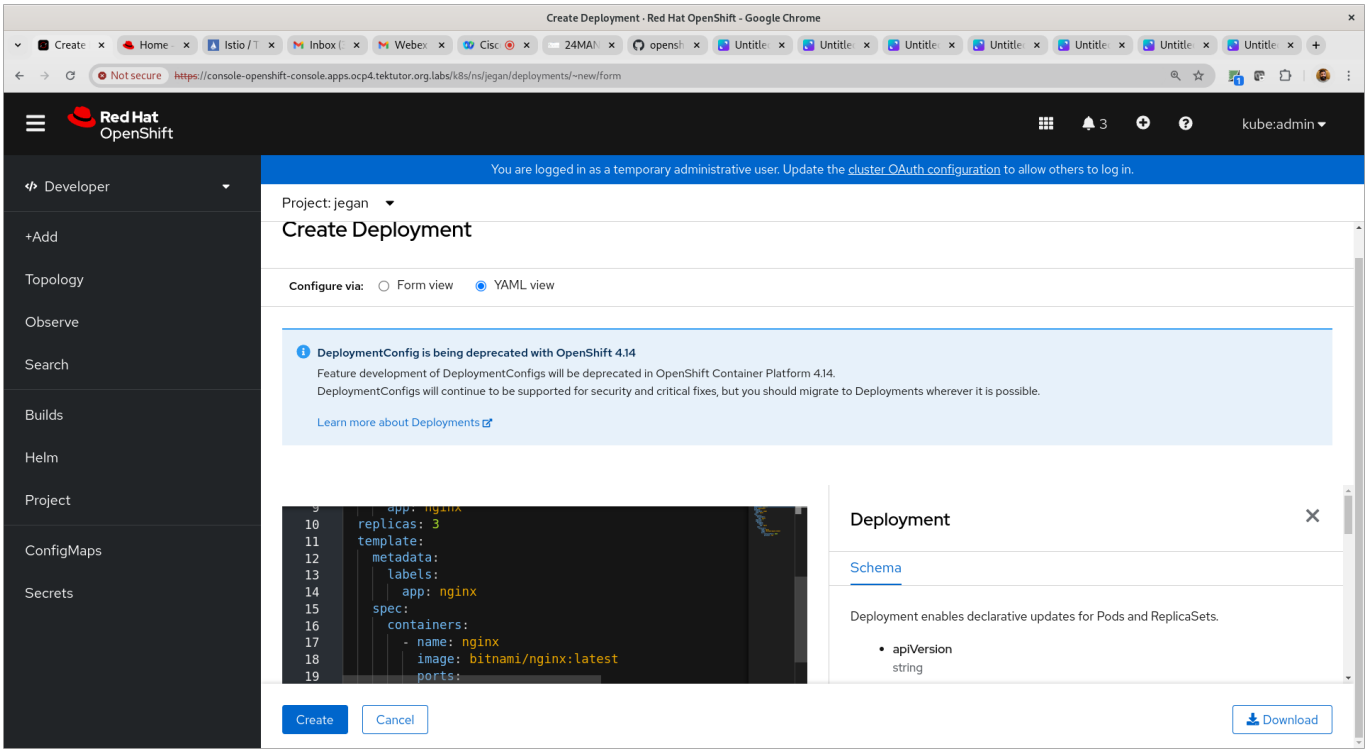

Topology - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Project: jegan
Application: All applications
View shortcuts
Display options
Filter by resource
Name
Find by name...
No resources found
Start building your application or visit the Add page for more details.

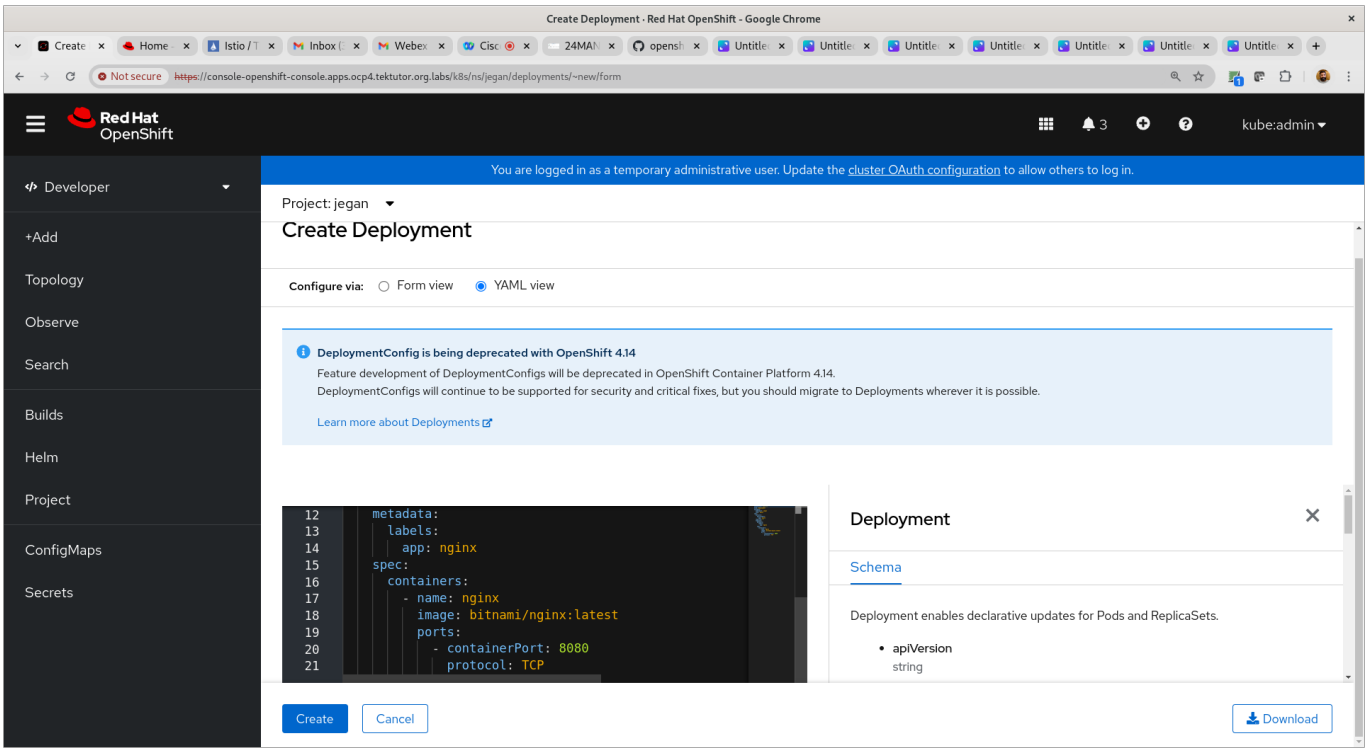

Search - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Project: jegan
Search
Resources
Label
app=frontend
No resources selected
Select one or more resources from the dropdown.

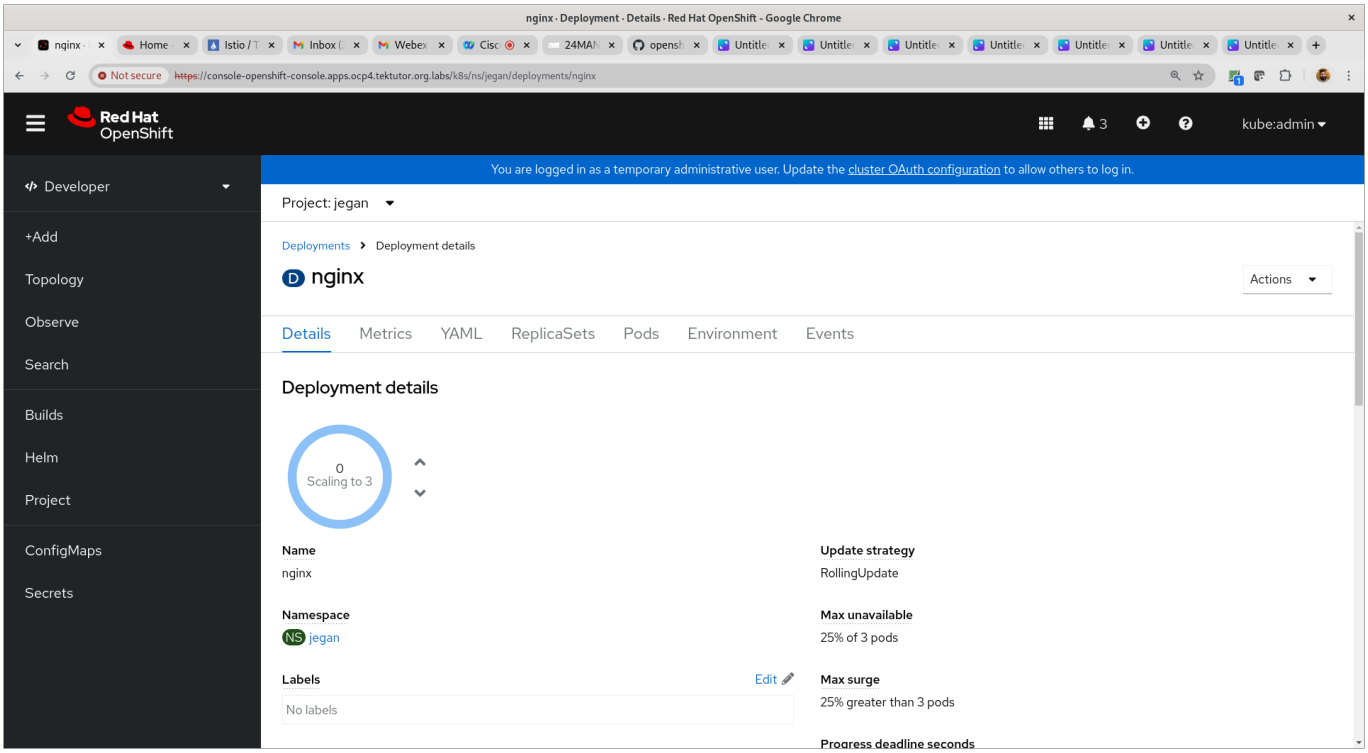

Search - Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/search-page/ns/jegan?kind=apps~v1~Deployment
Red Hat OpenShift
kube:admin
Developer
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Search
Resources 1
Label
app=frontend
Resource Deployment
Clear all filters
Deployments apps/v1
Add to navigation
Create Deployment
No Deployments found
console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/deployments/~new/fo…

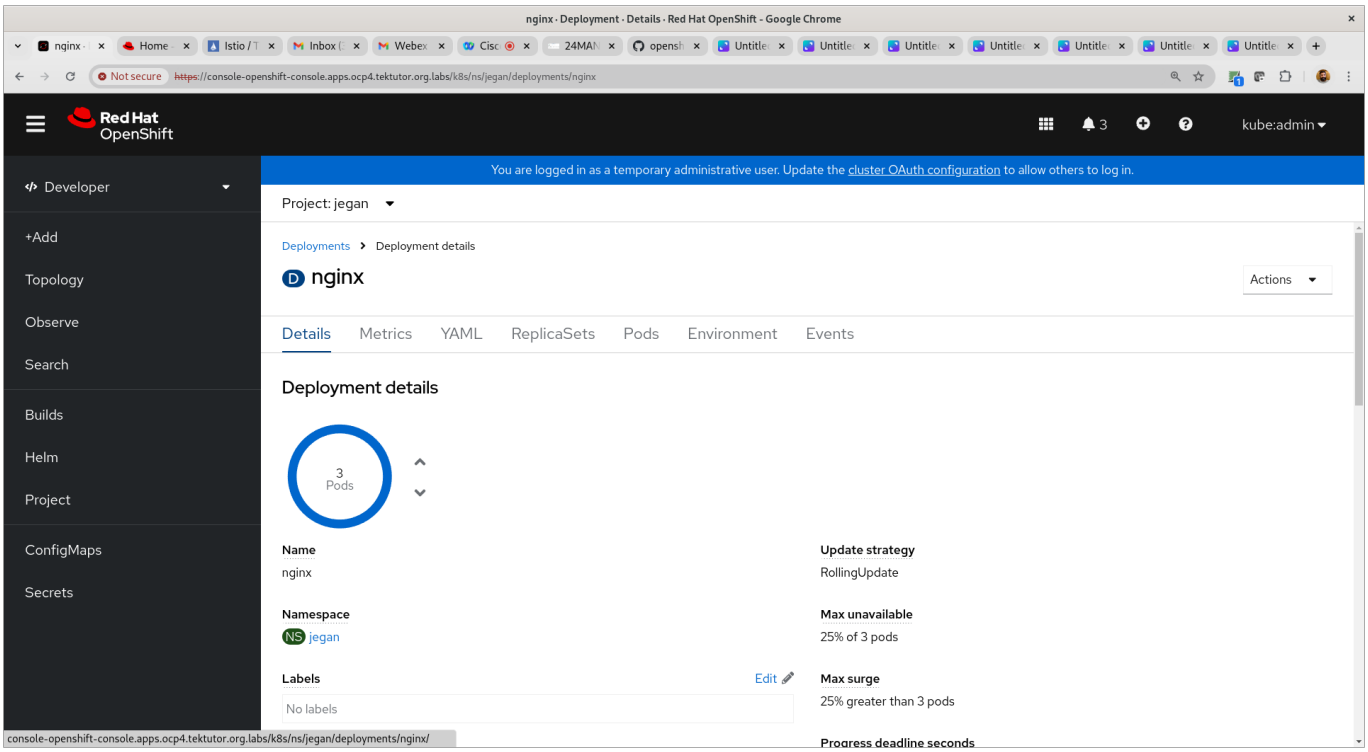

Create Deployment - Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/deployments/~new/form
Red Hat OpenShift
kube:admin
Developer
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Create Deployment
Configure via: Form view YAML view
DeploymentConfig is being deprecated with OpenShift 4.14
Feature development of DeploymentConfigs will be deprecated in OpenShift Container Platform 4.14.
DeploymentConfigs will continue to be supported for security and critical fixes, but you should migrate to Deployments wherever it is possible.
Learn more about Deployments
Note: Some fields may not be represented in this form view. Please select "YAML view" for full control.
Name *
Deployment strategy
Create
Cancel

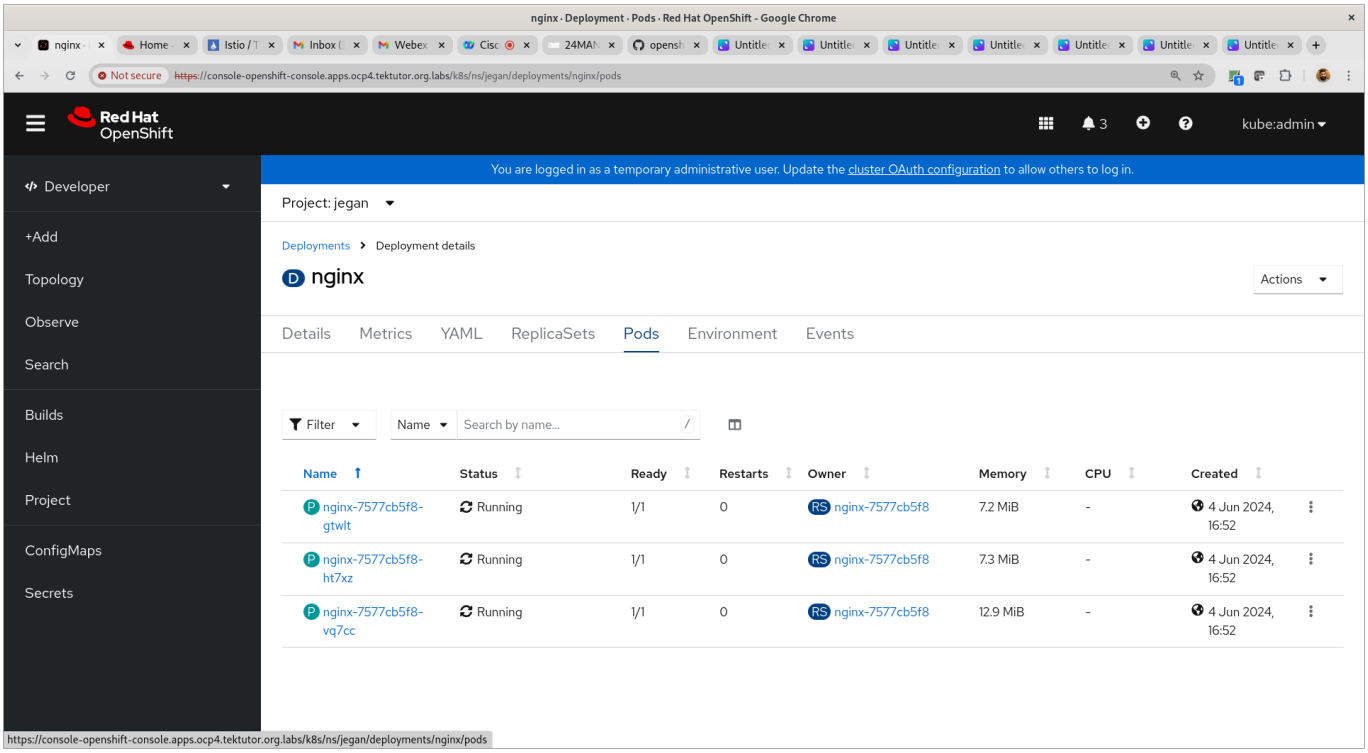

Create Deployment - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Deployment
Configure via: Form view YAML view
DeploymentConfig is being deprecated with OpenShift 4.14
Feature development of DeploymentConfigs will be deprecated in OpenShift Container Platform 4.14.
DeploymentConfigs will continue to be supported for security and critical fixes, but you should migrate to Deployments wherever it is possible.
Learn more about Deployments
apiVersion: apps/v1
kind: Deployment
metadata:
namespace: jegan
name: nginx
spec:
selector:
matchLabels:
app: nginx
replicas: 3
Deployment
Schema
Deployment enables declarative updates for Pods and ReplicaSets.
apiVersion
string
Create
Cancel
Download


Create Deployment - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Deployment
Configure via: Form view YAML view
DeploymentConfig is being deprecated with OpenShift 4.14
Feature development of DeploymentConfigs will be deprecated in OpenShift Container Platform 4.14.
DeploymentConfigs will continue to be supported for security and critical fixes, but you should migrate to Deployments wherever it is possible.
Learn more about Deployments
replicas: 3
template:
metadata:
labels:
app: nginx
spec:
containers:
- name: nginx
image: bitnami/nginx:latest
ports:
Deployment
Schema
Deployment enables declarative updates for Pods and ReplicaSets.
apiVersion
string
Create
Cancel
Download

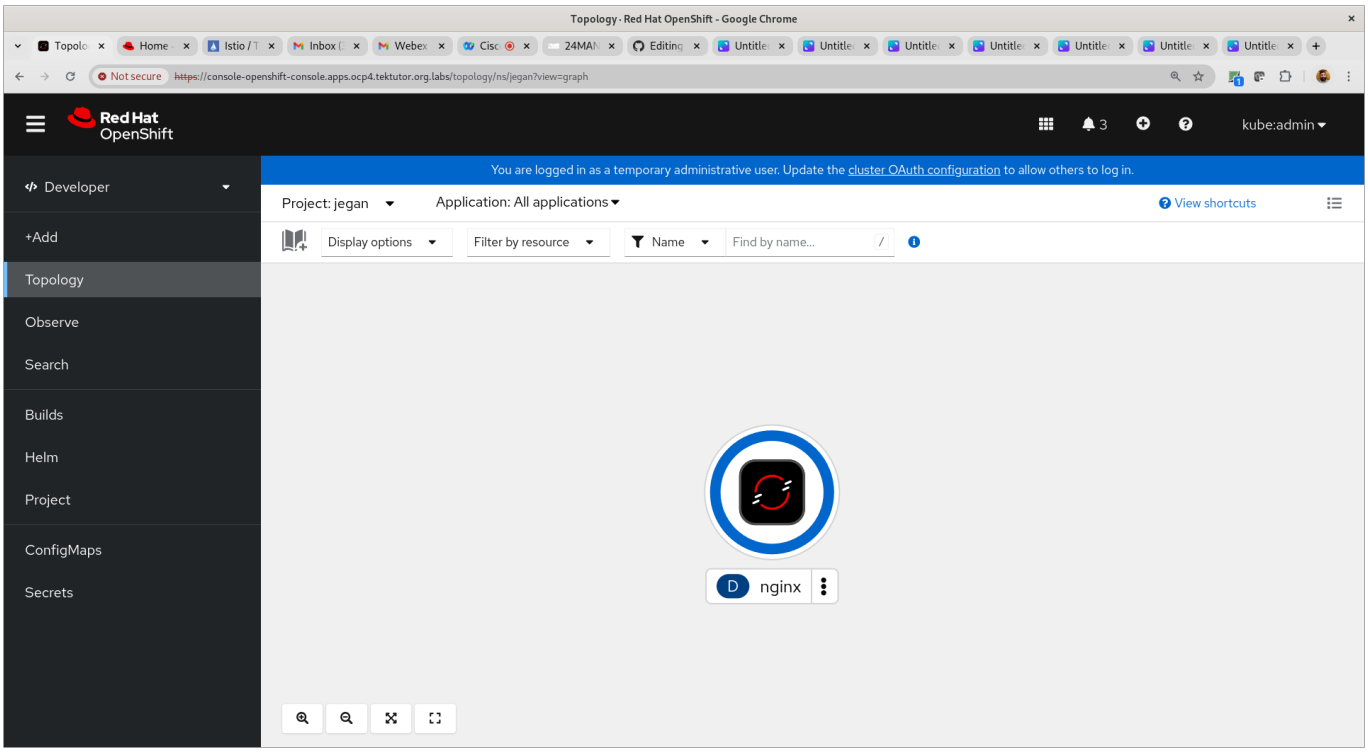

Create Deployment · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Deployment
Configure via: Form view YAML view
DeploymentConfig is being deprecated with OpenShift 4.14
Feature development of DeploymentConfigs will be deprecated in OpenShift Container Platform 4.14.
DeploymentConfigs will continue to be supported for security and critical fixes, but you should migrate to Deployments wherever it is possible.
Learn more about Deployments
metadata:
labels:
app: nginx
spec:
containers:
- name: nginx
image: bitnami/nginx:latest
ports:
- containerPort: 8080
protocol: TCP
Deployment
Schema
Deployment enables declarative updates for Pods and ReplicaSets.
apiVersion
string
Create
Cancel
Download

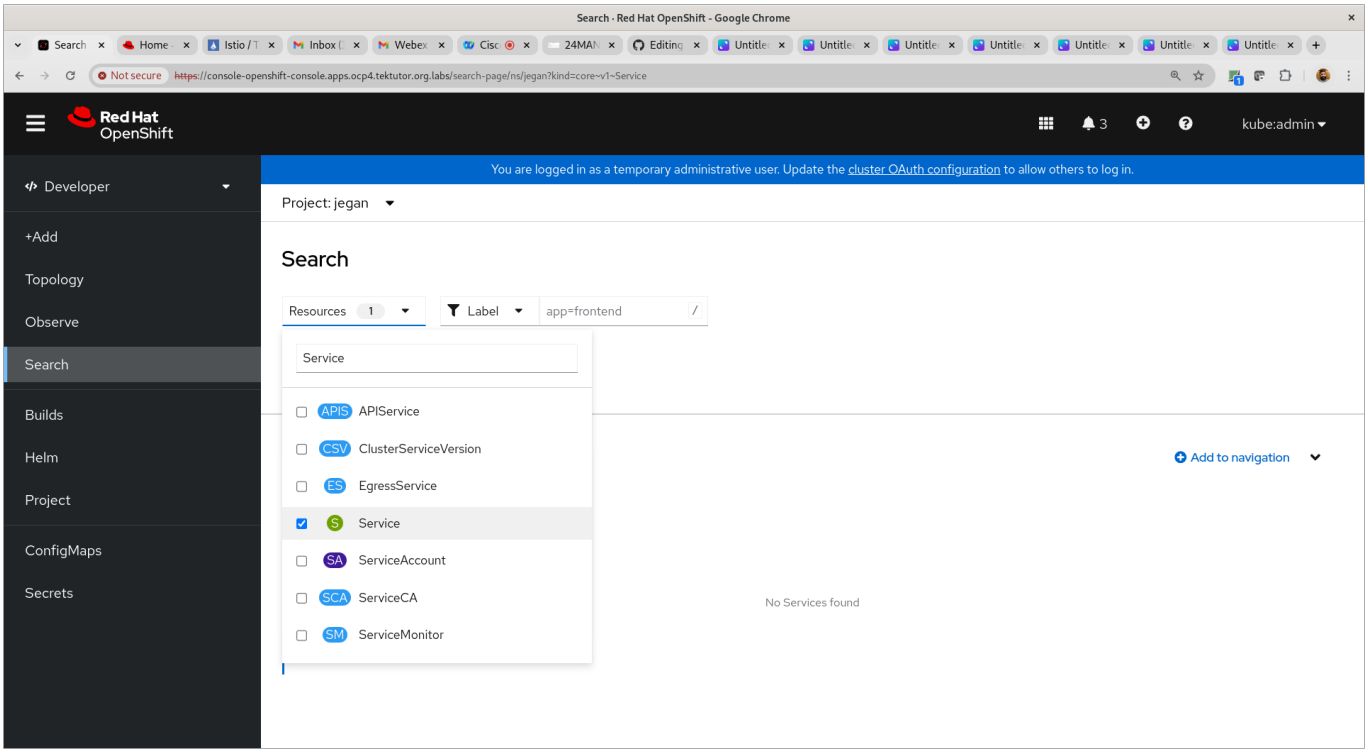

nginx · Deployment · Details · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Deployments > Deployment details
nginx
Actions
Details Metrics YAML ReplicaSets Pods Environment Events
Deployment details
0
Scaling to 3
Name
nginx
Namespace
NS jegan
Labels
Edit
No labels
Update strategy
RollingUpdate
Max unavailable
25% of 3 pods
Max surge
25% greater than 3 pods
Progress deadline seconds

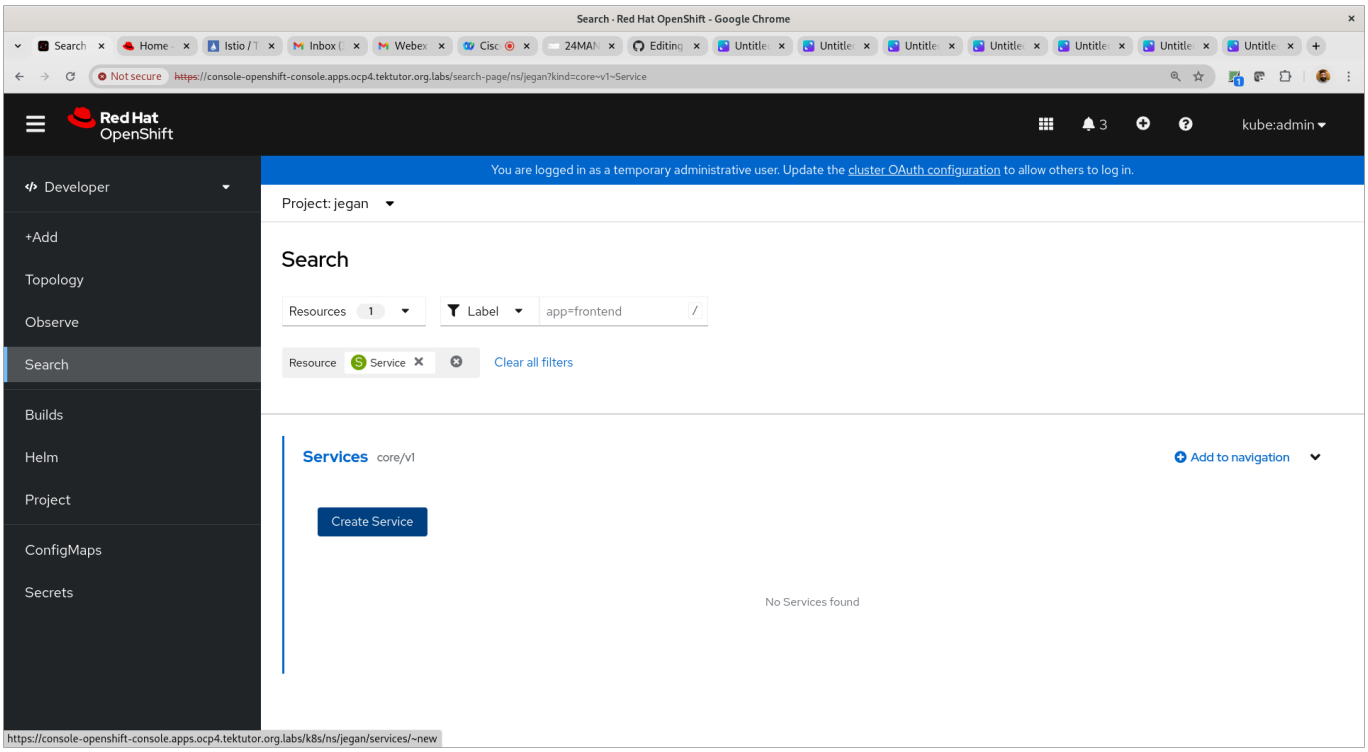


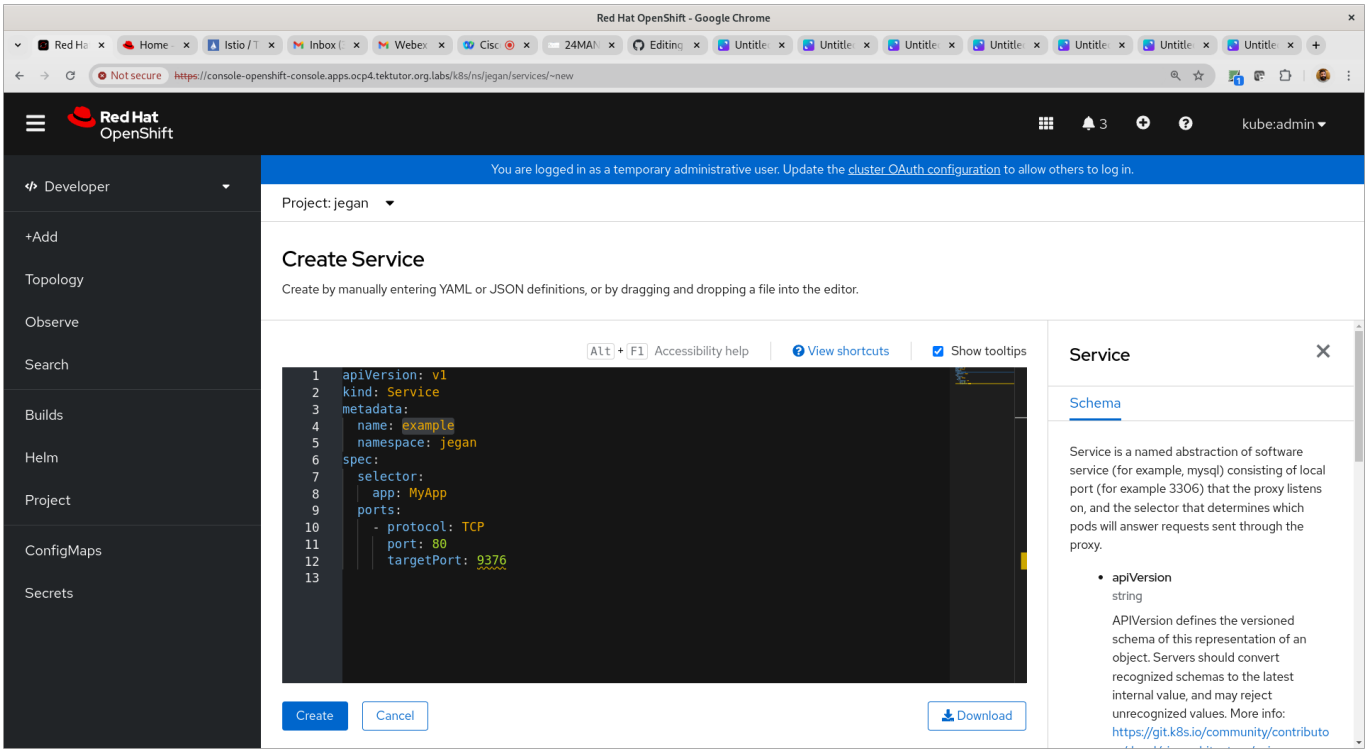


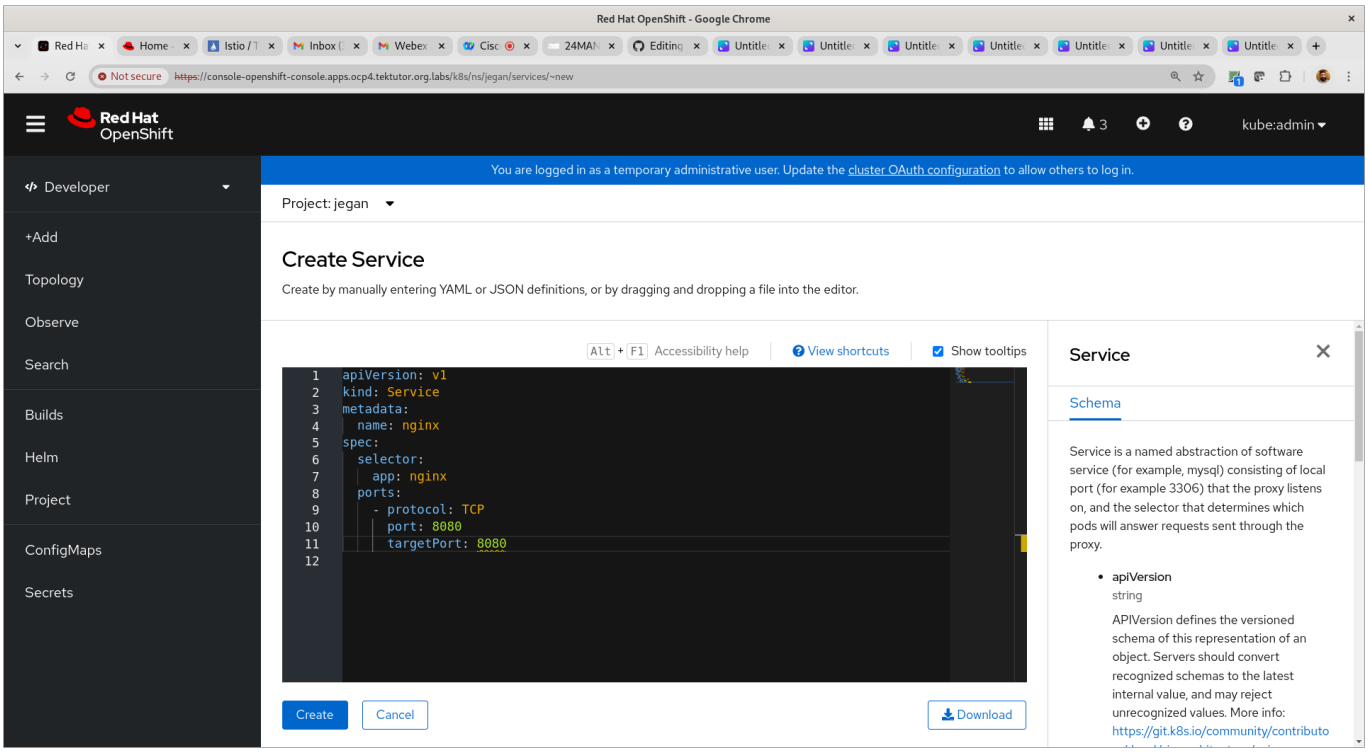
Lab - Create a clusterip service in declarative style from webconsole in developer context

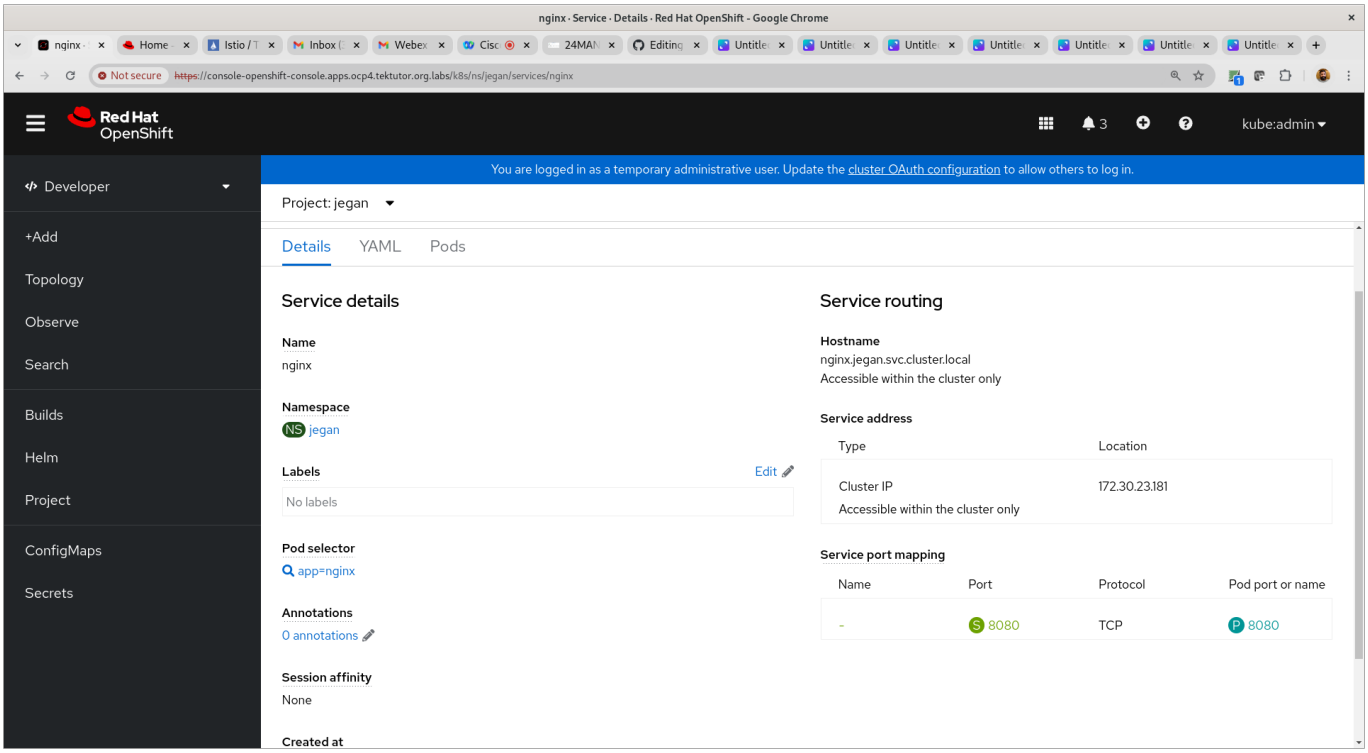

Topology - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Application: All applications
View shortcuts
Display options
Filter by resource
Name
Find by name...
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
D
nginx

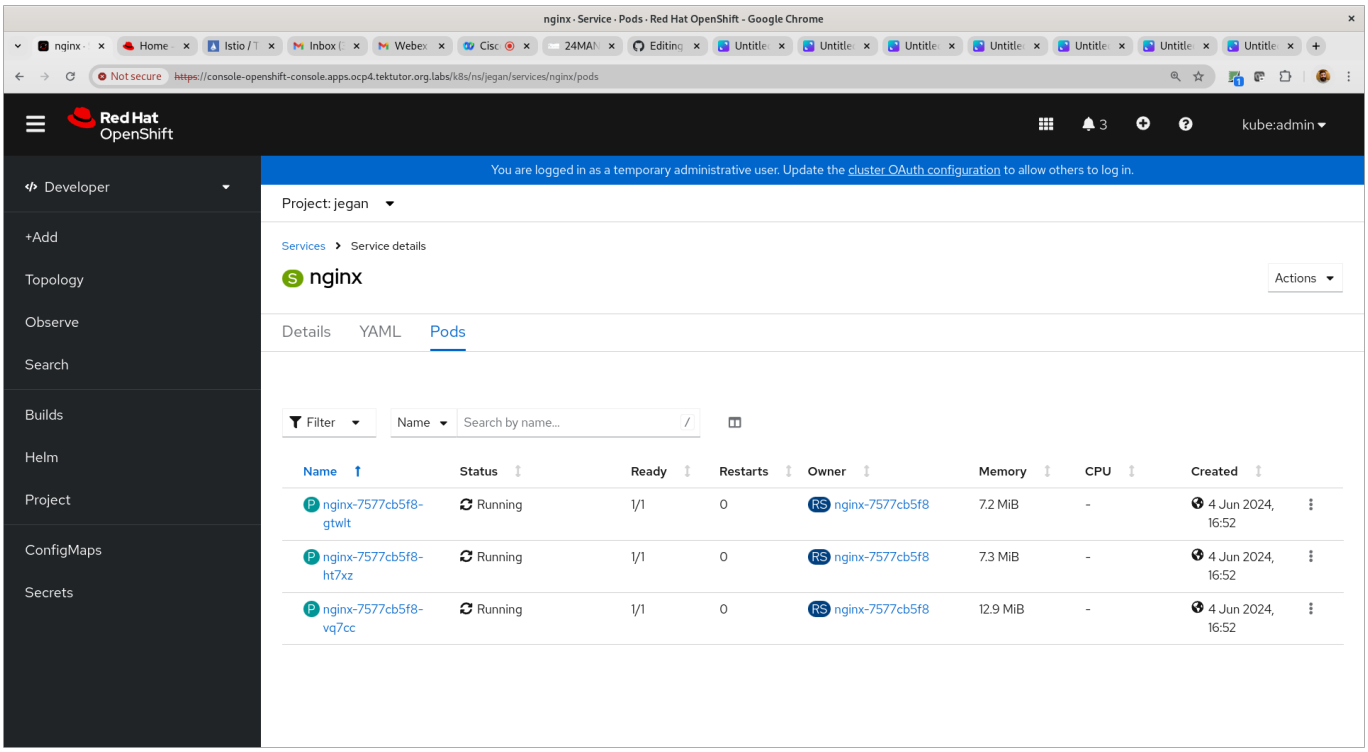

Search - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Search
Resources 1
Label
app=frontend
Service
APIService
ClusterServiceVersion
EgressService
Service
ServiceAccount
ServiceCA
ServiceMonitor
Add to navigation
No Services found
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets


Search - Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/search-page/ns/jegan?kind=core~v1~Service
Red Hat OpenShift
kube:admin
Developer
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Search
Resources 1
Label
app=frontend
Resource Service
Clear all filters
Services core/v1
Add to navigation
Create Service
No Services found
https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/services/~new

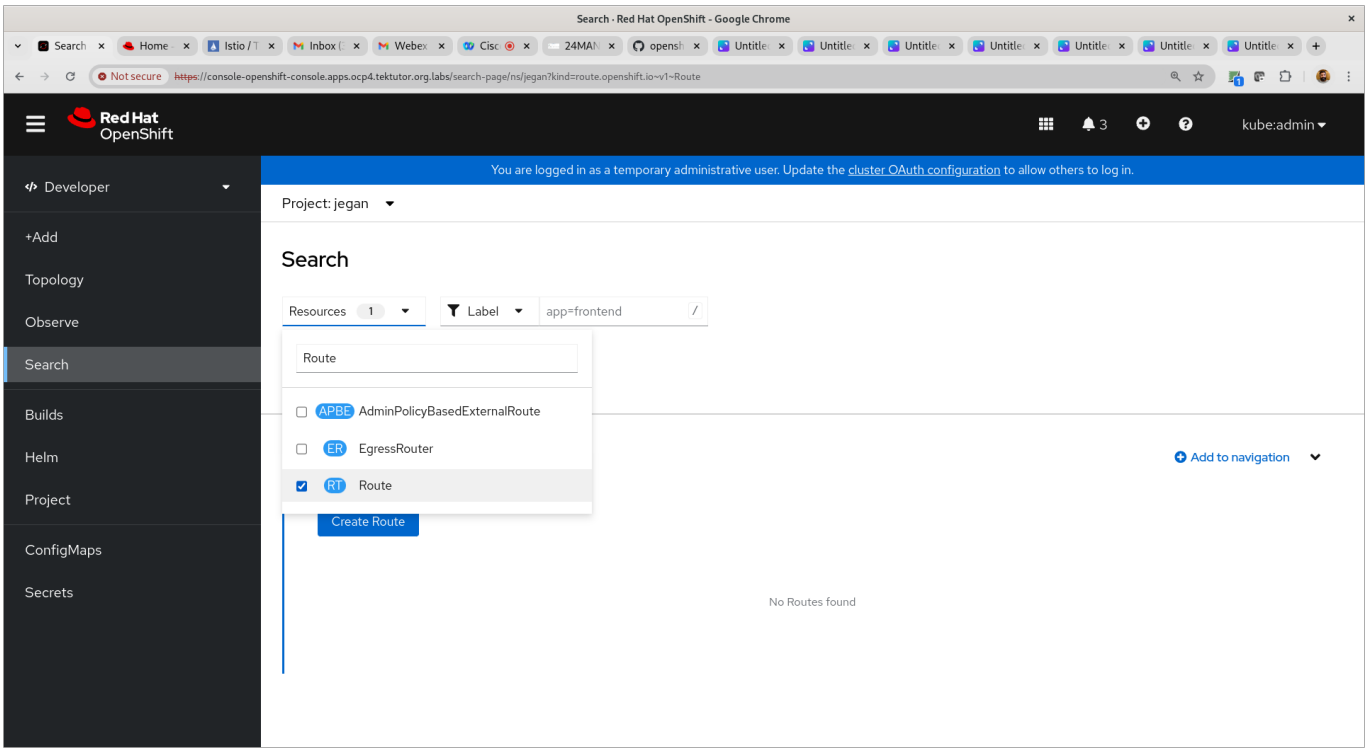

Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/services/~new
Red Hat OpenShift
kube:admin
Developer
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Create Service
Create by manually entering YAML or JSON definitions, or by dragging and dropping a file into the editor.
Alt + F1 Accessibility help
View shortcuts
Show tooltips
apiVersion: v1
kind: Service
metadata:
name: example
namespace: jegan
spec:
selector:
app: MyApp
ports:
- protocol: TCP
port: 80
targetPort: 9376
Create
Cancel
Download
Service
Schema
Service is a named abstraction of software service (for example, mysql) consisting of local port (for example 3306) that the proxy listens on, and the selector that determines which pods will answer requests sent through the proxy.
apiVersion
string
APIVersion defines the versioned schema of this representation of an object. Servers should convert recognized schemas to the latest internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributo

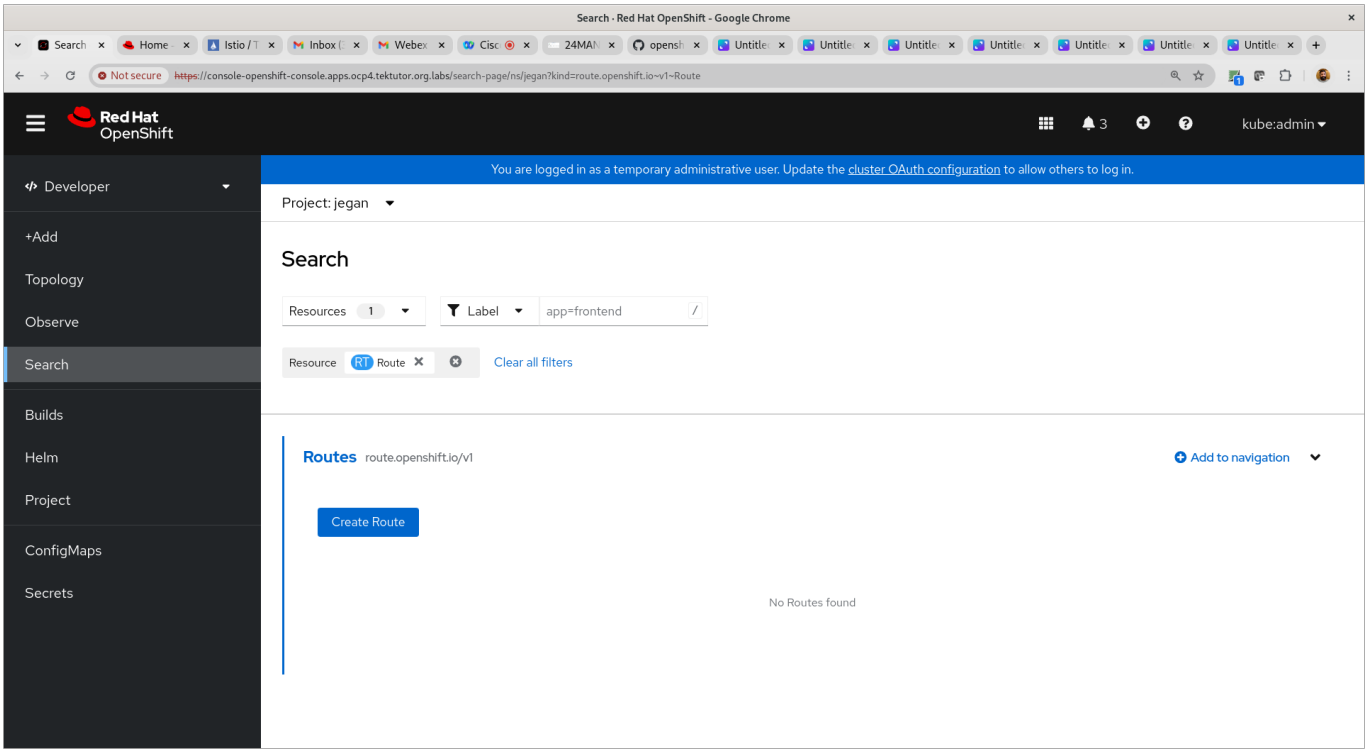

Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/services/~new
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Service
Create by manually entering YAML or JSON definitions, or by dragging and dropping a file into the editor.
Alt + F1 Accessibility help
View shortcuts
Show tooltips
apiVersion: v1
kind: Service
metadata:
name: nginx
spec:
selector:
app: nginx
ports:
- protocol: TCP
port: 8080
targetPort: 8080
Create
Cancel
Download
Service
Schema
Service is a named abstraction of software service (for example, mysql) consisting of local port (for example 3306) that the proxy listens on, and the selector that determines which pods will answer requests sent through the proxy.
apiVersion
string
APIVersion defines the versioned schema of this representation of an object. Servers should convert recognized schemas to the latest internal value, and may reject unrecognized values. More info:
https://git.k8s.io/community/contributo

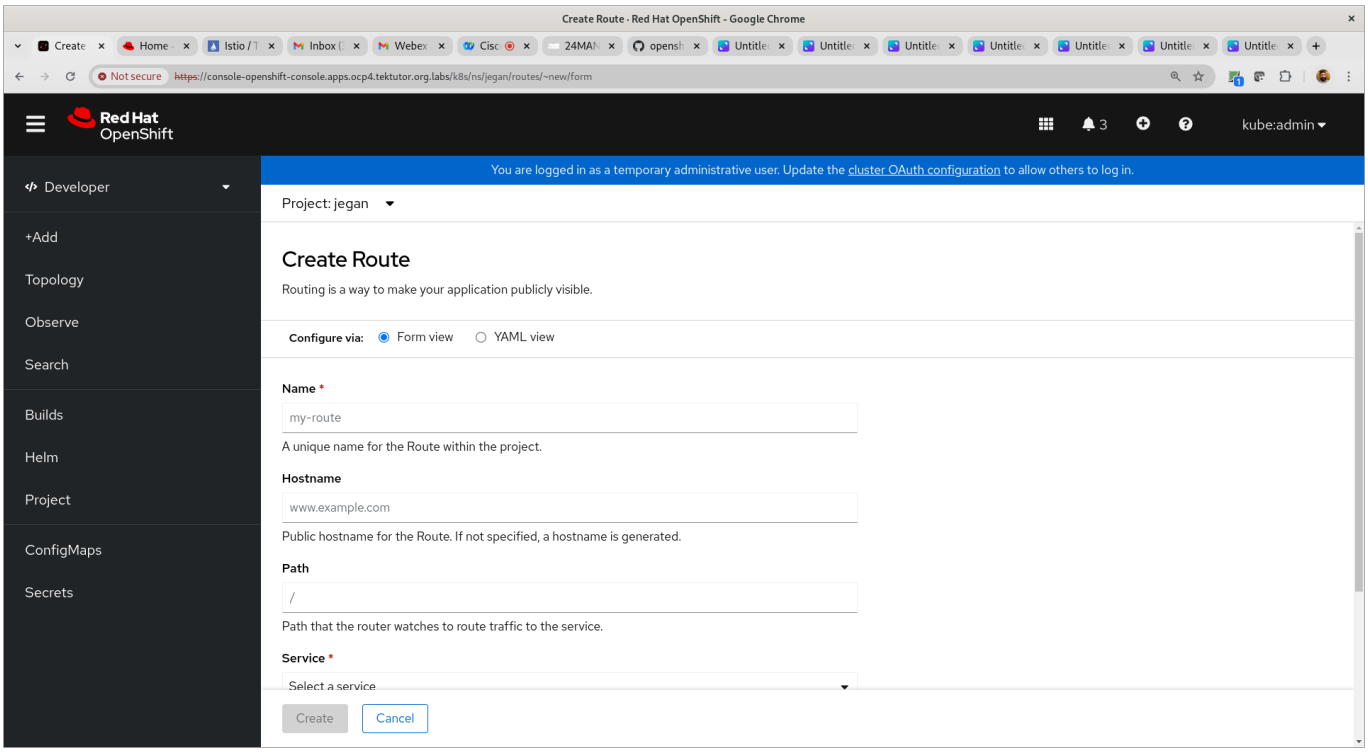

nginx · Service · Details · Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/services/nginx
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Details
YAML
Pods
Service details
Name
nginx
Namespace
NS jegan
Labels
Edit
No labels
Pod selector
app=nginx
Annotations
0 annotations
Session affinity
None
Created at
Service routing
Hostname
nginx.jegan.svc.cluster.local
Accessible within the cluster only
Service address
Type
Location
Cluster IP
172.30.23.181
Accessible within the cluster only
Service port mapping
Name
Port
Protocol
Pod port or name
-
S 8080
TCP
P 8080

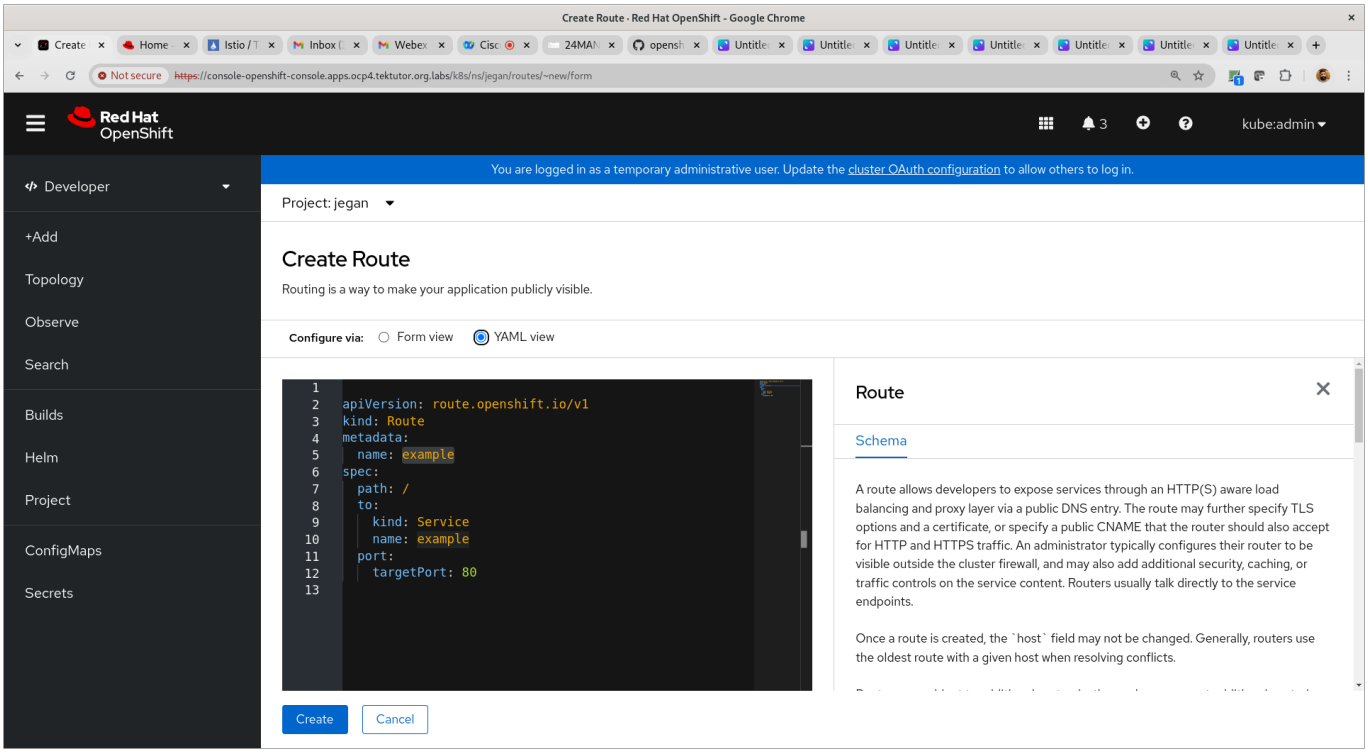


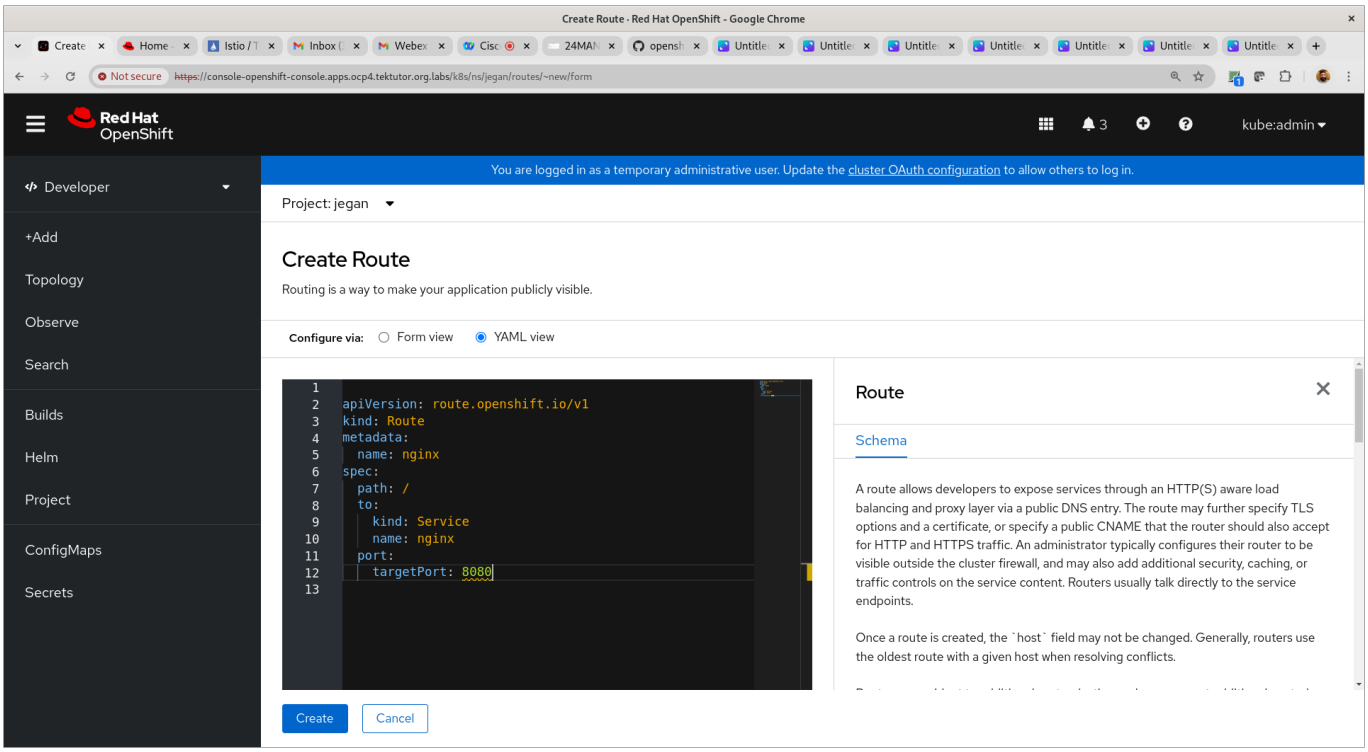
Lab - Create a route in declarative style from webconsole in developer context

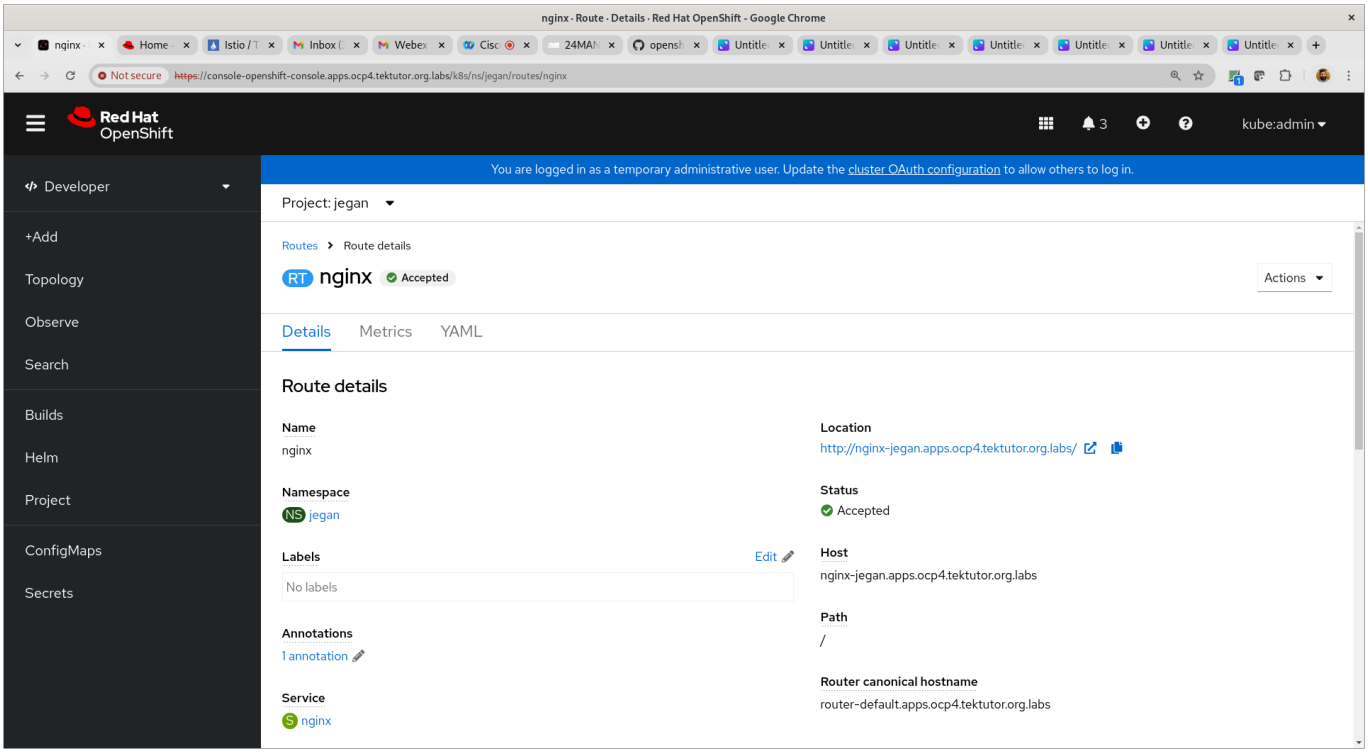

Search - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Project: jegan
Search
Resources 1
Label
app=frontend
Route
APBE AdminPolicyBasedExternalRoute
ER EgressRouter
RT Route
Add to navigation
Create Route
No Routes found

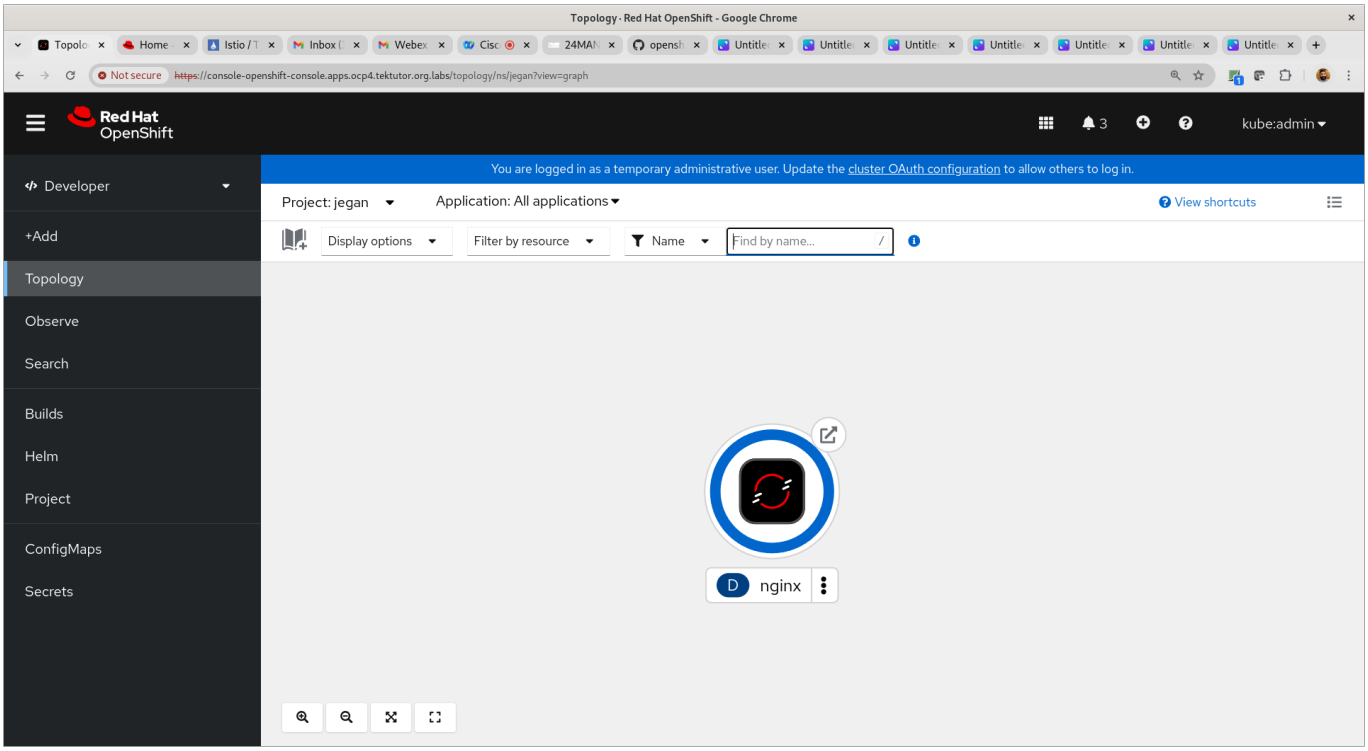

Search - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
Project: jegan
Search
Resources 1
Label
app=frontend
Resource RT Route
Clear all filters
Routes route.openshift.io/v1
Add to navigation
Create Route
No Routes found

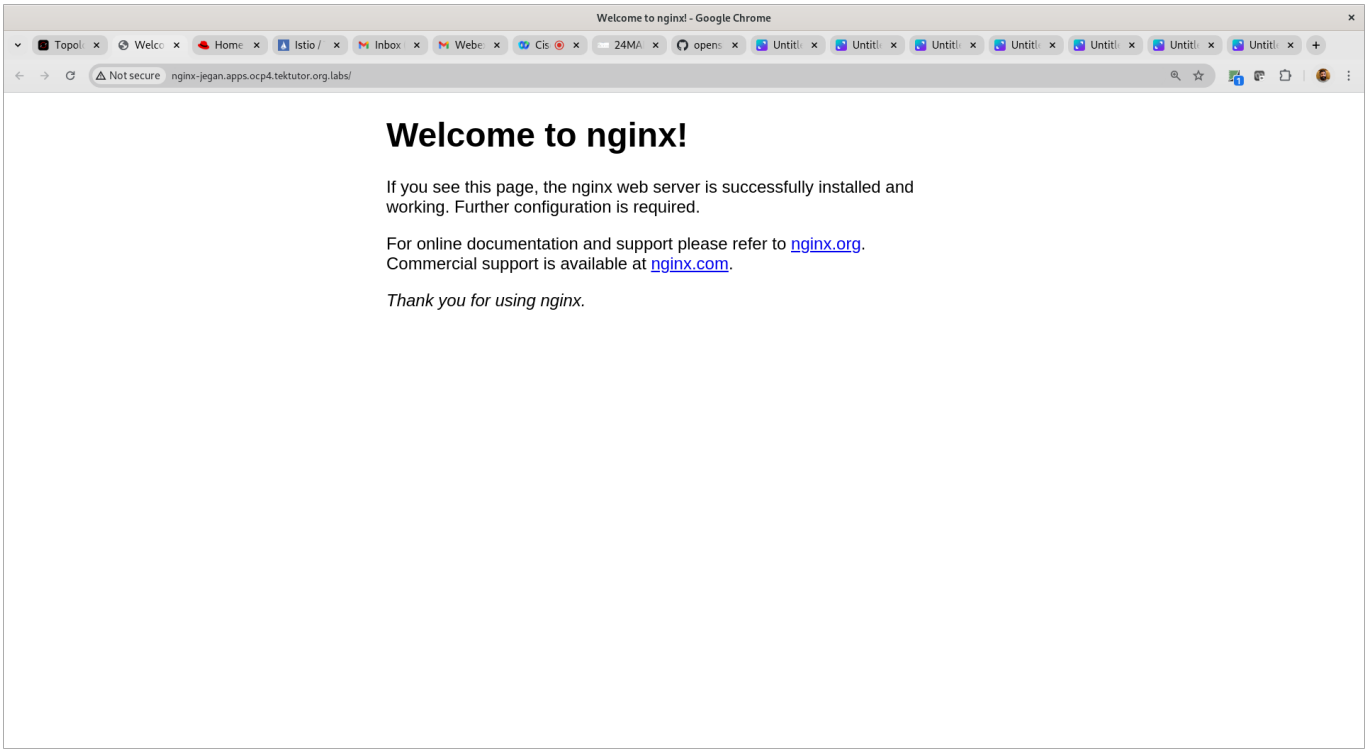

Create Route · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Route
Routing is a way to make your application publicly visible.
Configure via: Form view YAML view
Name *
my-route
A unique name for the Route within the project.
Hostname
www.example.com
Public hostname for the Route. If not specified, a hostname is generated.
Path
/
Path that the router watches to route traffic to the service.
Service *
Select a service
Create
Cancel


Create Route · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Route
Routing is a way to make your application publicly visible.
Configure via: Form view YAML view
apiVersion: route.openshift.io/v1
kind: Route
metadata:
name: example
spec:
path: /
to:
kind: Service
name: example
port:
targetPort: 80
Route
Schema
A route allows developers to expose services through an HTTP(S) aware load balancing and proxy layer via a public DNS entry. The route may further specify TLS options and a certificate, or specify a public CNAME that the router should also accept for HTTP and HTTPS traffic. An administrator typically configures their router to be visible outside the cluster firewall, and may also add additional security, caching, or traffic controls on the service content. Routers usually talk directly to the service endpoints.
Once a route is created, the `host` field may not be changed. Generally, routers use the oldest route with a given host when resolving conflicts.
Create
Cancel


Create Route · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Create Route
Routing is a way to make your application publicly visible.
Configure via: Form view YAML view
apiVersion: route.openshift.io/v1
kind: Route
metadata:
name: nginx
spec:
path: /
to:
kind: Service
name: nginx
port:
targetPort: 8080
Route
Schema
A route allows developers to expose services through an HTTP(S) aware load balancing and proxy layer via a public DNS entry. The route may further specify TLS options and a certificate, or specify a public CNAME that the router should also accept for HTTP and HTTPS traffic. An administrator typically configures their router to be visible outside the cluster firewall, and may also add additional security, caching, or traffic controls on the service content. Routers usually talk directly to the service endpoints.
Once a route is created, the `host` field may not be changed. Generally, routers use the oldest route with a given host when resolving conflicts.
Create
Cancel


nginx · Route · Details - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Routes › Route details
RT nginx Accepted
Actions
Details Metrics YAML
Route details
Name
nginx
Namespace
NS jegan
Labels
Edit
No labels
Annotations
1 annotation
Service
S nginx
Location
http://nginx-jegan.apps.ocp4.tektutor.org.labs/
Status
Accepted
Host
nginx-jegan.apps.ocp4.tektutor.org.labs
Path
/
Router canonical hostname
router-default.apps.ocp4.tektutor.org.labs





Info - What is Persistent Volume (PV) ?

```
- is an external storage used by application deployed in
Kubernetes/Openshift
- Persistent volumes are created in the cluster scope, to allow application
running from any project namespace to claim them
- Administrators can provision the Persistent Volume from various storage
solutions manually or dynamically
  - NFS
  - AWS EBS
  - AWS S3
  - Azure Storage
```

```
- When Persistent Volumes are created by Administrators, they will have
define
  - Mandatory field - size/capacity of the storage
  - Mandatory field - access mode ( ReadWriteOnce, ReadWriteMany, etc., )
  - Storage Class - optional
  - labels - optional but recommended
```

Info - What is Persistent Volume Claim (PVC) ?

```
- Any application that requires external storage has to request for
external storage by creating a Persistent volume claim
- Unless the Pod that expects the external get a PV matching the PVC
criteria is found, the Pod will remain in the Pending state only
- The PVC has mention certain fields
  - size of the storage (mandatory)
  - access mode (mandatory)
  - storage class (optional)
  - label selector ( optional )
```

Info - What is Storage Class ?

```
- Administrators can also provision the Persistent Volume(PV) on demand in
a dynamic fashion by creating storage class
- For every type of storage, we need to create a separate storage class
```

Lab - Deploying mariadb database server using its internal storage to store database, tables, etc

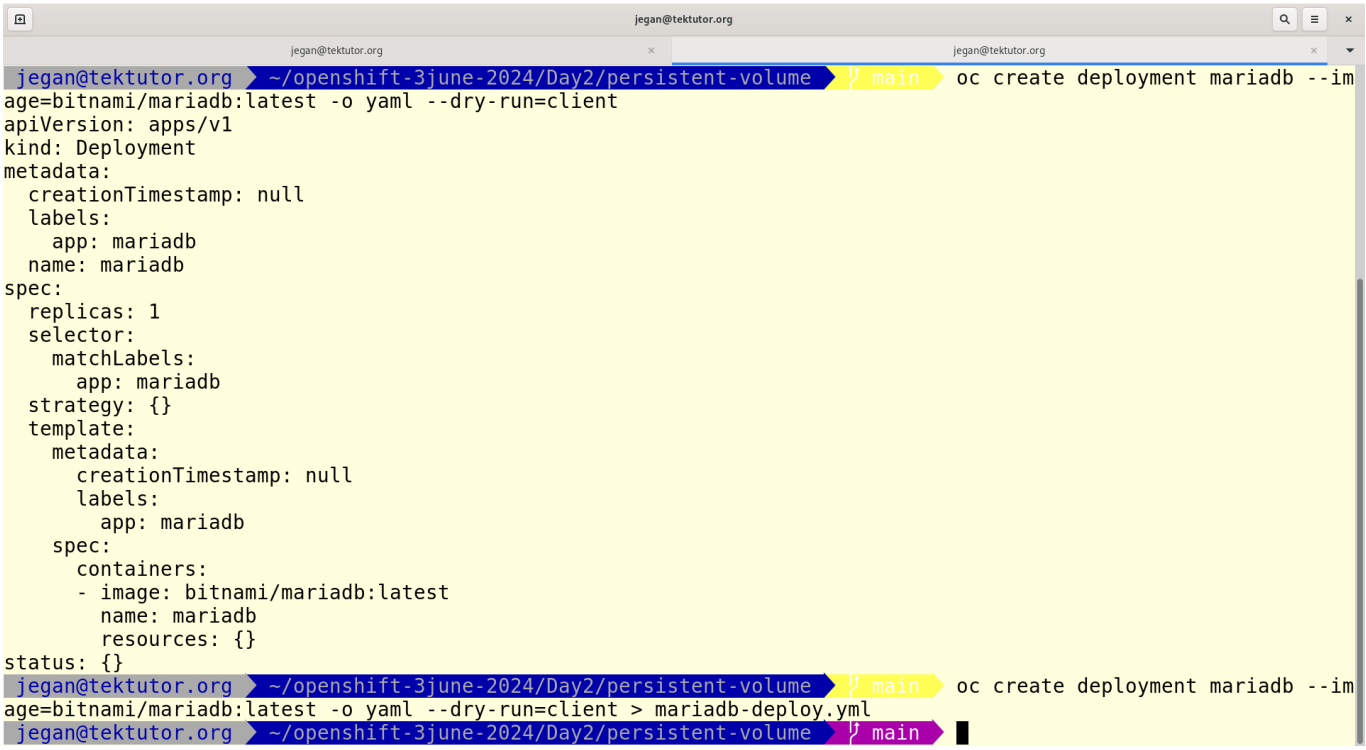
```
cd ~/openshift-3june-2024
git pull
cd Day2/persistent-volume
oc create deployment mariadb --image=bitnami/nginx:latest -o yaml --dry-
run=client
oc create deployment mariadb --image=bitnami/nginx:latest -o yaml --dry-
run=client > mariadb-deploy.yml
cat mariadb-deploy.yml

oc apply -f mariadb-deploy.yml
oc get deploy,po
```

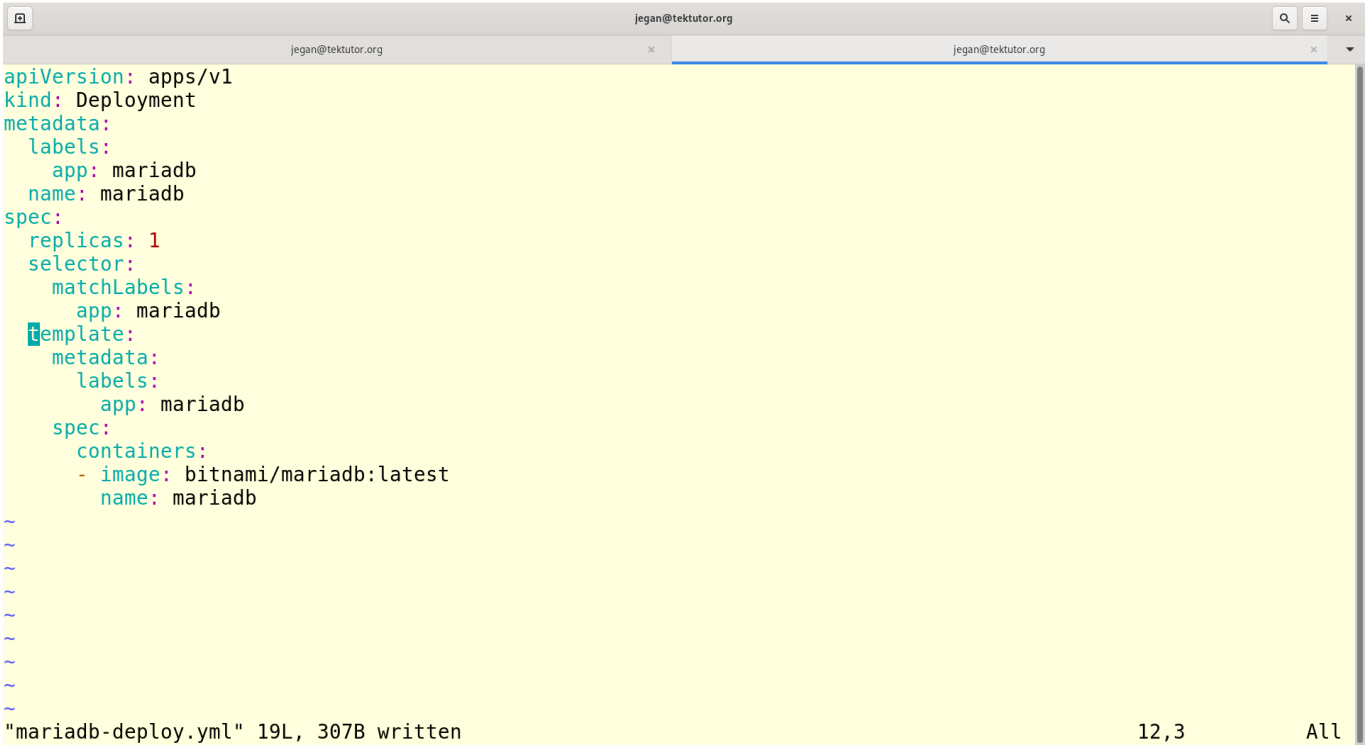
Getting inside the mariadb pod container shell. When prompts for password type 'root@123' as password without quotes.

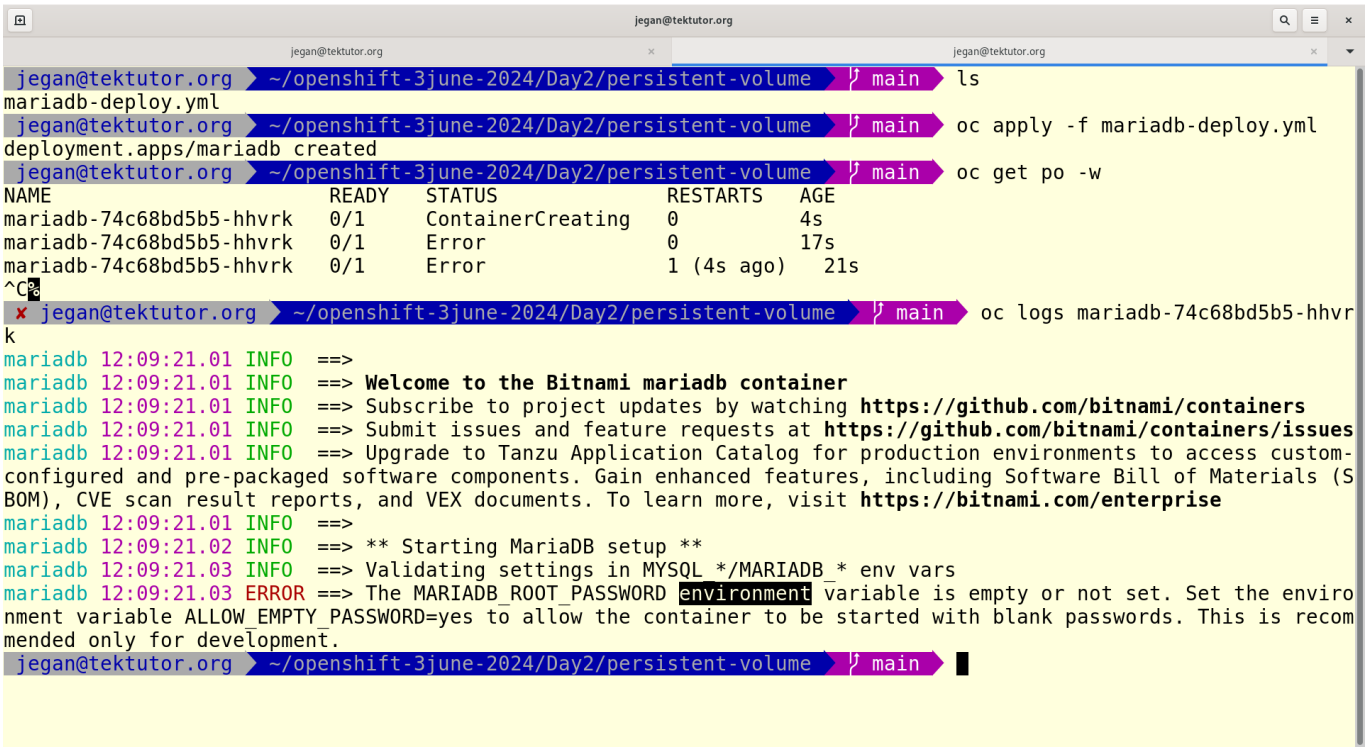
```

```

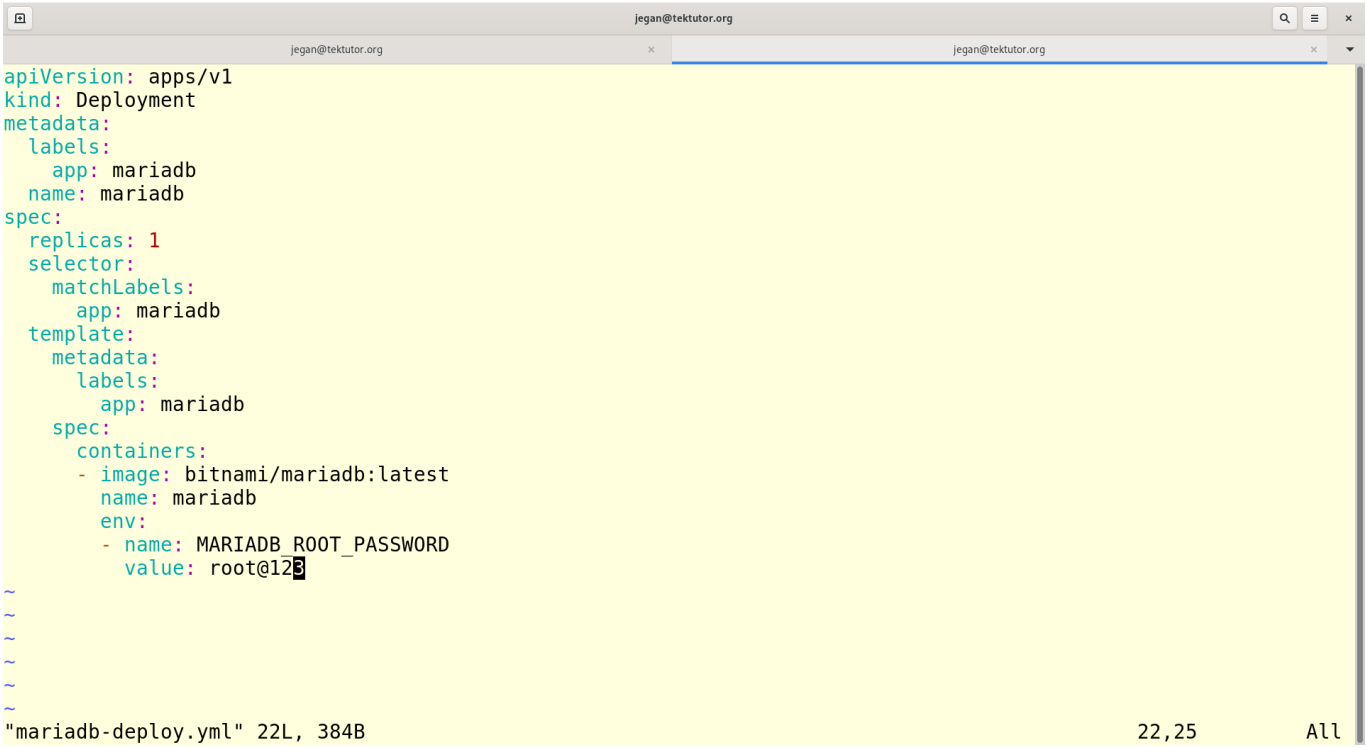
```
oc rsh deploy/mariadb
hostname
hostname -i
mysql -u root -p
SHOW DATABASES;

CREATE DATABASE tektutor;

USE tektutor;

CREATE TABLE training ( id INT NOT NULL, name VARCHAR(250) NOT NULL,
duration VARCHAR(250) NOT NULL, PRIMARY KEY(id));

INSERT INTO training VALUES ( 1, "DevOps", "5 Days" );
SELECT * FROM training;
```

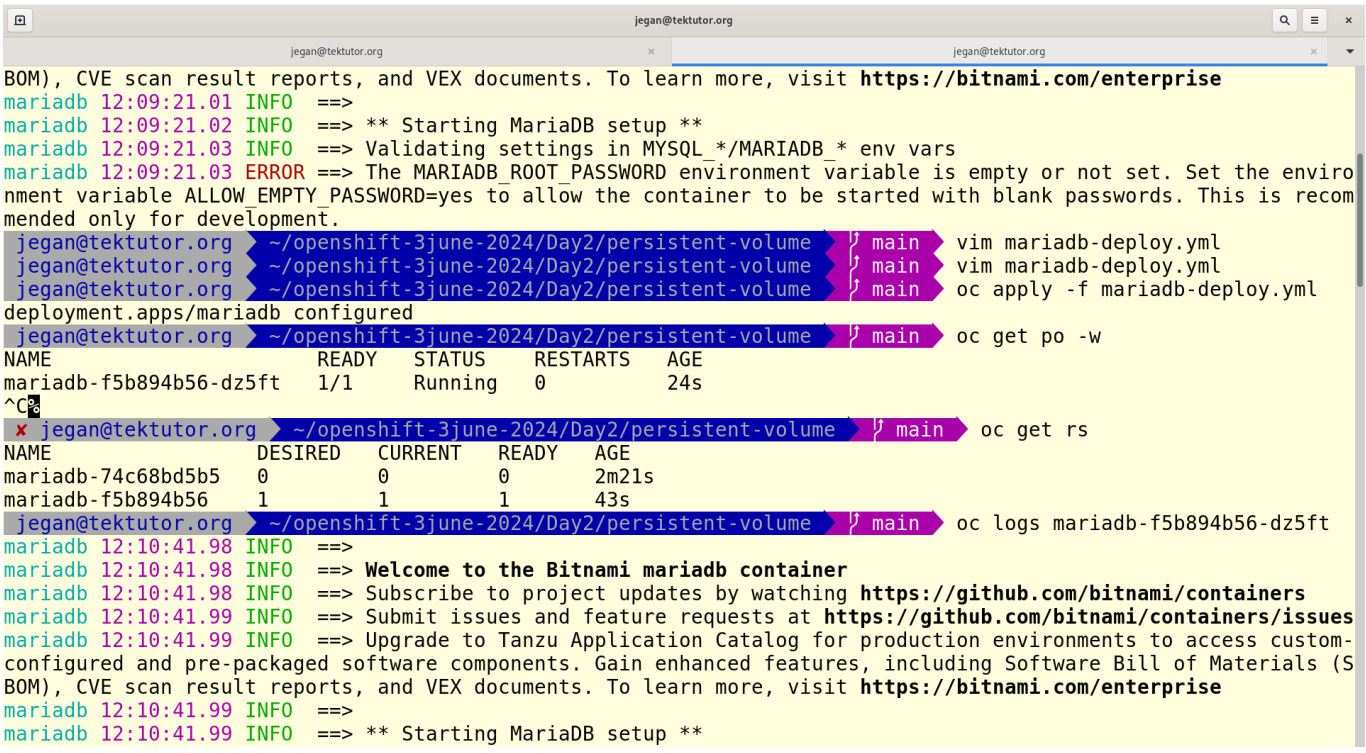
Expected output

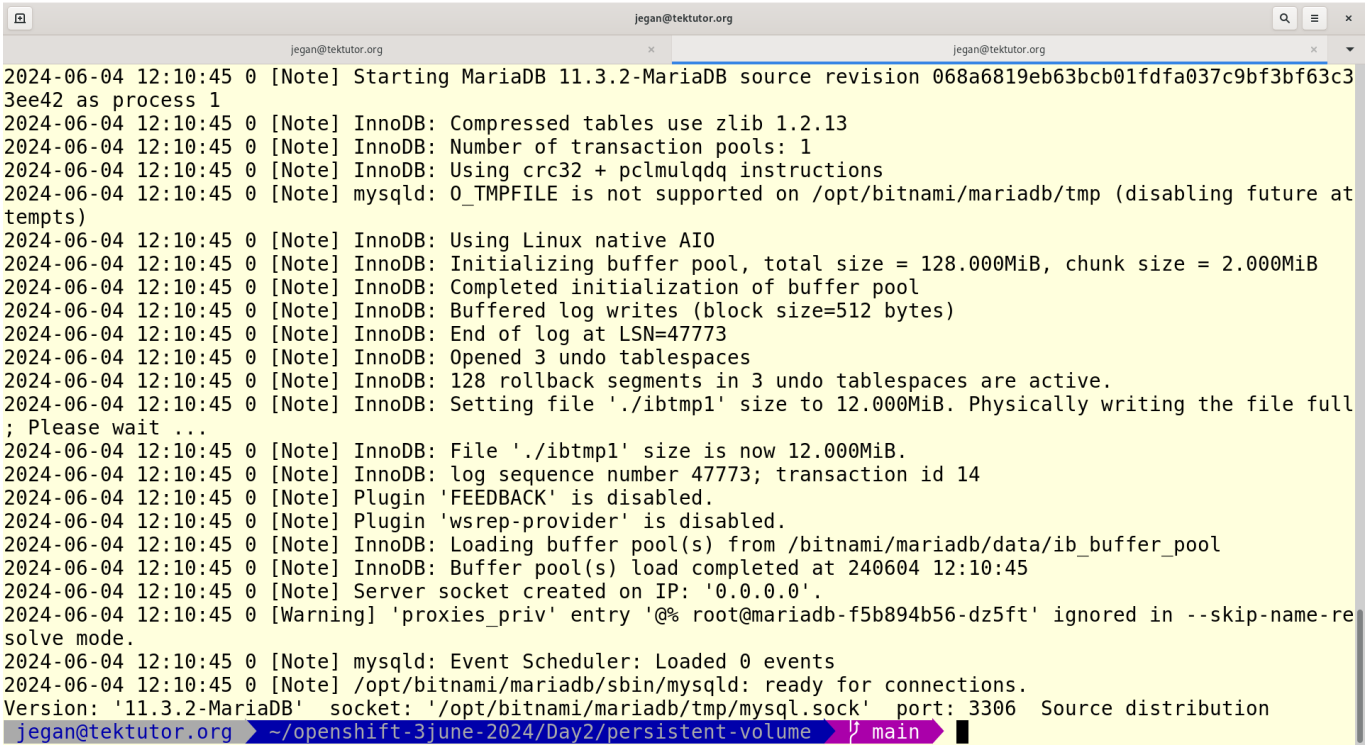


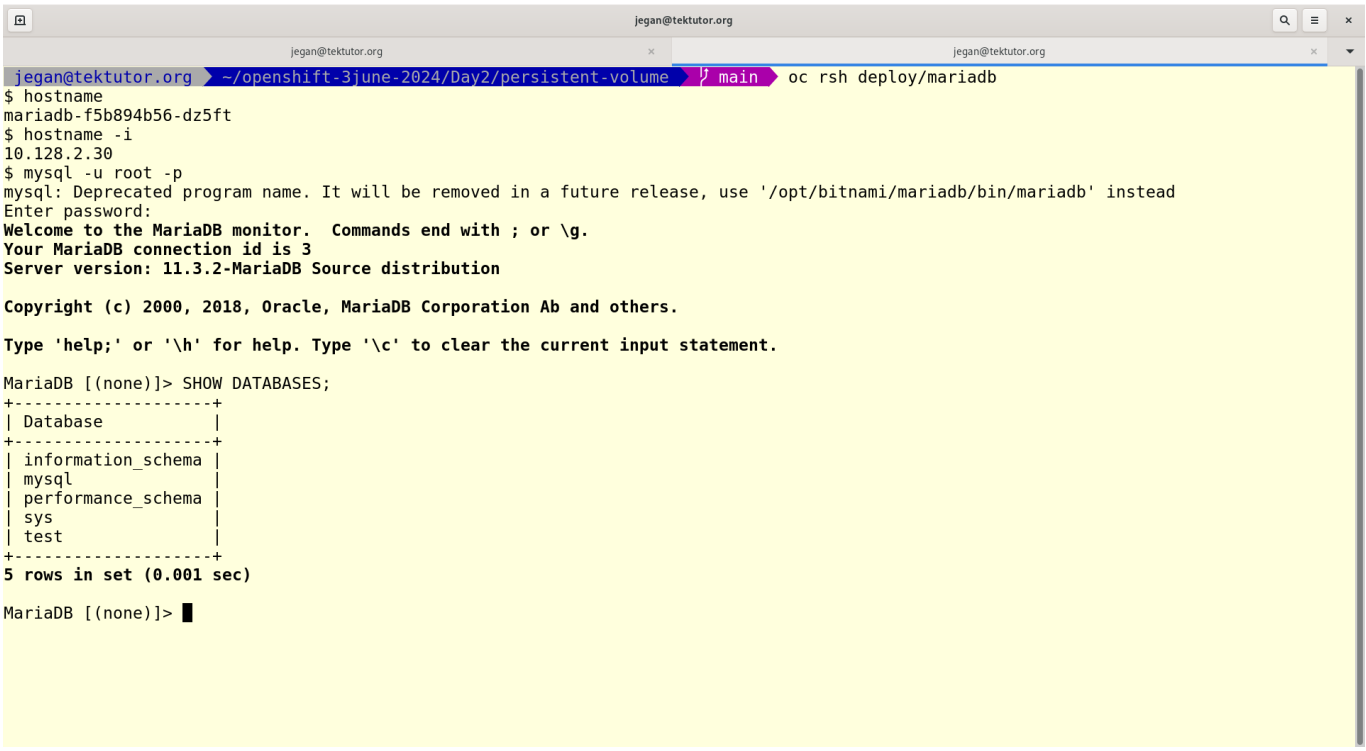

jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
apiVersion: apps/v1
kind: Deployment
metadata:
labels:
app: mariadb
name: mariadb
spec:
replicas: 1
selector:
matchLabels:
app: mariadb
template:
metadata:
labels:
app: mariadb
spec:
containers:
- image: bitnami/mariadb:latest
name: mariadb
"mariadb-deploy.yml" 19L, 307B written
12,3 All

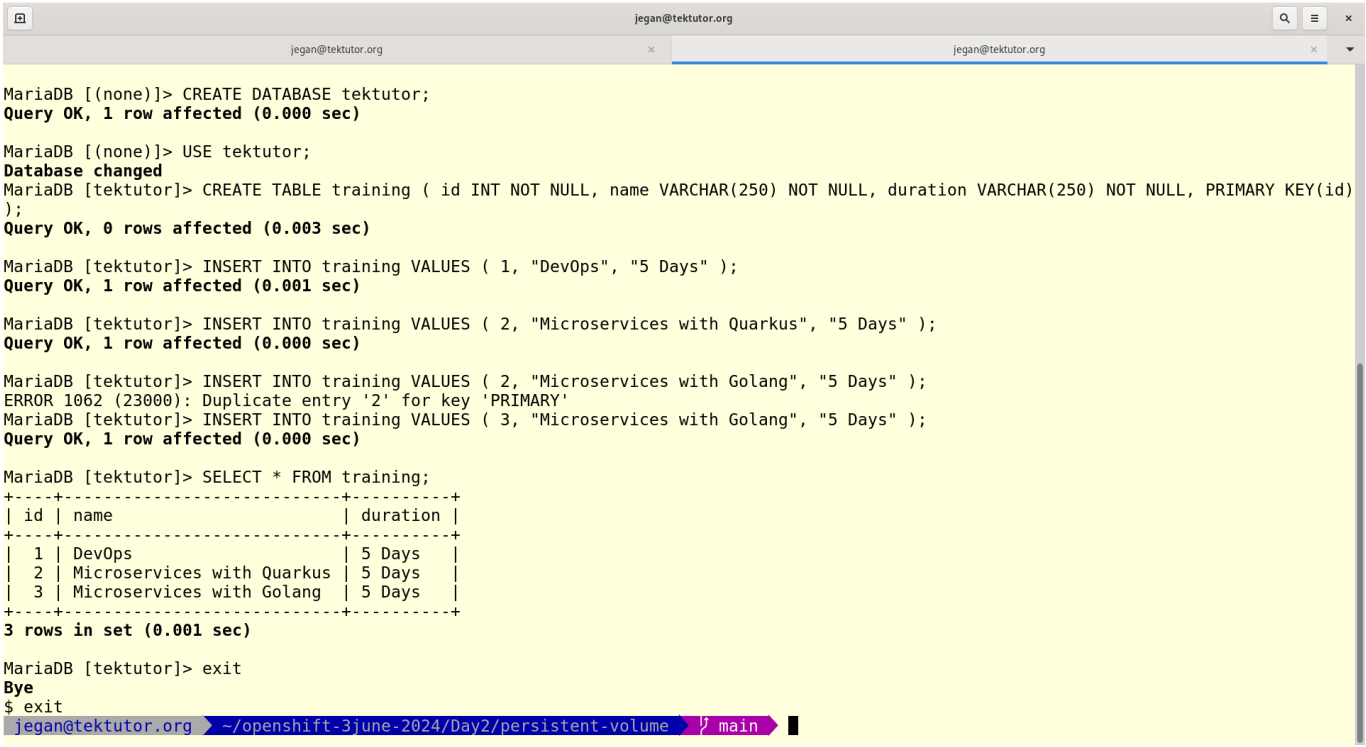

jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main ls
mariadb-deploy.yml
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc apply -f mariadb-deploy.yml
deployment.apps/mariadb created
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc get po -w
NAME READY STATUS RESTARTS AGE
mariadb-74c68bd5b5-hhvrk 0/1 ContainerCreating 0 4s
mariadb-74c68bd5b5-hhvrk 0/1 Error 0 17s
mariadb-74c68bd5b5-hhvrk 0/1 Error 1 (4s ago) 21s
^C
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc logs mariadb-74c68bd5b5-hhvrk
mariadb 12:09:21.01 INFO ==>
mariadb 12:09:21.01 INFO ==> Welcome to the Bitnami mariadb container
mariadb 12:09:21.01 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
mariadb 12:09:21.01 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
mariadb 12:09:21.01 INFO ==> Upgrade to Tanzu Application Catalog for production environments to access custom-configured and pre-packaged software components. Gain enhanced features, including Software Bill of Materials (SBOM), CVE scan result reports, and VEX documents. To learn more, visit https://bitnami.com/enterprise
mariadb 12:09:21.01 INFO ==>
mariadb 12:09:21.02 INFO ==> ** Starting MariaDB setup **
mariadb 12:09:21.03 INFO ==> Validating settings in MYSQL */MARIADB_* env vars
mariadb 12:09:21.03 ERROR ==> The MARIADB_ROOT_PASSWORD environment variable is empty or not set. Set the environment variable ALLOW_EMPTY_PASSWORD=yes to allow the container to be started with blank passwords. This is recommended only for development.
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main


jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
apiVersion: apps/v1
kind: Deployment
metadata:
labels:
app: mariadb
name: mariadb
spec:
replicas: 1
selector:
matchLabels:
app: mariadb
template:
metadata:
labels:
app: mariadb
spec:
containers:
- image: bitnami/mariadb:latest
name: mariadb
env:
- name: MARIADB_ROOT_PASSWORD
value: root@123
"mariadb-deploy.yml" 22L, 384B
22,25
All

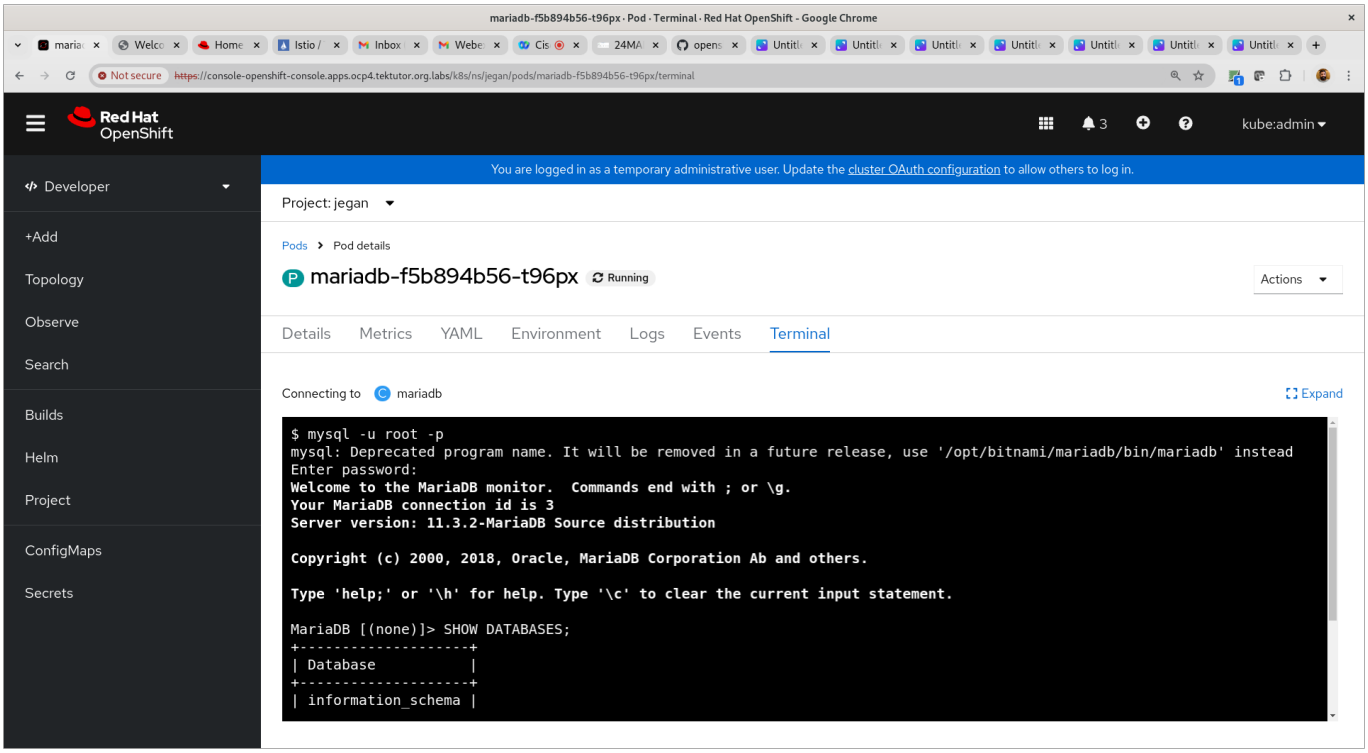

jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
BOM), CVE scan result reports, and VEX documents. To learn more, visit https://bitnami.com/enterprise
mariadb 12:09:21.01 INFO ==>
mariadb 12:09:21.02 INFO ==> ** Starting MariaDB setup **
mariadb 12:09:21.03 INFO ==> Validating settings in MYSQL_*/MARIADB_* env vars
mariadb 12:09:21.03 ERROR ==> The MARIADB_ROOT_PASSWORD environment variable is empty or not set. Set the enviro
nment variable ALLOW_EMPTY_PASSWORD=yes to allow the container to be started with blank passwords. This is recom
mended only for development.
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main vim mariadb-deploy.yml
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main vim mariadb-deploy.yml
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc apply -f mariadb-deploy.yml
deployment.apps/mariadb configured
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc get po -w
NAME READY STATUS RESTARTS AGE
mariadb-f5b894b56-dz5ft 1/1 Running 0 24s
^C
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc get rs
NAME DESIRED CURRENT READY AGE
mariadb-74c68bd5b5 0 0 0 2m21s
mariadb-f5b894b56 1 1 1 43s
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc logs mariadb-f5b894b56-dz5ft
mariadb 12:10:41.98 INFO ==>
mariadb 12:10:41.98 INFO ==> Welcome to the Bitnami mariadb container
mariadb 12:10:41.98 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
mariadb 12:10:41.99 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
mariadb 12:10:41.99 INFO ==> Upgrade to Tanzu Application Catalog for production environments to access custom-
configured and pre-packaged software components. Gain enhanced features, including Software Bill of Materials (S
BOM), CVE scan result reports, and VEX documents. To learn more, visit https://bitnami.com/enterprise
mariadb 12:10:41.99 INFO ==>
mariadb 12:10:41.99 INFO ==> ** Starting MariaDB setup **

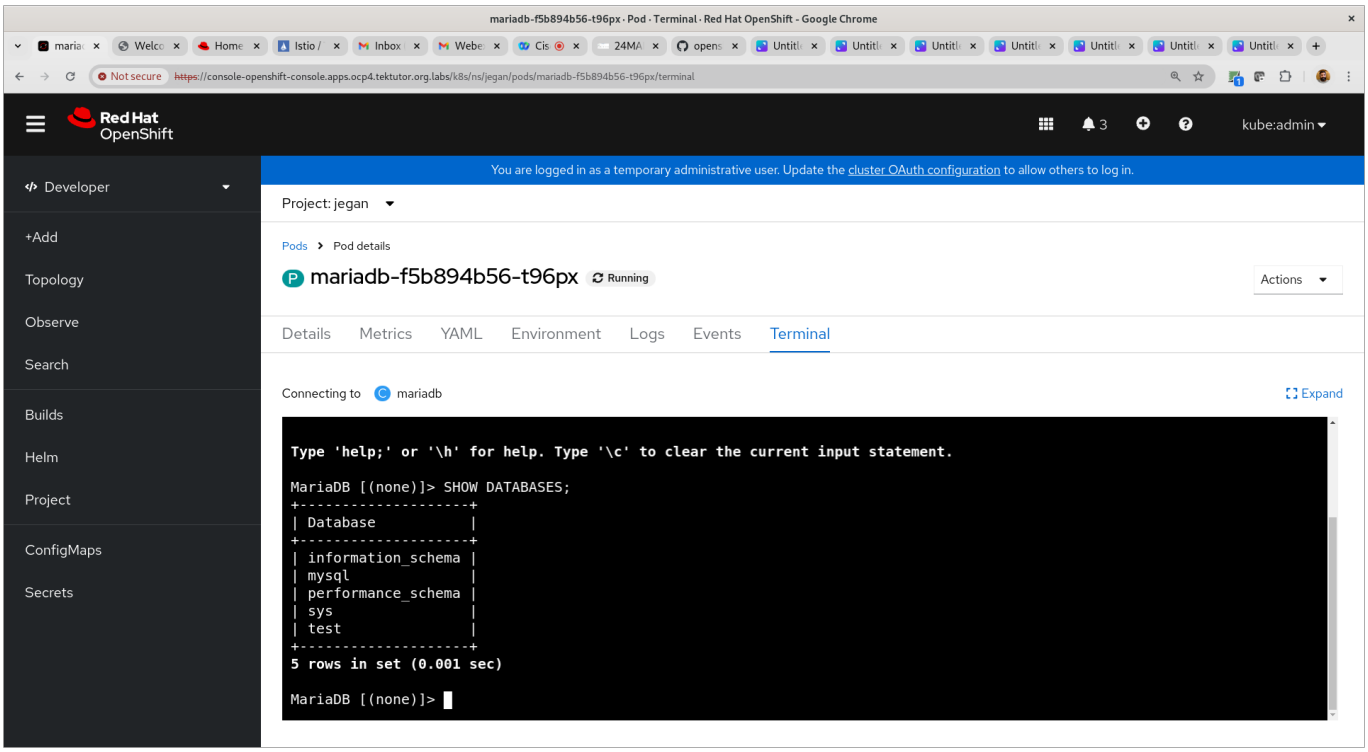

jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
2024-06-04 12:10:45 0 [Note] Starting MariaDB 11.3.2-MariaDB source revision 068a6819eb63bcb01fdfa037c9bf3bf63c33ee42 as process 1
2024-06-04 12:10:45 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-06-04 12:10:45 0 [Note] InnoDB: Number of transaction pools: 1
2024-06-04 12:10:45 0 [Note] InnoDB: Using crc32 + pclmulqdq instructions
2024-06-04 12:10:45 0 [Note] mysqld: O_TMPFILE is not supported on /opt/bitnami/mariadb/tmp (disabling future attempts)
2024-06-04 12:10:45 0 [Note] InnoDB: Using Linux native AIO
2024-06-04 12:10:45 0 [Note] InnoDB: Initializing buffer pool, total size = 128.000MiB, chunk size = 2.000MiB
2024-06-04 12:10:45 0 [Note] InnoDB: Completed initialization of buffer pool
2024-06-04 12:10:45 0 [Note] InnoDB: Buffered log writes (block size=512 bytes)
2024-06-04 12:10:45 0 [Note] InnoDB: End of log at LSN=47773
2024-06-04 12:10:45 0 [Note] InnoDB: Opened 3 undo tablespaces
2024-06-04 12:10:45 0 [Note] InnoDB: 128 rollback segments in 3 undo tablespaces are active.
2024-06-04 12:10:45 0 [Note] InnoDB: Setting file './ibtmp1' size to 12.000MiB. Physically writing the file full; Please wait ...
2024-06-04 12:10:45 0 [Note] InnoDB: File './ibtmp1' size is now 12.000MiB.
2024-06-04 12:10:45 0 [Note] InnoDB: log sequence number 47773; transaction id 14
2024-06-04 12:10:45 0 [Note] Plugin 'FEEDBACK' is disabled.
2024-06-04 12:10:45 0 [Note] Plugin 'wsrep-provider' is disabled.
2024-06-04 12:10:45 0 [Note] InnoDB: Loading buffer pool(s) from /bitnami/mariadb/data/ib_buffer_pool
2024-06-04 12:10:45 0 [Note] InnoDB: Buffer pool(s) load completed at 240604 12:10:45
2024-06-04 12:10:45 0 [Note] Server socket created on IP: '0.0.0.0'.
2024-06-04 12:10:45 0 [Warning] 'proxies_priv' entry '@% root@mariadb-f5b894b56-dz5ft' ignored in --skip-name-resolve mode.
2024-06-04 12:10:45 0 [Note] mysqld: Event Scheduler: Loaded 0 events
2024-06-04 12:10:45 0 [Note] /opt/bitnami/mariadb/sbin/mysqld: ready for connections.
Version: '11.3.2-MariaDB' socket: '/opt/bitnami/mariadb/tmp/mysql.sock' port: 3306 Source distribution
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main

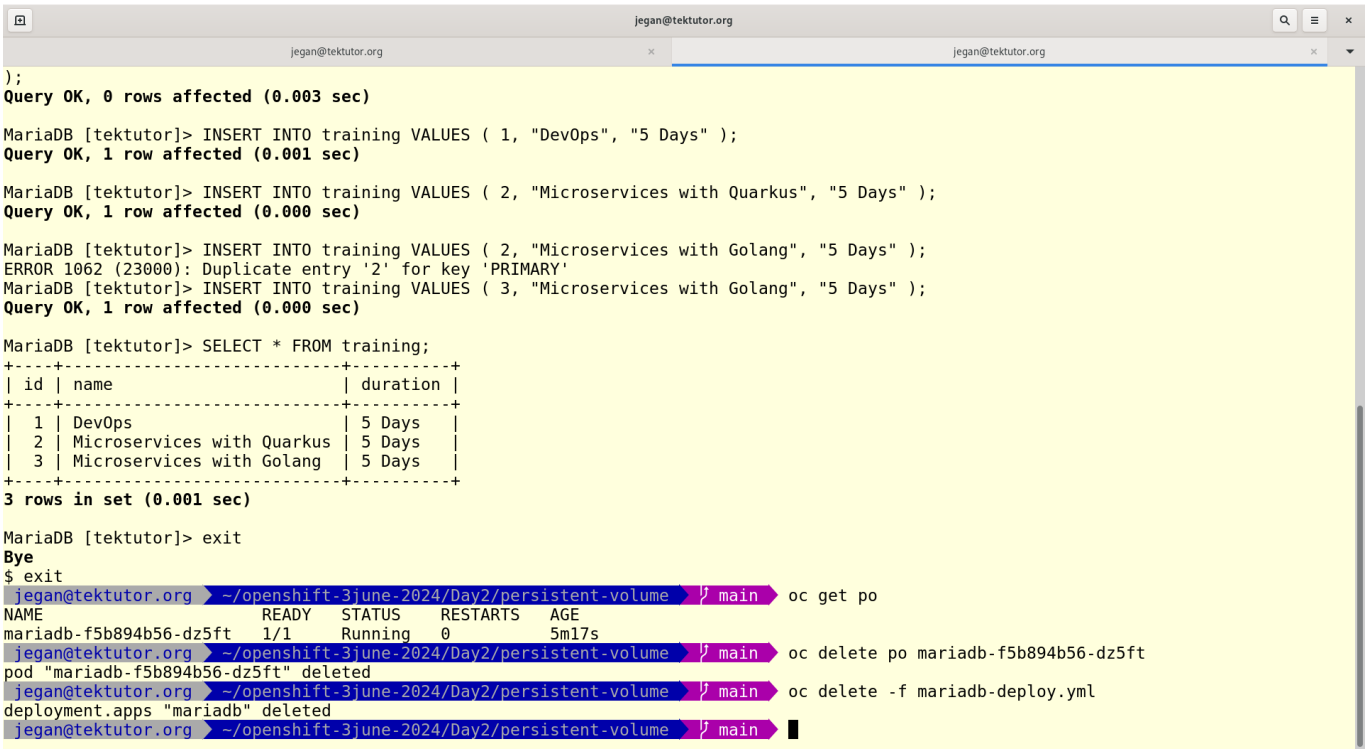

jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc rsh deploy/mariadb
$ hostname
mariadb-f5b894b56-dz5ft
$ hostname -i
10.128.2.30
$ mysql -u root -p
mysql: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/bin/mariadb' instead
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 3
Server version: 11.3.2-MariaDB Source distribution
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> SHOW DATABASES;
+--------------------+
| Database |
+--------------------+
| information_schema |
| mysql |
| performance_schema |
| sys |
| test |
+--------------------+
5 rows in set (0.001 sec)
MariaDB [(none)]>

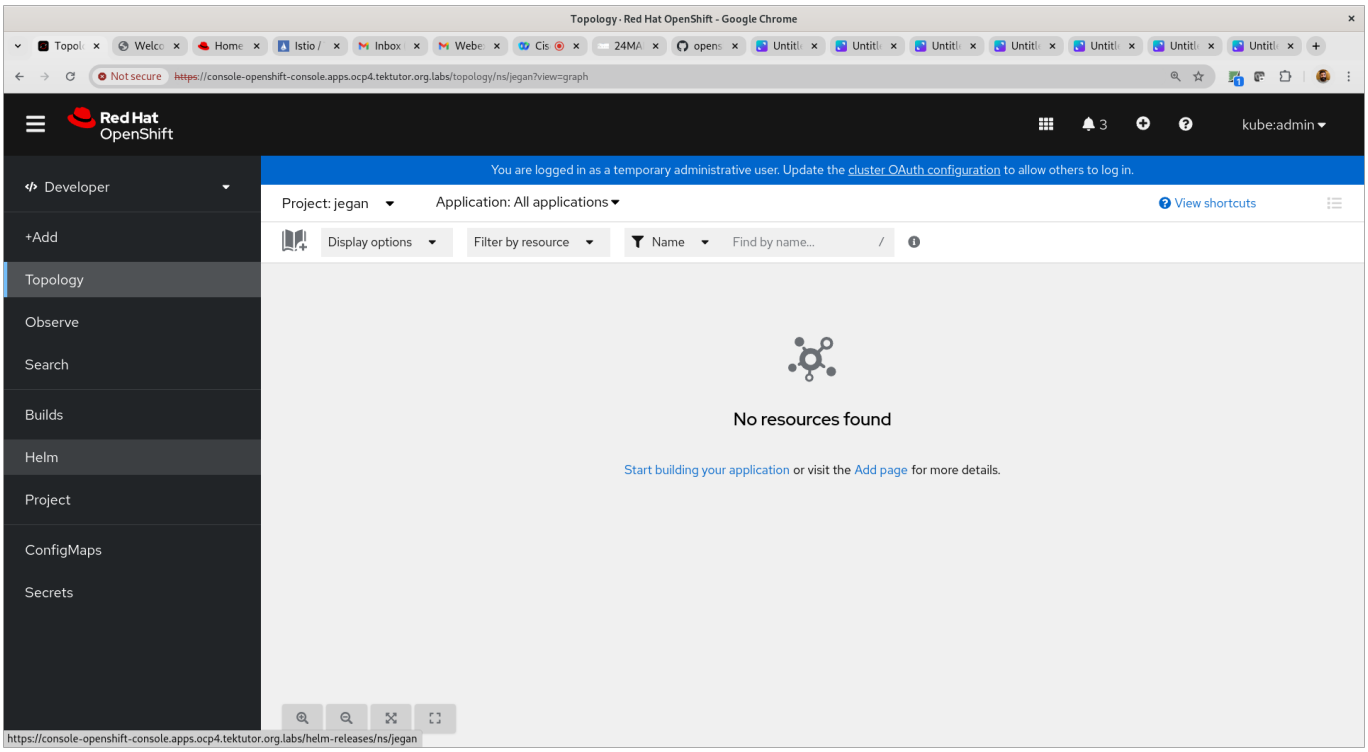


```
MariaDB [(none)]> CREATE DATABASE tektutor;
Query OK, 1 row affected (0.000 sec)

MariaDB [(none)]> USE tektutor;
Database changed
MariaDB [tektutor]> CREATE TABLE training ( id INT NOT NULL, name VARCHAR(250) NOT NULL, duration VARCHAR(250) NOT NULL, PRIMARY KEY(id)
);
Query OK, 0 rows affected (0.003 sec)

MariaDB [tektutor]> INSERT INTO training VALUES ( 1, "DevOps", "5 Days" );
Query OK, 1 row affected (0.001 sec)

MariaDB [tektutor]> INSERT INTO training VALUES ( 2, "Microservices with Quarkus", "5 Days" );
Query OK, 1 row affected (0.000 sec)

MariaDB [tektutor]> INSERT INTO training VALUES ( 2, "Microservices with Golang", "5 Days" );
ERROR 1062 (23000): Duplicate entry '2' for key 'PRIMARY'
MariaDB [tektutor]> INSERT INTO training VALUES ( 3, "Microservices with Golang", "5 Days" );
Query OK, 1 row affected (0.000 sec)

MariaDB [tektutor]> SELECT * FROM training;
+----+---------------------------+----------+
| id | name                      | duration |
+----+---------------------------+----------+
|  1 | DevOps                    | 5 Days   |
|  2 | Microservices with Quarkus | 5 Days   |
|  3 | Microservices with Golang  | 5 Days   |
+----+---------------------------+----------+
3 rows in set (0.001 sec)

MariaDB [tektutor]> exit
Bye
$ exit
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume  main
```




mariadb-f5b894b56-t96px · Pod · Terminal · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Pods > Pod details
mariadb-f5b894b56-t96px Running
Actions
Details Metrics YAML Environment Logs Events Terminal
Connecting to mariadb
Expand
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> SHOW DATABASES;
| Database |
| information_schema |
| mysql |
| performance_schema |
| sys |
| test |
5 rows in set (0.001 sec)
MariaDB [(none)]>


jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
);
Query OK, 0 rows affected (0.003 sec)
MariaDB [tektutor]> INSERT INTO training VALUES (1, "DevOps", "5 Days");
Query OK, 1 row affected (0.001 sec)
MariaDB [tektutor]> INSERT INTO training VALUES (2, "Microservices with Quarkus", "5 Days");
Query OK, 1 row affected (0.000 sec)
MariaDB [tektutor]> INSERT INTO training VALUES (2, "Microservices with Golang", "5 Days");
ERROR 1062 (23000): Duplicate entry '2' for key 'PRIMARY'
MariaDB [tektutor]> INSERT INTO training VALUES (3, "Microservices with Golang", "5 Days");
Query OK, 1 row affected (0.000 sec)
MariaDB [tektutor]> SELECT * FROM training;
id	name	duration
1	DevOps	5 Days
2	Microservices with Quarkus	5 Days
3	Microservices with Golang	5 Days
3 rows in set (0.001 sec)
MariaDB [tektutor]> exit
Bye
$ exit
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc get po
NAME READY STATUS RESTARTS AGE
mariadb-f5b894b56-dz5ft 1/1 Running 0 5m17s
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc delete po mariadb-f5b894b56-dz5ft
pod "mariadb-f5b894b56-dz5ft" deleted
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc delete -f mariadb-deploy.yml
deployment.apps "mariadb" deleted
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main



Lab - Mariadb with Persistent Volume

Let's delete the existing mariadb deployment

```
oc delete deploy/mariadb
```

Now, let's deploy mariadb with PV and PVC

```
cd ~/openshift-3june-2024
git pull
cd Day2/persistent-volume
ls -l
oc apply -f mariadb-pv.yml
oc apply -f mariadb-pvc.yml
oc apply -f mariadb-deploy.yml

oc get po,pv,pvc
```

Let's get inside the mariadb pod shell, when prompts for password type 'root@123' without quotes

```
oc rsh deploy/mariadb
mysql -u root -p
SHOW DATABASES;
CREATE DATABASE tektutor;
USE tektutor;
CREATE TABLE training ( id INT NOT NULL, name VARCHAR(250) NOT NULL,
duration VARCHAR(250) NOT NULL, PRIMARY KEY(id));
```

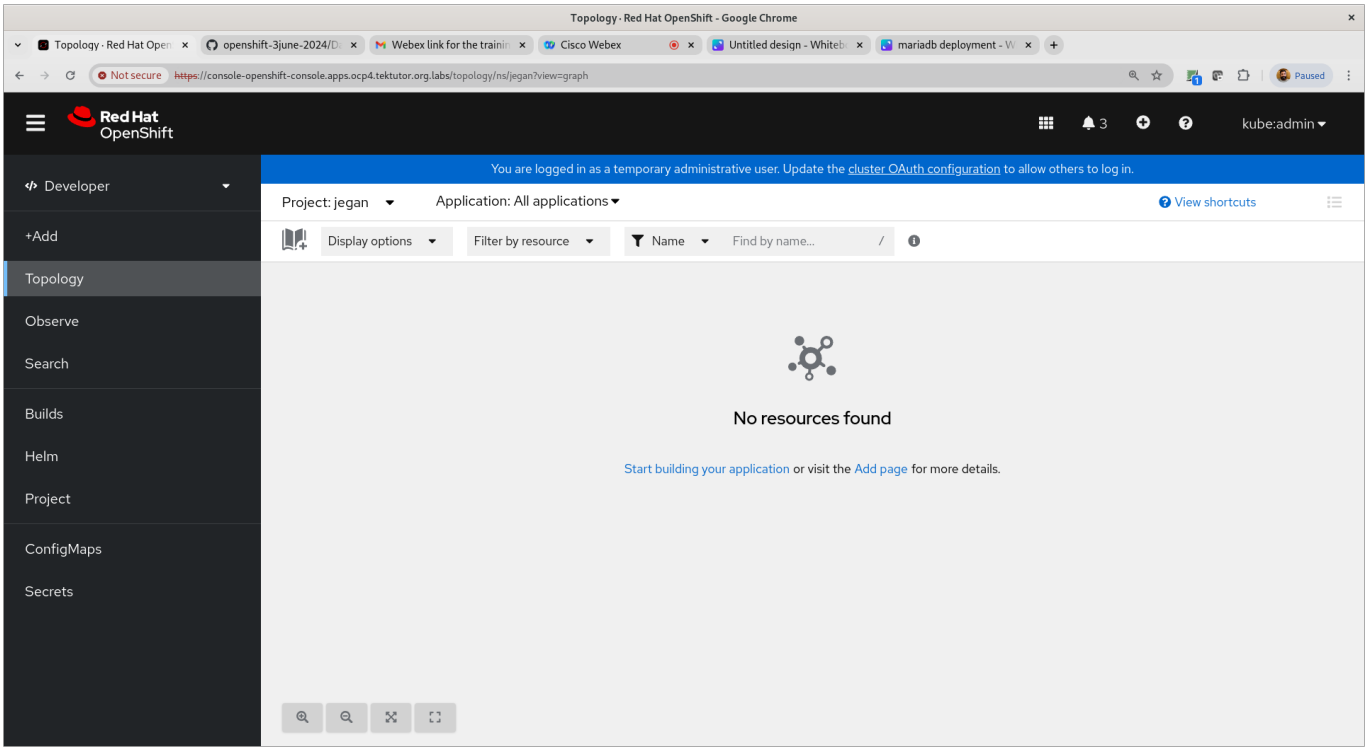
```
INSERT INTO training VALUES ( 1, "Openshift", "5 days" );
SELECT * FROM training;
exit
exit
```

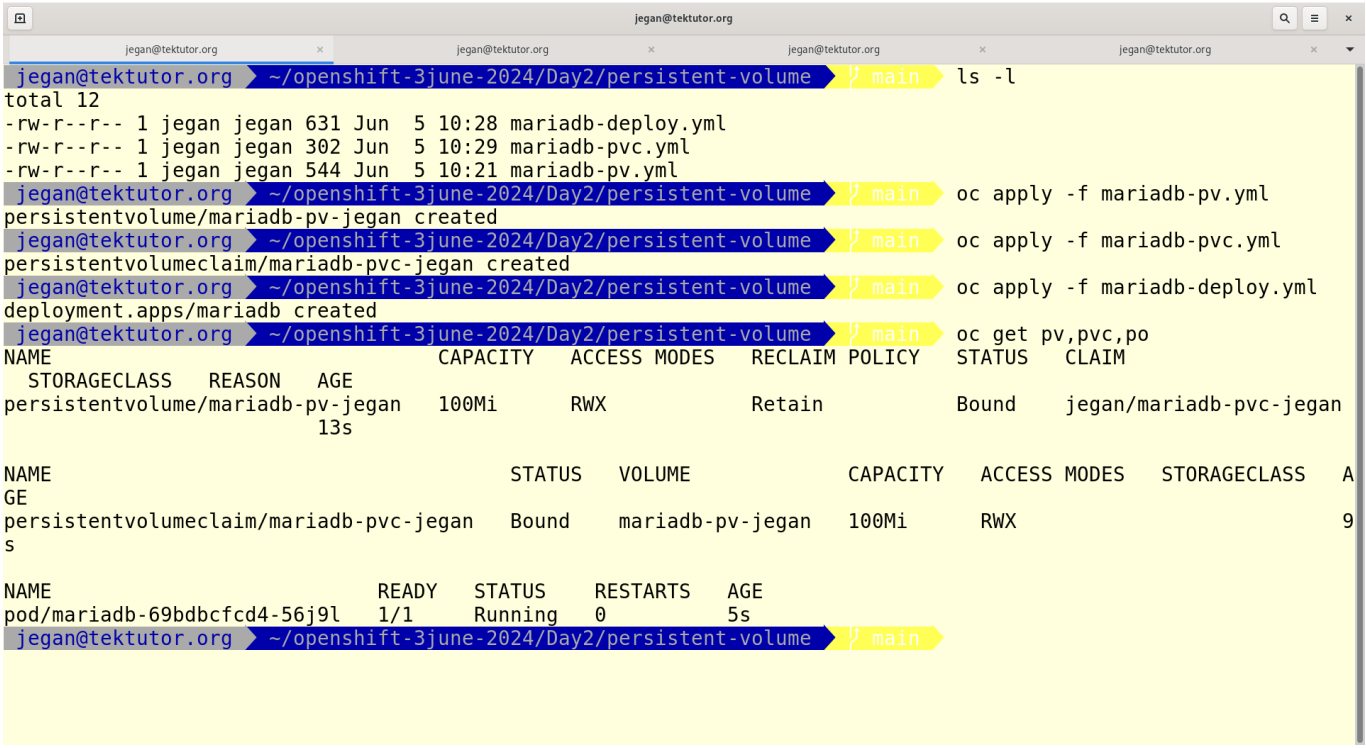
Now, let's delete the mariadb pod, openshift will automatically redepoloy a new mariadb pod. Let's get inside the new mariadb pod

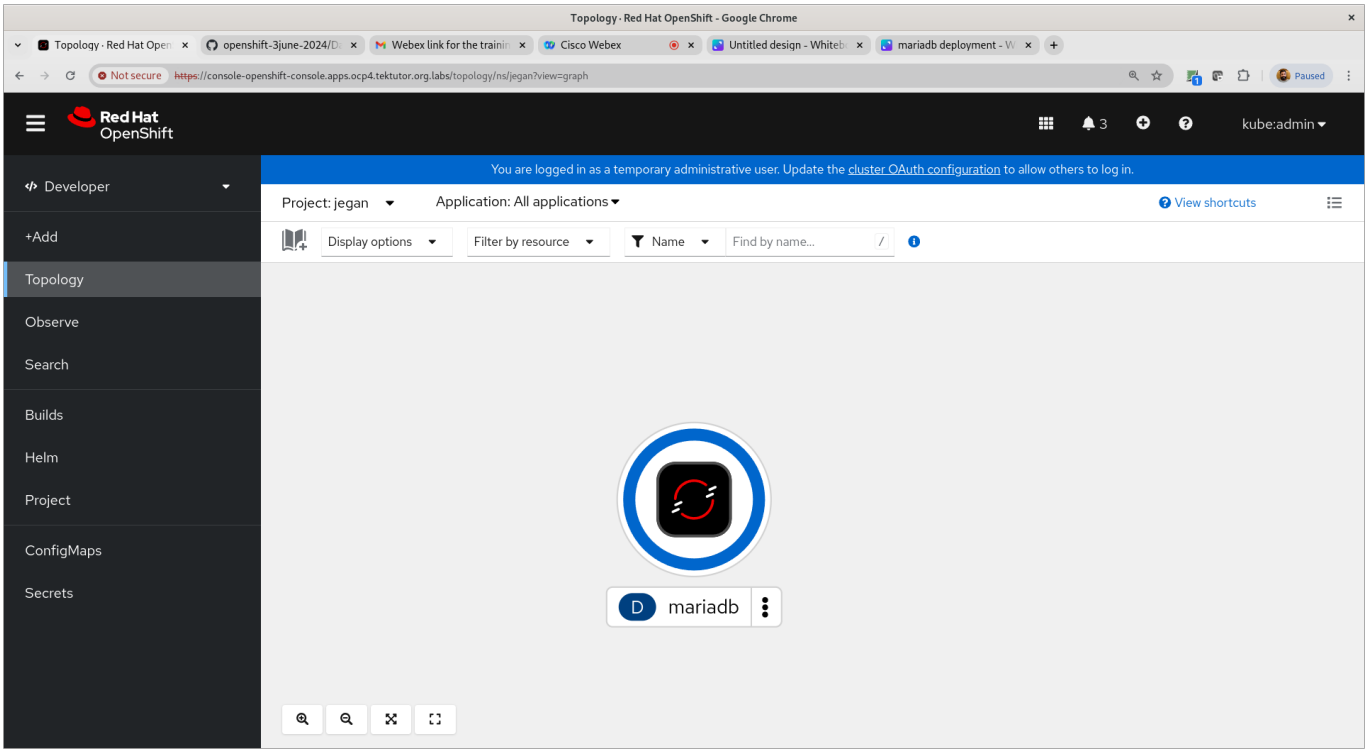
```
oc rsh deploy/mariadb
mysql -u root -p
SHOW DATABASES;
USE tektutor;
SELECT * FROM training;
```

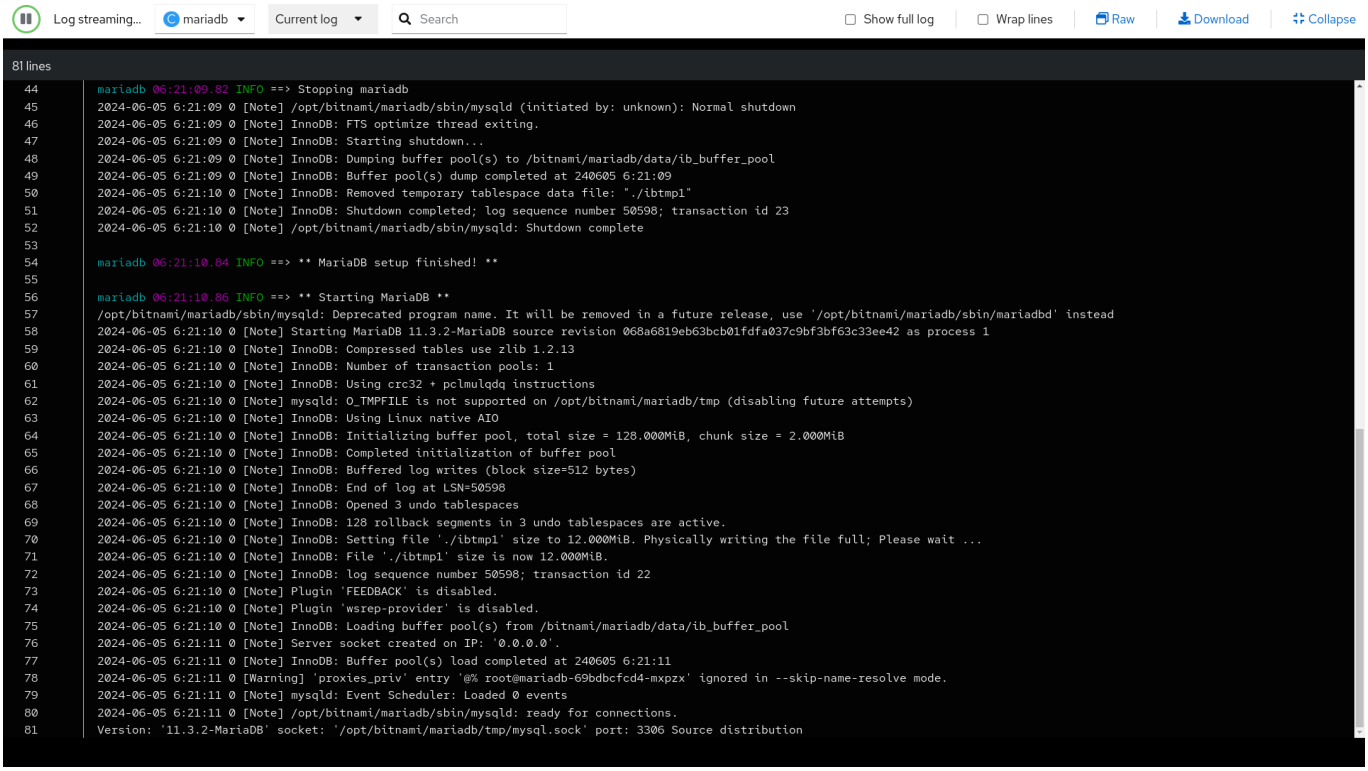
You are expected to see the tektutor database and training table intact with all the records we inserted via the old mariadb pod we deleted. This is made possible with the help of external Persistent Volume.

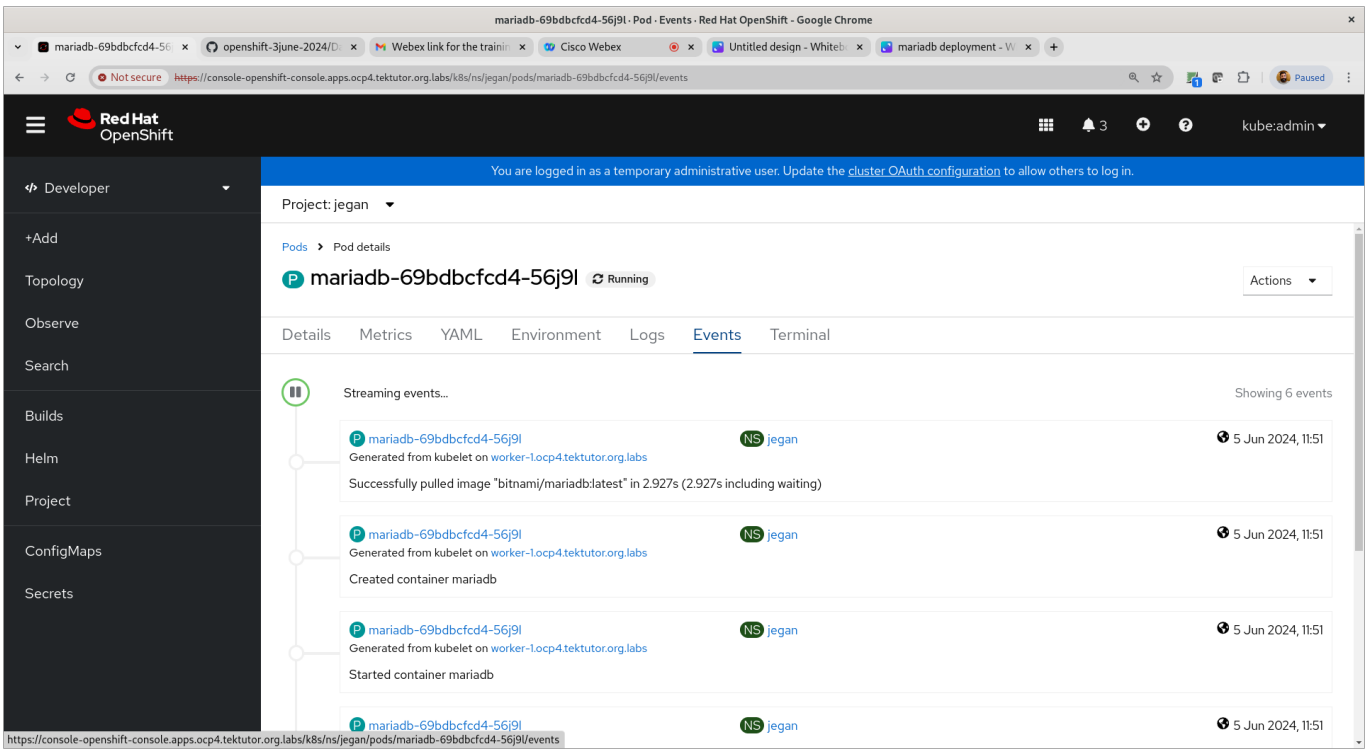
Expected output

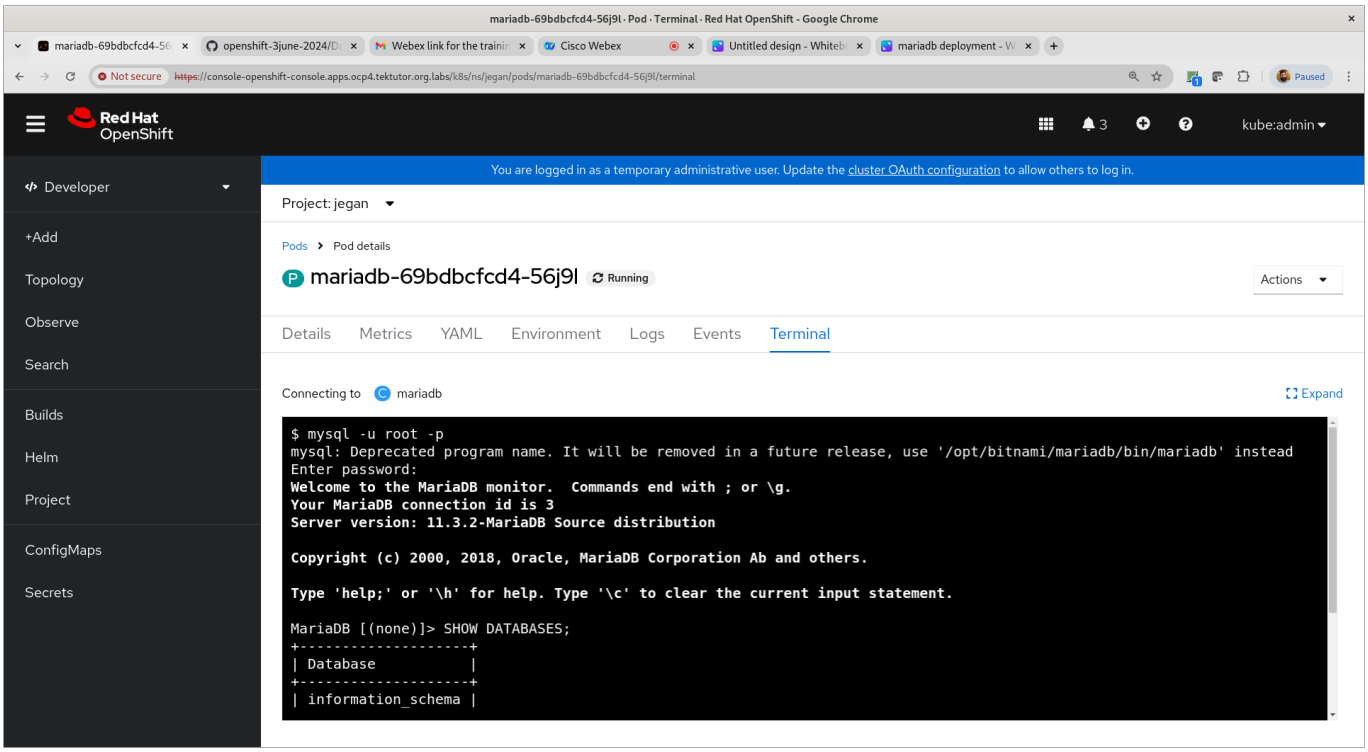


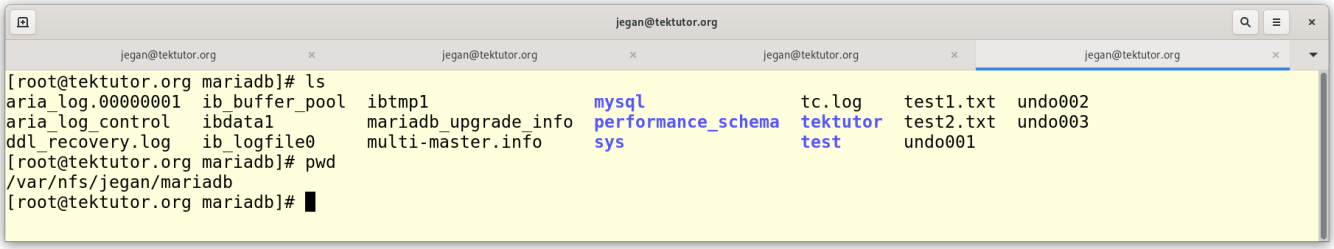

jegan@tektutor.org
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main ls -l
total 12
-rw-r--r-- 1 jegan jegan 631 Jun 5 10:28 mariadb-deploy.yml
-rw-r--r-- 1 jegan jegan 302 Jun 5 10:29 mariadb-pvc.yml
-rw-r--r-- 1 jegan jegan 544 Jun 5 10:21 mariadb-pv.yml
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc apply -f mariadb-pv.yml
persistentvolume/mariadb-pv-jegan created
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc apply -f mariadb-pvc.yml
persistentvolumeclaim/mariadb-pvc-jegan created
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc apply -f mariadb-deploy.yml
deployment.apps/mariadb created
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main oc get pv,pvc,po
NAME CAPACITY ACCESS MODES RECLAIM POLICY STATUS CLAIM
STORAGECLASS REASON AGE
persistentvolume/mariadb-pv-jegan 100Mi RWX Retain Bound jegan/mariadb-pvc-jegan
13s
NAME STATUS VOLUME CAPACITY ACCESS MODES STORAGECLASS A
GE
persistentvolumeclaim/mariadb-pvc-jegan Bound mariadb-pv-jegan 100Mi RWX 9
s
NAME READY STATUS RESTARTS AGE
pod/mariadb-69bdbcfcd4-56j9l 1/1 Running 0 5s
jegan@tektutor.org ~/openshift-3june-2024/Day2/persistent-volume main

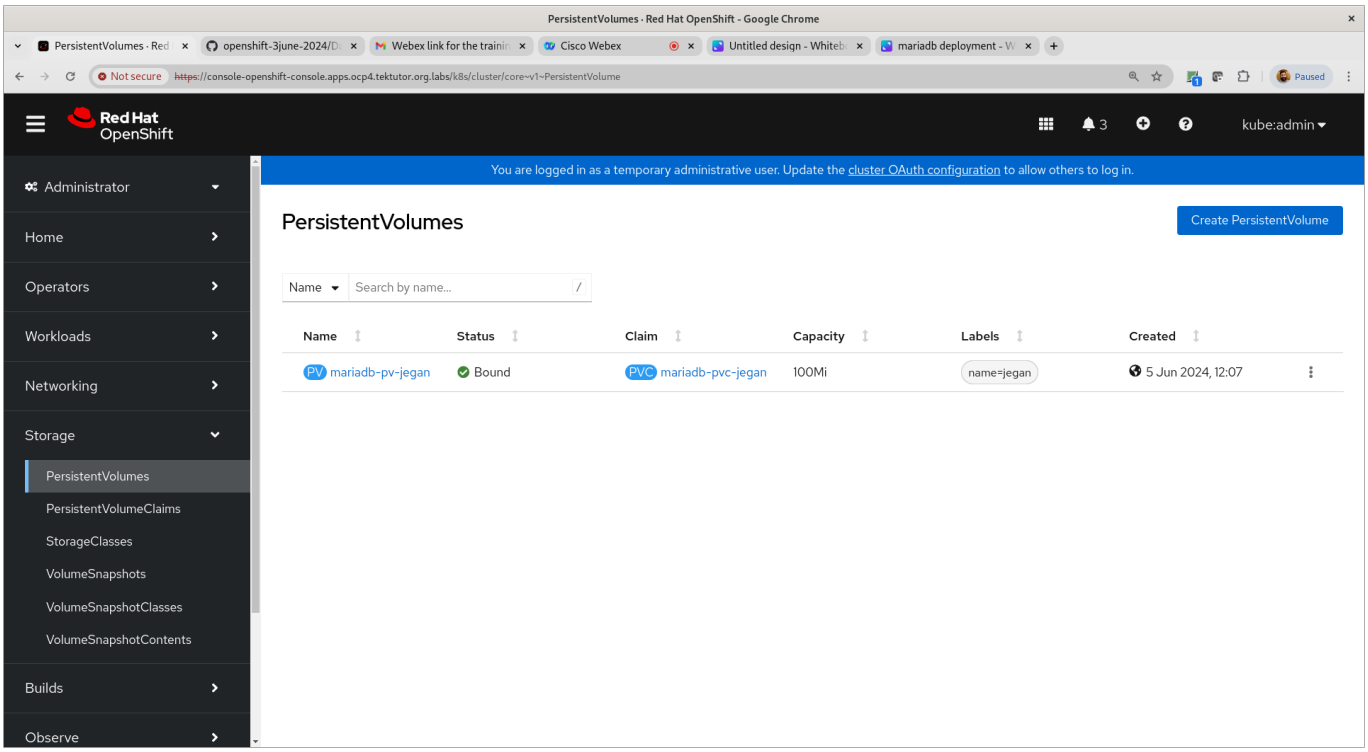

Topology - Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Application: All applications
View shortcuts
Display options
Filter by resource
Name
Find by name...
D
mariadb

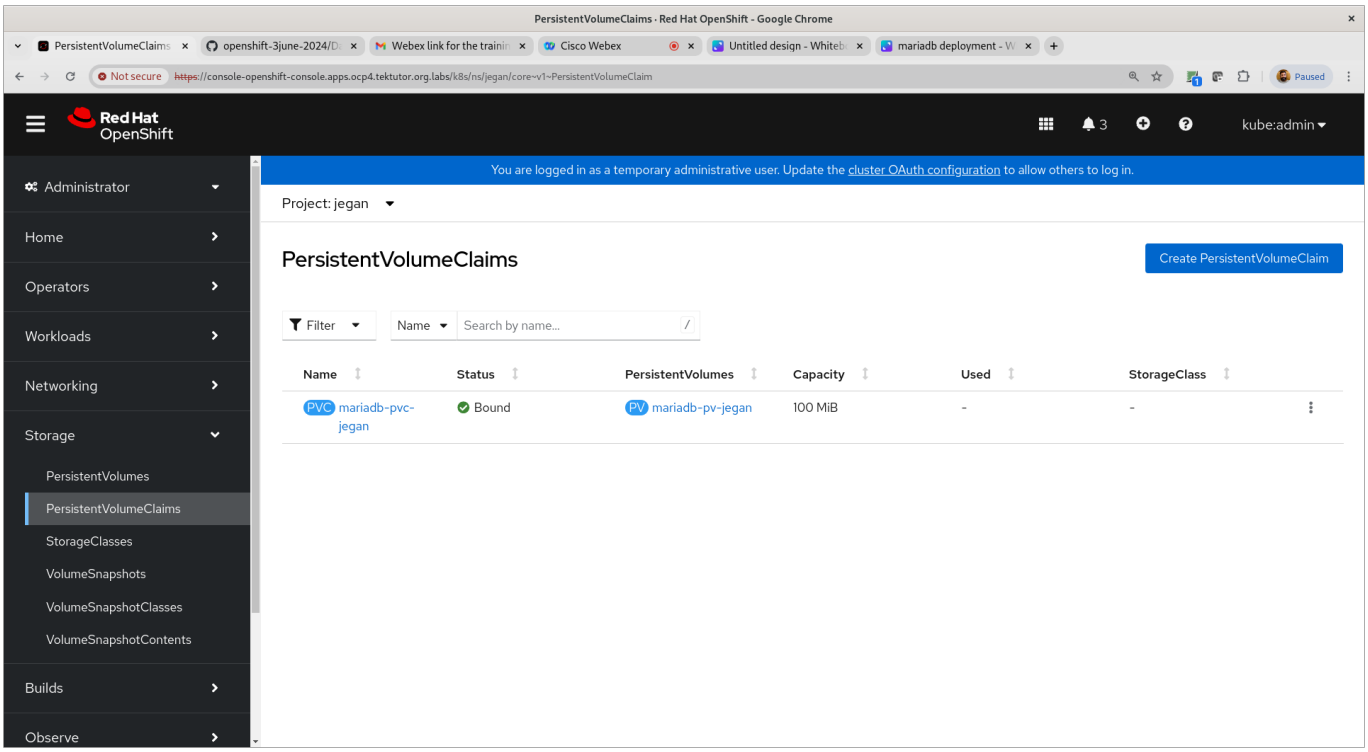

Log streaming...
mariadb
Current log
Search
Show full log
Wrap lines
Raw
Download
Collapse
81 lines
mariadb 06:21:09.82 INFO ==> Stopping mariadb
2024-06-05 6:21:09 0 [Note] /opt/bitnami/mariadb/sbin/mysqld (initiated by: unknown): Normal shutdown
2024-06-05 6:21:09 0 [Note] InnoDB: FTS optimize thread exiting.
2024-06-05 6:21:09 0 [Note] InnoDB: Starting shutdown...
2024-06-05 6:21:09 0 [Note] InnoDB: Dumping buffer pool(s) to /bitnami/mariadb/data/ib_buffer_pool
2024-06-05 6:21:09 0 [Note] InnoDB: Buffer pool(s) dump completed at 240605 6:21:09
2024-06-05 6:21:10 0 [Note] InnoDB: Removed temporary tablespace data file: "./ibtmp1"
2024-06-05 6:21:10 0 [Note] InnoDB: Shutdown completed; log sequence number 50598; transaction id 23
2024-06-05 6:21:10 0 [Note] /opt/bitnami/mariadb/sbin/mysqld: Shutdown complete
mariadb 06:21:10.84 INFO ==> ** MariaDB setup finished! **
mariadb 06:21:10.86 INFO ==> ** Starting MariaDB **
/opt/bitnami/mariadb/sbin/mysqld: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/sbin/mariadbd' instead
2024-06-05 6:21:10 0 [Note] Starting MariaDB 11.3.2-MariaDB source revision 068a6819eb63bcb01fdfa037c9bf3bf63c33ee42 as process 1
2024-06-05 6:21:10 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-06-05 6:21:10 0 [Note] InnoDB: Number of transaction pools: 1
2024-06-05 6:21:10 0 [Note] InnoDB: Using crc32 + pclmulqdq instructions
2024-06-05 6:21:10 0 [Note] mysqld: O_TMPFILE is not supported on /opt/bitnami/mariadb/tmp (disabling future attempts)
2024-06-05 6:21:10 0 [Note] InnoDB: Using Linux native AIO
2024-06-05 6:21:10 0 [Note] InnoDB: Initializing buffer pool, total size = 128.000MiB, chunk size = 2.000MiB
2024-06-05 6:21:10 0 [Note] InnoDB: Completed initialization of buffer pool
2024-06-05 6:21:10 0 [Note] InnoDB: Buffered log writes (block size=512 bytes)
2024-06-05 6:21:10 0 [Note] InnoDB: End of log at LSN=50598
2024-06-05 6:21:10 0 [Note] InnoDB: Opened 3 undo tablespaces
2024-06-05 6:21:10 0 [Note] InnoDB: 128 rollback segments in 3 undo tablespaces are active.
2024-06-05 6:21:10 0 [Note] InnoDB: Setting file './ibtmp1' size to 12.000MiB. Physically writing the file full; Please wait ...
2024-06-05 6:21:10 0 [Note] InnoDB: File './ibtmp1' size is now 12.000MiB.
2024-06-05 6:21:10 0 [Note] InnoDB: log sequence number 50598; transaction id 22
2024-06-05 6:21:10 0 [Note] Plugin 'FEEDBACK' is disabled.
2024-06-05 6:21:10 0 [Note] Plugin 'wsrep-provider' is disabled.
2024-06-05 6:21:10 0 [Note] InnoDB: Loading buffer pool(s) from /bitnami/mariadb/data/ib_buffer_pool
2024-06-05 6:21:11 0 [Note] Server socket created on IP: '0.0.0.0'.
2024-06-05 6:21:11 0 [Note] InnoDB: Buffer pool(s) load completed at 240605 6:21:11
2024-06-05 6:21:11 0 [Warning] 'proxies_priv' entry '@% root@mariadb-69bdbcfcd4-mxpzx' ignored in --skip-name-resolve mode.
2024-06-05 6:21:11 0 [Note] mysqld: Event Scheduler: Loaded 0 events
2024-06-05 6:21:11 0 [Note] /opt/bitnami/mariadb/sbin/mysqld: ready for connections.
Version: '11.3.2-MariaDB' socket: '/opt/bitnami/mariadb/tmp/mysql.sock' port: 3306 Source distribution

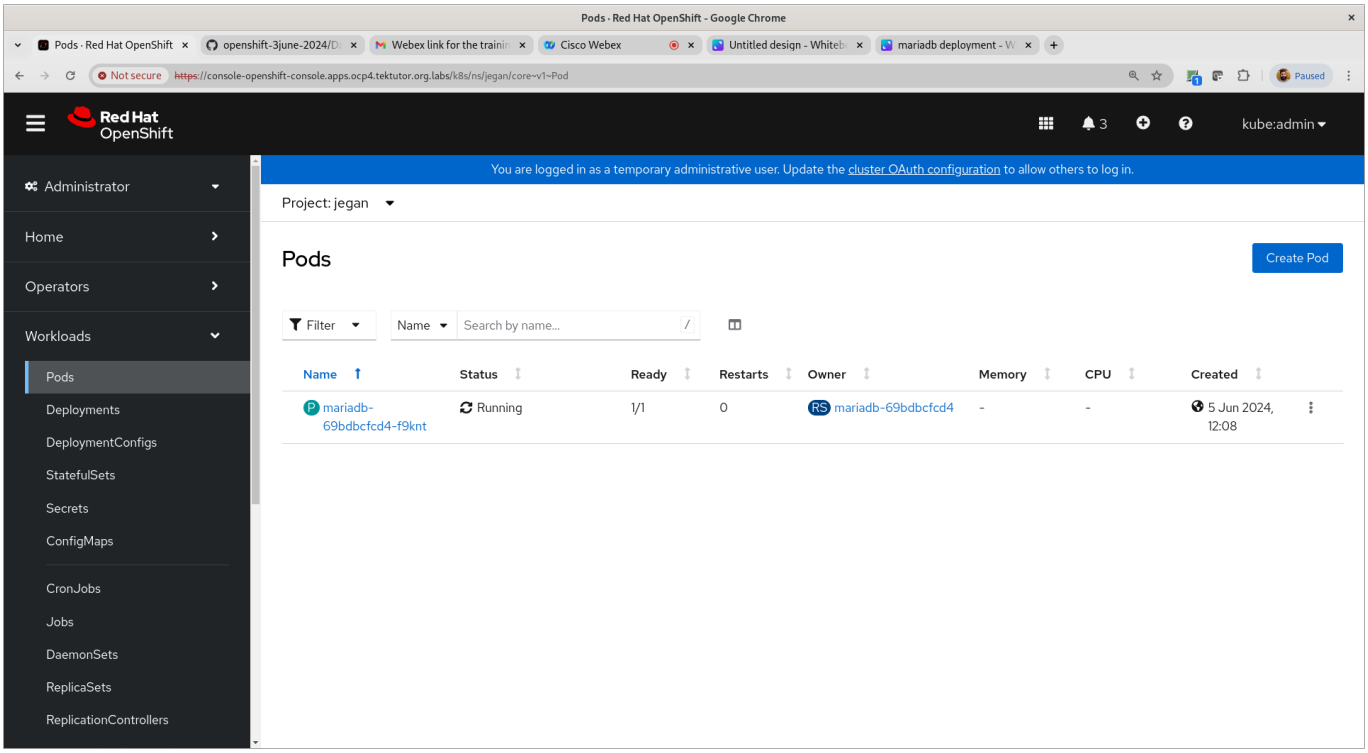

mariadb-69bdbcfcd4-56j9l · Pod · Events · Red Hat OpenShift - Google Chrome
Not secure
https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/pods/mariadb-69bdbcfcd4-56j9l/events
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Pods > Pod details
mariadb-69bdbcfcd4-56j9l
Running
Actions
Details
Metrics
YAML
Environment
Logs
Events
Terminal
Streaming events...
Showing 6 events
mariadb-69bdbcfcd4-56j9l
jegan
5 Jun 2024, 11:51
Generated from kubelet on worker-1.ocp4.tektutor.org.labs
Successfully pulled image "bitnami/mariadb:latest" in 2.927s (2.927s including waiting)
Created container mariadb
Started container mariadb
https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/pods/mariadb-69bdbcfcd4-56j9l/events


mariadb-69bdbcfcd4-56j9l · Pod · Terminal · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Developer
+Add
Topology
Observe
Search
Builds
Helm
Project
ConfigMaps
Secrets
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
Project: jegan
Pods › Pod details
mariadb-69bdbcfcd4-56j9l Running
Actions
Details Metrics YAML Environment Logs Events Terminal
Connecting to mariadb
Expand
$ mysql -u root -p
mysql: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/bin/mariadb' instead
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 3
Server version: 11.3.2-MariaDB Source distribution
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> SHOW DATABASES;
| Database |
| information_schema |


jegan@tektutor.org
[root@tektutor.org mariadb]# ls
aria_log.00000001 ib_buffer_pool ibtmp1 mysql tc.log test1.txt undo002
aria_log_control ibdata1 mariadb_upgrade_info performance_schema tektutor test2.txt undo003
ddl_recovery.log ib_logfile0 multi-master.info sys test undo001
[root@tektutor.org mariadb]# pwd
/var/nfs/jegan/mariadb
[root@tektutor.org mariadb]#


PersistentVolumes · Red Hat OpenShift - Google Chrome
Red Hat OpenShift
kube:admin
Administrator
Home
Operators
Workloads
Networking
Storage
PersistentVolumes
PersistentVolumeClaims
StorageClasses
VolumeSnapshots
VolumeSnapshotClasses
VolumeSnapshotContents
Builds
Observe
You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.
PersistentVolumes
Create PersistentVolume
Name Search by name...
Name Status Claim Capacity Labels Created
PV mariadb-pv-jegan Bound PVC mariadb-pvc-jegan 100Mi name=jegan 5 Jun 2024, 12:07





Once you are done with this exercise, you may delete the mariadb and related pv and pvc to freeup resources.

```
cd ~/openshift-3june-2024
cd Day2/persistent-volume

oc delete -f mariadb-deploy.yml
oc delete -f mariadb-pvc.yml
oc delete -f mariadb-pv.yml
```

If you noticed above, we have to delete the resources in the reverse order. While deploying mariadb, we would have created the pv first, followed by pvc and then the deployment at the last, while deleting we need to follow reverse order to save time.

Expected output