

# Day 3

## Lab - Deploying an application using source strategy from command line

```
oc new-app registry.access.redhat.com/ubi8/openjdk-11~https://github.com/tektutor/openshift-june-2024.git --context-dir=Day2/hello-microservice --strategy=source
```

To check the build log

```
oc logs -f buildconfig/openshift-june-2024
```

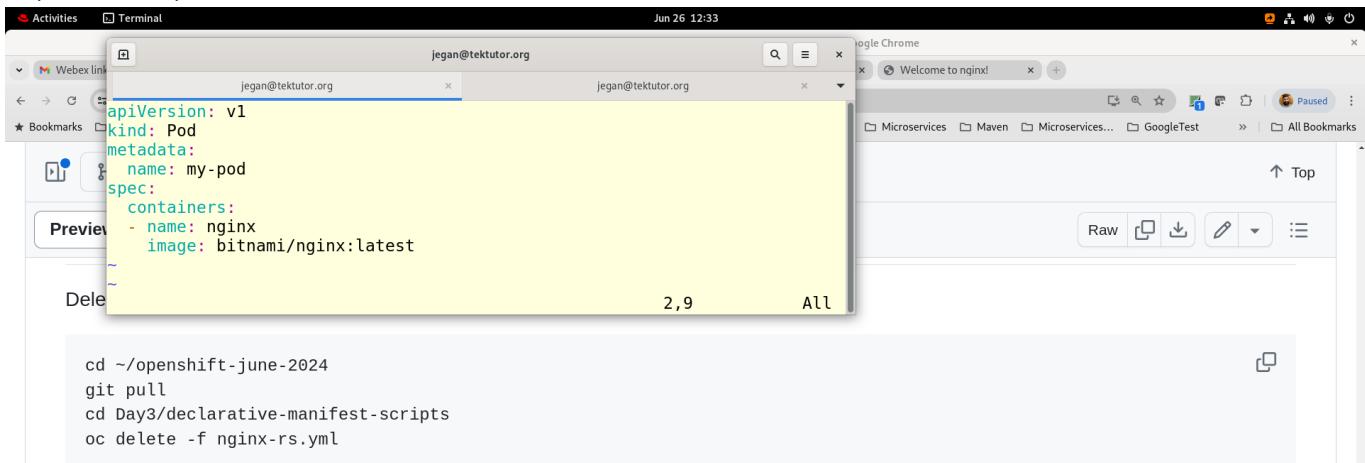
We need manually create route

```
oc expose svc/openshift-june-2024
```

You may access the route url to check the output from the microservice

```
curl http://http://openshift-june-2024-jegan.apps.ocp4.tektutor.org.labs
```

Expected output



```
jegan@tektutor.org ~ % cd ~/openshift-june-2024  
jegan@tektutor.org ~ % git pull  
jegan@tektutor.org ~ % cd Day3/declarative-manifest-scripts  
jegan@tektutor.org ~ % oc delete -f nginx-rs.yml  
  
apiVersion: v1  
kind: Pod  
metadata:  
  name: my-pod  
spec:  
  containers:  
    - name: nginx  
      image: bitnami/nginx:latest
```

Let's create the pod in declarative style

```
cat my-pod.yml  
oc create -f my-pod.yml  
oc get po  
oc get po -w
```

Expected output



```
main@tektutor.org ~ % cd ~/openshift-june-2024  
main@tektutor.org ~ % git pull  
main@tektutor.org ~ % cd Day3/declarative-manifest-scripts  
main@tektutor.org ~ % oc delete -f nginx-rs.yml  
  
apiVersion: v1  
kind: Pod  
metadata:  
  name: my-pod  
spec:  
  containers:  
    - name: nginx  
      image: bitnami/nginx:latest
```

```

Activities Terminal Jun 26 11:17
jegan@tektutor.org ~ ➔ oc new-app registry.access.redhat.com/ubi8/openjdk-11~https://github.com/tektutor/open
shift-june-2024.git --context-dir=Day2/hello-microservice --strategy=source
--> Found container image d08fe12 (2 weeks old) from registry.access.redhat.com for "registry.access.redhat.com/
ubi8/openjdk-11"
Java Applications
-----
Platform for building and running plain Java applications (fat-jar and flat classpath)
Tags: builder, java
* An image stream tag will be created as "openjdk-11:latest" that will track the source image
* A source build using source code from https://github.com/tektutor/openshift-june-2024.git will be created
  * The resulting image will be pushed to image stream tag "openshift-june-2024:latest"
  * Every time "openjdk-11:latest" changes a new build will be triggered
--> Creating resources ...
imagestream.image.openshift.io "openjdk-11" created
imagestream.image.openshift.io "openshift-june-2024" created
buildconfig.build.openshift.io "openshift-june-2024" created
deployment.apps "openshift-june-2024" created
service "openshift-june-2024" created
--> Success
Build scheduled, use 'oc logs -f buildconfig/openshift-june-2024' to track its progress.
Application is not exposed. You can expose services to the outside world by executing one or more of the commands below:
  'oc expose service/openshift-june-2024'
Run 'oc status' to view your app.
jegan@tektutor.org ~ ➔ oc logs -f buildconfig/openshift-june-2024
Cloning "https://github.com/tektutor/openshift-june-2024.git" ...

```

```

Activities Terminal Jun 26 11:18
jegan@tektutor.org ~ ➔ Run 'oc status' to view your app.
jegan@tektutor.org ~ ➔ bc logs -f buildconfig/openshift-june-2024
Cloning "https://github.com/tektutor/openshift-june-2024.git" ...
Commit: d4060c2e4871d44c055b1e52ee944aa9748077ee (Update README.md)
Author: Jeganathan Swaminathan <mail2jegan@gmail.com>
Date: Wed Jun 26 10:59:27 2024 +0530
time="2024-06-26T05:46:23Z" level=info msg="Not using native diff for overlay, this may cause degraded performance for building images: kernel has CONFIG_OVERLAY_FS_REDIRECT_DIR enabled"
I0626 05:46:23.138085      1 defaults.go:112] Defaulting to storage driver "overlay" with options [mountopt=metacopy=on].
Caching blobs under "/var/cache/blobs".
Trying to pull registry.access.redhat.com/ubi8/openjdk-11@sha256:e48aa876e62441f8a7bec91748ba4f336262d379c8d423a2e70efc219a374f27...
Getting image source signatures
Copying blob sha256:1846180440d3041e0848b0bcbb735f024f3bc5e2d39f1ab4ad490f630863d903
Copying blob sha256:8393debac2ec316f87eab40af5451d57df2863f844f545d40447e46e025c9663
Copying config sha256:d08fe122e5d7434ce8487ccdaa169da9e58db9f94ebf634dce9aa48cf0b5469a
Writing manifest to image destination
Generating dockerfile with builder image registry.access.redhat.com/ubi8/openjdk-11@sha256:e48aa876e62441f8a7bec91748ba4f336262d379c8d423a2e70efc219a374f27
Adding transient rw bind mount for /run/secrets/rhsm
STEP 1/9: FROM registry.access.redhat.com/ubi8/openjdk-11@sha256:e48aa876e62441f8a7bec91748ba4f336262d379c8d423a2e70efc219a374f27
STEP 2/9: LABEL "io.openshift.build.commit.author"="Jeganathan Swaminathan <mail2jegan@gmail.com>" "io.openshift.build.commit.date"="Wed Jun 26 10:59:27 2024 +0530" "io.openshift.build.commit.id"="d4060c2e4871d44c055b1e52ee944aa9748077ee" "io.openshift.build.commit.ref"="main" "io.openshift.build.commit.message"="Update README.md" "io.openshift.build.source-context-dir"="Day2/hello-microservice" "io.openshift.build.image"="registry.access.redhat.com/ubi8/openjdk-11@sha256:e48aa876e62441f8a7bec91748ba4f336262d379c8d423a2e70efc219a374f27" "io.openshift.s2i.destination"="/tmp" "io.openshift.build.source-location"="https://github.com/tektutor/openshift-june-2024.git"

```

```
[Activities] Terminal Jun 26 11:18 jegan@tektutor.org
[INFO] Total time: 01:55 min
[INFO] Finished at: 2024-06-26T05:48:32Z
[INFO] -----
[WARNING] The requested profile "openshift" could not be activated because it does not exist.
INFO Copying deployments from target to /deployments...
'/tmp/src/target/hello-1.0.jar' -> '/deployments/hello-1.0.jar'
INFO Cleaning up source directory (/tmp/src)
STEP 9/9: CMD /usr/local/s2i/run
COMMIT temp.builder.openshift.io/jegan/openshift-june-2024-1:55f67830
Getting image source signatures
Copying blob sha256:7fa000cf03ea90b564a8d4a1f6d943e4fa07196a151d4bbc35bfc0c13c08620d
Copying blob sha256:c5adec096748615f2358c9b52430bcba108d0958599c065d73c7c7ef0318d815
Copying blob sha256:5a4a1a963dde9830fd6ea7720959655fd4df579032fc5ccbdb1140fefcd8a8d0
Copying config sha256:e7d14883d5a1e1db9e3e6571401b5467b3a6c3012d9e6c1a93fad1d76a044cd1
Writing manifest to image destination
--> e7d14883d5a1
Successfully tagged temp.builder.openshift.io/jegan/openshift-june-2024-1:55f67830
e7d14883d5a1e1db9e3e6571401b5467b3a6c3012d9e6c1a93fad1d76a044cd1

Pushing image image-registry.openshift-image-registry.svc:5000/jegan/openshift-june-2024:latest ...
Getting image source signatures
Copying blob sha256:8393debac2ec316f87eab40af5451d57df2863f844f545d40447e46e025c9663
Copying blob sha256:1846180440d3041e0848b0bcbb735f024f3bc5e2d39f1ab4ad490f630863d903
Copying blob sha256:5a4a1a963dde9830fd6ea7720959655fd4df579032fc5ccbdb1140fefcd8a8d0
Copying config sha256:e7d14883d5a1e1db9e3e6571401b5467b3a6c3012d9e6c1a93fad1d76a044cd1
Writing manifest to image destination
Successfully pushed image-registry.openshift-image-registry.svc:5000/jegan/openshift-june-2024@sha256:82ffa79587
f3a94172de1776fd3c2f2265a10238bc194ecb2d887eb3fee3007d
Push successful
jegan@tektutor.org ➔
```

The screenshot shows the Red Hat OpenShift web console with the URL <https://console-openshift-console.apps.ocp4.tektutor.org.labs/topology/ns/jegan?view=graph>. The page title is "Topology - Red Hat OpenShift". The left sidebar has a "Developer" section and a "Topology" section which is currently selected. The main area shows a network graph with several nodes. One node is highlighted with a blue border and contains a circular icon with a red arrow, labeled "opensh...e-2024". The top bar shows the user is logged in as "jegan" and the cluster is "Red Hat OpenShift".

```

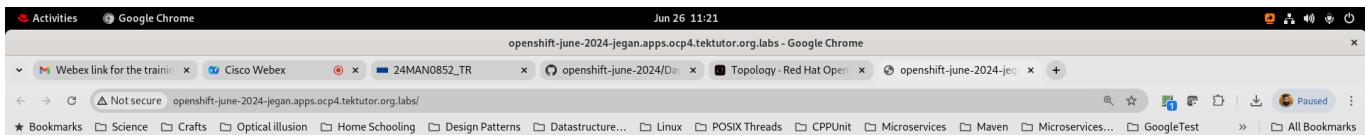
Activities Terminal Jun 26 11:20
jegan@tektutor.org

Getting image source signatures
Copying blob sha256:7fa000cf03ea90b564a8d4a1f6d943e4fa07196a151d4bbc35bfc0c13c08620d
Copying blob sha256:c5adec096748615f2358c9b52430bcb108d0958599c065d73c7cef0318d815
Copying blob sha256:5a4a1a963dde9830fd6ea7720959655fd4df579032fc5ccbdb1140fefcd8a8d0
Copying config sha256:e7d14883d5a1e1db9e3e6571401b5467b3a6c3012d9e6c1a93fad1d76a044cd1
Writing manifest to image destination
--> e7d14883d5a1
Successfully tagged temp.builder.openshift.io/jegan/openshift-june-2024-1:55f67830
e7d14883d5a1e1db9e3e6571401b5467b3a6c3012d9e6c1a93fad1d76a044cd1

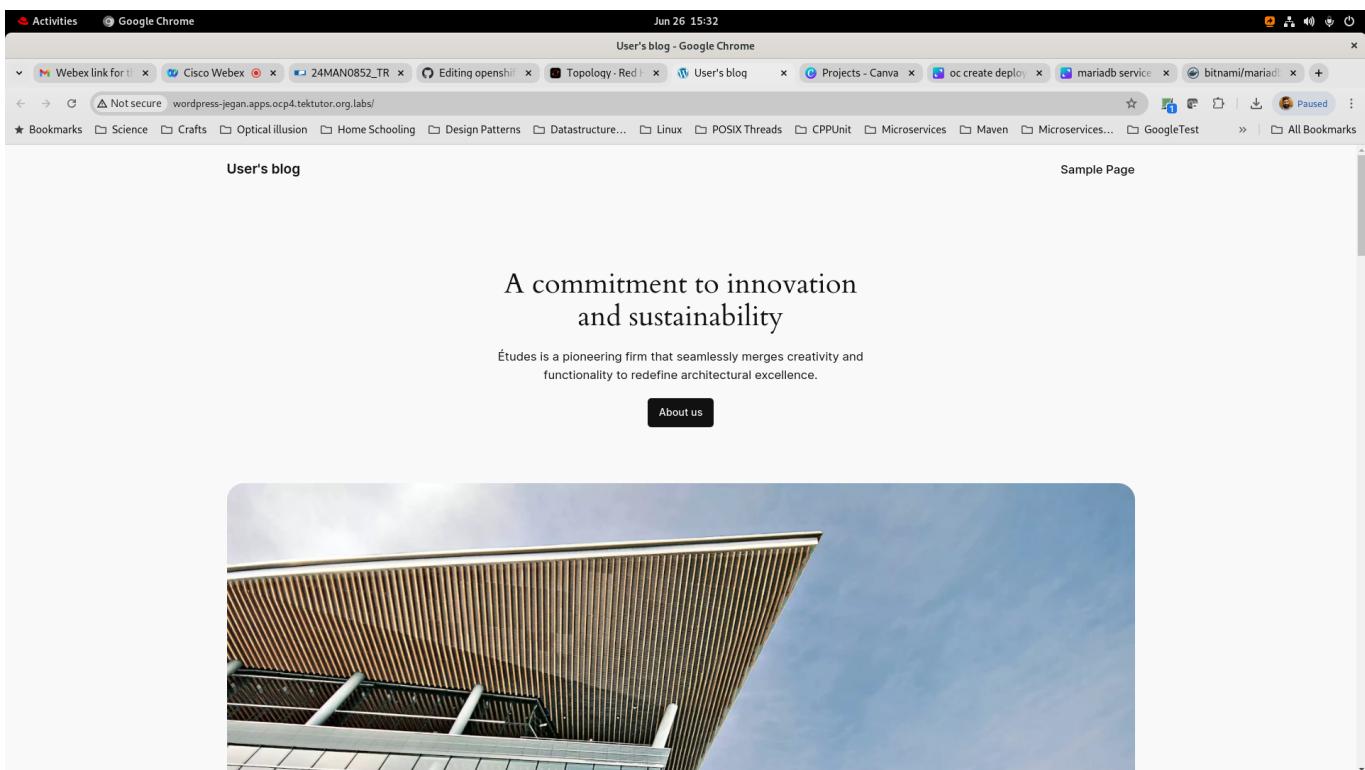
Pushing image image-registry.openshift-image-registry.svc:5000/jegan/openshift-june-2024:latest ...
Getting image source signatures
Copying blob sha256:8393debac2ec316f87eab40af5451d57df2863f844f545d40447e46e025c9663
Copying blob sha256:1846180440d3041e0848b0bcbb735f024f3bc5e2d39f1ab4ad490f630863d903
Copying blob sha256:5a4a1a963dde9830fd6ea7720959655fd4df579032fc5ccbdb1140fefcd8a8d0
Copying config sha256:e7d14883d5a1e1db9e3e6571401b5467b3a6c3012d9e6c1a93fad1d76a044cd1
Writing manifest to image destination
Successfully pushed image-registry.openshift-image-registry.svc:5000/jegan/openshift-june-2024@sha256:82ffa79587
f3a94172de1776fd3c2f2265a10238bc194ecb2d887eb3fee3007d
Push successful
jegan@tektutor.org ~ oc expose svc/openshift-june-2024
route/openshift-june-2024 exposed
jegan@tektutor.org ~ oc get route
NAME           HOST/PORT          PATH  SERVICES          PORT
TERMINATION    WILDCARD
openshift-june-2024  openshift-june-2024-jegan.apps.ocp4.tektutor.org.labs      openshift-june-2024  8080-
tcp            None
jegan@tektutor.org ~ curl http://openshift-june-2024-jegan.apps.ocp4.tektutor.org.labs
Hello Microservice v1.0 !%
jegan@tektutor.org ~

```

The screenshot shows the Red Hat OpenShift web interface. The top navigation bar includes links for 'Activities', 'Terminal', and the date 'Jun 26 11:20'. The main content area is titled 'Topology - Red Hat OpenShift - Google Chrome'. The URL in the address bar is <https://console-openshift-console.apps.ocp4.tektutor.org.labs/topology/ns/jegan?view=graph>. The sidebar on the left has a dark theme with white text and icons. It includes sections for 'Developer', 'Topology' (which is currently selected), 'Observe', 'Search', 'Builds', 'Helm', 'Project', 'ConfigMaps', and 'Secrets'. The main panel shows a network topology graph with several nodes represented by icons like servers and databases. One node is highlighted with a blue border and a green checkmark icon. Below the graph, there is a button labeled 'opensh...e-2024' with three vertical dots. The bottom of the screen features a standard Linux-style terminal prompt and command history.



Hello Microservice v1.0 !



## Lab - Deploying application using existing docker image

```
oc new-project jegan
oc new-app --name=nginx --image=bitnami/nginx:latest
oc expose svc/nginx
oc get route
curl http://nginx-jegan.apps.ocp4.tektutor.org.labs
```

## Expected output

```
jegan@tektutor.org ~ oc new-project jegan
Already on project "jegan" on server "https://api.ocp4.tektutor.org.labs:6443".
```

You can add applications to this project with the 'new-app' command. For example, try:

```
oc new-app rails-postgresql-example
```

to build a new example application in Ruby. Or use kubectl to deploy a simple Kubernetes application:

```
kubectl create deployment hello-node --image=registry.k8s.io/e2e-test-images/agnhost:2.43 -- /agnhost serve-hostname
```

```
jegan@tektutor.org ~ oc new-app --name=nginx --image=bitnami/nginx:latest
--> Found container image b606d1d (6 days old) from Docker Hub for "bitnami/nginx:latest"

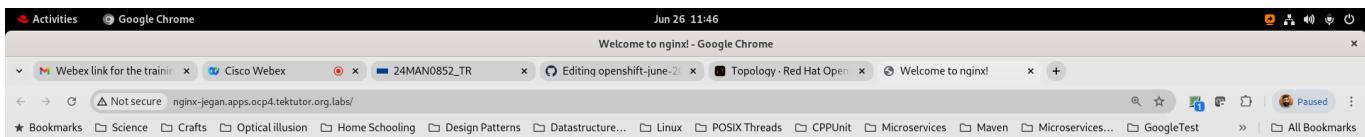
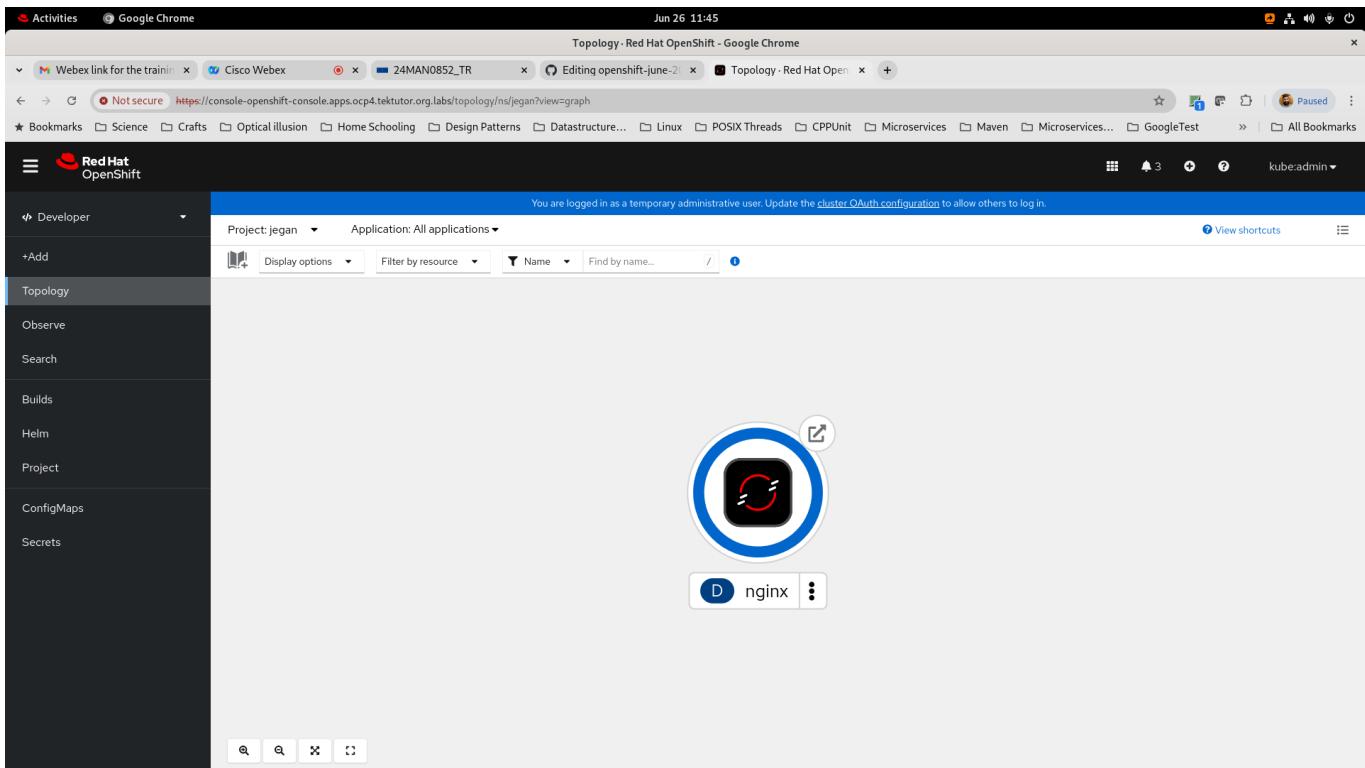
* An image stream tag will be created as "nginx:latest" that will track this image

--> Creating resources ...
imagestream.image.openshift.io "nginx" created
deployment.apps "nginx" created
service "nginx" created
--> Success
Application is not exposed. You can expose services to the outside world by executing one or more of the commands below:
'oc expose service/nginx'
Run 'oc status' to view your app.
```

```
jegan@tektutor.org ~ oc expose service/nginx
route/nginx exposed
jegan@tektutor.org ~
```

```
jegan@tektutor.org ~ oc expose service/nginx
route/nginx exposed
jegan@tektutor.org ~ oc get route
NAME      HOST/PORT          PATH      SERVICES      PORT      TERMINATION      WILDCARD
nginx    nginx-jegan.apps.ocp4.tektutor.org.labs      nginx      8080-tcp      None
jegan@tektutor.org ~ curl http://nginx-jegan.apps.ocp4.tektutor.org.labs
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and working. Further configuration is required.</p>
<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>
<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```

```
jegan@tektutor.org ~
```



## Lab - Finding list of red hat container image options available for a programming language stack

```
oc new-app --search java
oc new-app --search python
oc new-app --search dotnet
oc new-app --search ruby
oc new-app --search php
oc new-app --search nodejs
```

```
oc new-app --search angular
oc new-app --search react
```

## Expected output

```
jegan@tektutor.org ➔ oc new-app --search angular
Container images (oc new-app --image=<image> [--code=<source>])
-----
tekstutor/angular
Registry:
Tags: latest
buildkit.dockerfile.v0

jegan@tektutor.org ➔ oc new-app --search react
Container images (oc new-app --image=<image> [--code=<source>])
-----
reactjs
Project: openshift
Tags: latest
Build a basic React Web Application

jegan@tektutor.org ➔ oc new-app --search angular
Container images (oc new-app --image=<image> [--code=<source>])
-----
tekstutor/angular
Registry:
Tags: latest
buildkit.dockerfile.v0
```

```

Activities Terminal Jun 26 11:52 jegan@tektutor.org
Registry:
Tags: latest
buildkit.dockerfile.v0

jegan@tektutor.org ➤ oc new-app --search nodejs
Templates (oc new-app --template=<template>)
-----
nodejs-postgresql-example
Project: openshift
An example Node.js application with a PostgreSQL database. For more information about using this template, including OpenShift considerations, see https://github.com/redhat-developer/nodejs-rest-http-crud/blob/master/README.md.

WARNING: Any data stored will be lost upon pod destruction. Only use this template for testing.
nodejs-postgresql-persistent
Project: openshift
An example Node.js application with a PostgreSQL database. For more information about using this template, including OpenShift considerations, see https://github.com/redhat-developer/nodejs-rest-http-crud/blob/master/README.md.

Image streams (oc new-app --image-stream=<image-stream> [--code=<source>])
-----
nodejs
Project: openshift
Tags: 16-ubi8, 16-ubi8-minimal, 16-ubi9, 16-ubi9-minimal, 18-ubi8, 18-ubi8-minimal, 18-ubi9, 18-ubi9-minimal, latest

container images (oc new-app --image=<image> [--code=<source>])
-----
registry.access.redhat.com/ubi8/nodejs-16
Registry:
Tags: latest
FROM registry-proxy.engineering.redhat.com/rh-osbs/ubi8-s2i-core@sha256:d58c345a20a8abbe040d1ffbe038175bcffc4c8707e7bb945ca4774b6d21b38a

jegan@tektutor.org ➤ oc new-app --search php
Templates (oc new-app --template=<template>)
-----
cakephp-mysql-example
Project: openshift
An example CakePHP application with a MySQL database. For more information about using this template, including OpenShift considerations, see https://github.com/sclorg/cakephp-ex/blob/master/README.md.

WARNING: Any data stored will be lost upon pod destruction. Only use this template for testing.
cakephp-mysql-persistent
Project: openshift
An example CakePHP application with a MySQL database. For more information about using this template, including OpenShift considerations, see https://github.com/sclorg/cakephp-ex/blob/master/README.md.

Activities Terminal Jun 26 11:52 jegan@tektutor.org
Tags: latest
FROM registry-proxy.engineering.redhat.com/rh-osbs/ubi8-s2i-core@sha256:d58c345a20a8abbe040d1ffbe038175bcffc4c8707e7bb945ca4774b6d21b38a

jegan@tektutor.org ➤ oc new-app --search php
Templates (oc new-app --template=<template>)
-----
cakephp-mysql-example
Project: openshift
An example CakePHP application with a MySQL database. For more information about using this template, including OpenShift considerations, see https://github.com/sclorg/cakephp-ex/blob/master/README.md.

WARNING: Any data stored will be lost upon pod destruction. Only use this template for testing.
cakephp-mysql-persistent
Project: openshift
An example CakePHP application with a MySQL database. For more information about using this template, including OpenShift considerations, see https://github.com/sclorg/cakephp-ex/blob/master/README.md.

Image streams (oc new-app --image-stream=<image-stream> [--code=<source>])
-----
php
Project: openshift
Tags: 7.3-ubi7, 7.4-ubi8, 8.0-ubi8, 8.0-ubi9, latest

container images (oc new-app --image=<image> [--code=<source>])
-----
php
Registry: Docker Hub
Tags: latest

jegan@tektutor.org ➤ oc new-app --search ruby
Image streams (oc new-app --image-stream=<image-stream> [--code=<source>])
-----
ruby
Project: openshift
Tags: 2.5-ubi8, 3.0-ubi7, 3.0-ubi8, 3.0-ubi9, 3.1-ubi8, 3.1-ubi9, latest

container images (oc new-app --image=<image> [--code=<source>])
-----
ruby
Registry: Docker Hub
Tags: latest

jegan@tektutor.org ➤

```

## Lab - Deploying nginx in declarative style

```

oc delete project jegan
oc new-project jegan
oc create deployment nginx --image=bitnami/nginx:1.18 --replicas=3 -o yaml
--dry-run=client
oc create deployment nginx --image=bitnami/nginx:1.18 --replicas=3 -o yaml
--dry-run=client > nginx-deploy.yml
cat nginx-deploy.yml

```

```
oc create -f nginx-deploy.yml  
oc get deploy,rs,po
```

## Expected output

```
Already on project "jegan" on server "https://api.ocp4.tektutor.org.labs:6443".  
You can add applications to this project with the 'new-app' command. For example, try:  
  oc new-app rails-postgresql-example  
to build a new example application in Ruby. Or use kubectl to deploy a simple Kubernetes application:  
  kubectl create deployment hello-node --image=registry.k8s.io/e2e-test-images/agnhost:2.43 -- /agnhost serve-hostname  
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc create deployment nginx --image=bitnami/nginx:1.18 --replicas=3 -o yaml --dry-run=client  
apiVersion: apps/v1  
kind: Deployment  
metadata:  
  creationTimestamp: null  
labels:  
  app: nginx  
  name: nginx  
spec:  
  replicas: 3  
  selector:  
    matchLabels:  
      app: nginx  
  strategy: {}  
  template:  
    metadata:  
      creationTimestamp: null  
      labels:  
        app: nginx  
    spec:  
      containers:  
        - image: bitnami/nginx:1.18  
          name: nginx  
          resources: {}  
status: {}  
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts > main >  
creationTimestamp: null  
labels:  
  app: nginx  
spec:  
  containers:  
    - image: bitnami/nginx:1.18  
      name: nginx  
      resources: {}  
status: {}  
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc create deployment nginx --image=bitnami/nginx:1.18 --replicas=3 -o yaml --dry-run=client > nginx-deploy.yml  
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts > main > cat nginx-deploy.yml  
apiVersion: apps/v1  
kind: Deployment  
metadata:  
  creationTimestamp: null  
labels:  
  app: nginx  
  name: nginx  
spec:  
  replicas: 3  
  selector:  
    matchLabels:  
      app: nginx  
  strategy: {}  
  template:  
    metadata:  
      creationTimestamp: null  
      labels:  
        app: nginx  
    spec:  
      containers:  
        - image: bitnami/nginx:1.18  
          name: nginx  
          resources: {}  
status: {}  
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts > main >
```

```
Activities Terminal Jun 26 11:59 jegan@tektutor.org
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  replicas: 3
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.18
          name: nginx
          resources: {}
status: {}
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔ oc create -f nginx-deploy.yml
deployment.apps/nginx created
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔ oc get deploy,rs,po
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/nginx   0/3       3           0           6s
NAME             DESIRED   CURRENT   READY   AGE
replicaset.apps/nginx-566b5879cb   3         3         0         6s
NAME           READY   STATUS      RESTARTS   AGE
pod/nginx-566b5879cb-2t59p   0/1     ContainerCreating   0         6s
pod/nginx-566b5879cb-qh25z   0/1     ContainerCreating   0         6s
pod/nginx-566b5879cb-rsgml   0/1     ContainerCreating   0         6s
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔
Activities Terminal Jun 26 11:59 jegan@tektutor.org
spec:
  replicas: 3
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.18
          name: nginx
          resources: {}
status: {}
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔ oc create -f nginx-deploy.yml
deployment.apps/nginx created
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔ oc get deploy,rs,po
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/nginx   0/3       3           0           6s
NAME             DESIRED   CURRENT   READY   AGE
replicaset.apps/nginx-566b5879cb   3         3         0         6s
NAME           READY   STATUS      RESTARTS   AGE
pod/nginx-566b5879cb-2t59p   0/1     ContainerCreating   0         6s
pod/nginx-566b5879cb-qh25z   0/1     ContainerCreating   0         6s
pod/nginx-566b5879cb-rsgml   0/1     ContainerCreating   0         6s
jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔ oc get po -w
NAME           READY   STATUS      RESTARTS   AGE
nginx-566b5879cb-2t59p   1/1     Running   0          20s
nginx-566b5879cb-qh25z   1/1     Running   0          20s
nginx-566b5879cb-rsgml   1/1     Running   0          20s
^C
x jegan@tektutor.org ~-/openshift-june-2024/Day3/declarative-manifest-scripts ▶ main ➔
```

The screenshot shows the Red Hat OpenShift web console interface. The top navigation bar indicates the URL is <https://console-openshift-console.apps.ocp4.tektutor.org.labs/topology/ns/jegan?view=graph>. The main content area is titled "Topology - Red Hat OpenShift". The left sidebar menu is collapsed, and the "Topology" option is selected. The central area displays a circular icon representing the deployment, with the text "D nginx" below it. A context menu is open over one of the deployment pods, showing options: "Scale up", "Scale down", "Delete", "Edit", "Logs", and "View details".

## Lab - Scale up/down deployment in declarative style

You may edit the `nginx-deploy.yml` and update the replicas from 3 to 5, save it and apply the changes as shown below

```
cat nginx-deploy.yml
oc apply -f nginx-deploy.yml
oc get po
oc get po -w
oc get po
```

## Expected output

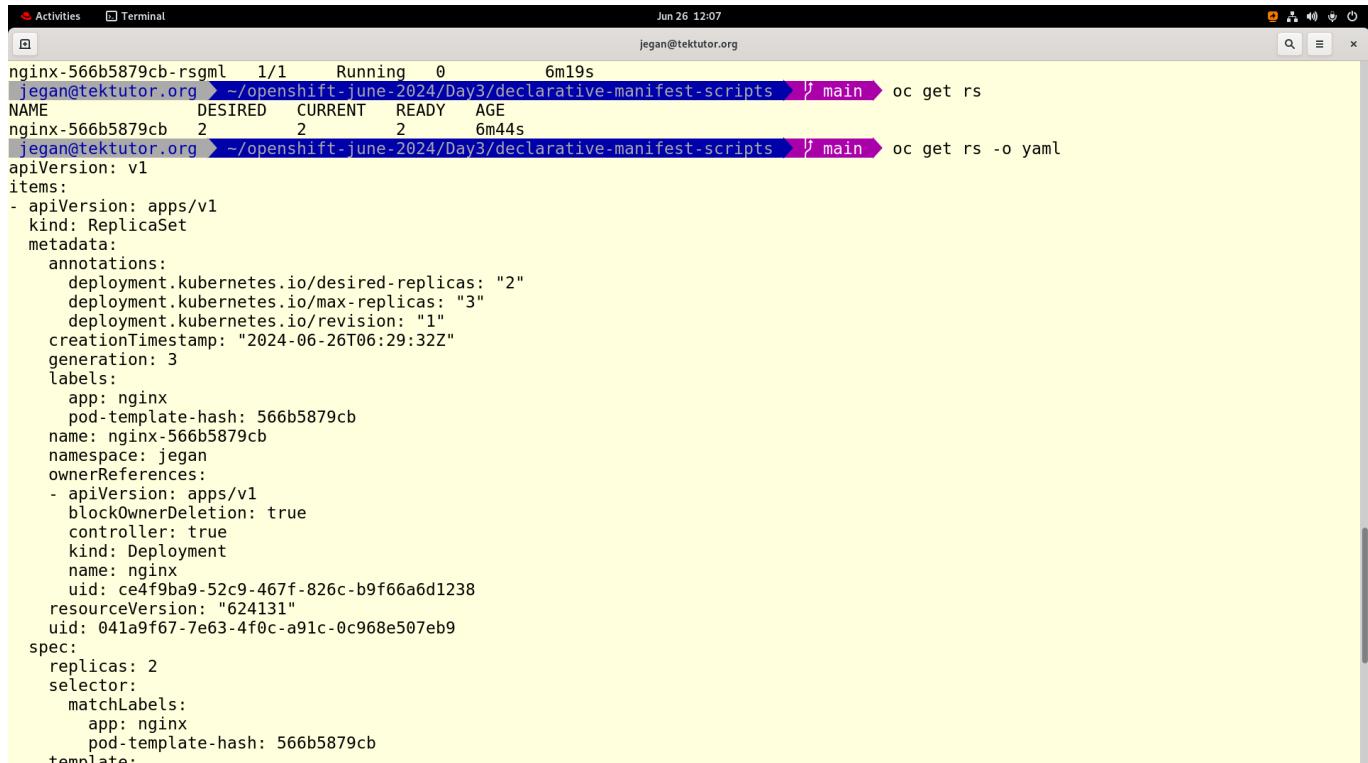
```
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔ oc get po -w
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-2t59p 1/1 Running 0 20s
nginx-566b5879cb-qh25z 1/1 Running 0 20s
nginx-566b5879cb-rsgml 1/1 Running 0 20s
^C%
x jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔ vim nginx-deploy.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔ oc apply -f nginx-deploy.yml
Warning: resource deployments/nginx is missing the kubectl.kubernetes.io/last-applied-configuration annotation which is required by oc apply. oc apply should only be used on resources created declaratively by either oc create --save-config or oc apply. The missing annotation will be patched automatically.
deployment.apps/nginx configured
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔ oc get po
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-2t59p 1/1 Running 0 3m59s
nginx-566b5879cb-8cd7 0/1 ContainerCreating 0 3s
nginx-566b5879cb-jhzxv 0/1 ContainerCreating 0 3s
nginx-566b5879cb-qh25z 1/1 Running 0 3m59s
nginx-566b5879cb-rsgml 1/1 Running 0 3m59s
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔ oc get po -w
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-2t59p 1/1 Running 0 4m1s
nginx-566b5879cb-8cd7 0/1 ContainerCreating 0 5s
nginx-566b5879cb-jhzxv 0/1 ContainerCreating 0 5s
nginx-566b5879cb-qh25z 1/1 Running 0 4m1s
nginx-566b5879cb-rsgml 1/1 Running 0 4m1s
nginx-566b5879cb-jhzxv 1/1 Running 0 11s
nginx-566b5879cb-8cd7 1/1 Running 0 12s
^C%
x jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔ oc get po
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-2t59p 1/1 Running 0 4m11s
nginx-566b5879cb-8cd7 1/1 Running 0 15s
nginx-566b5879cb-jhzxv 1/1 Running 0 15s
nginx-566b5879cb-qh25z 1/1 Running 0 4m11s
nginx-566b5879cb-rsgml 1/1 Running 0 4m11s
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts ⌘ main ➔
```

Lab - Deploying replicaset in declarative style

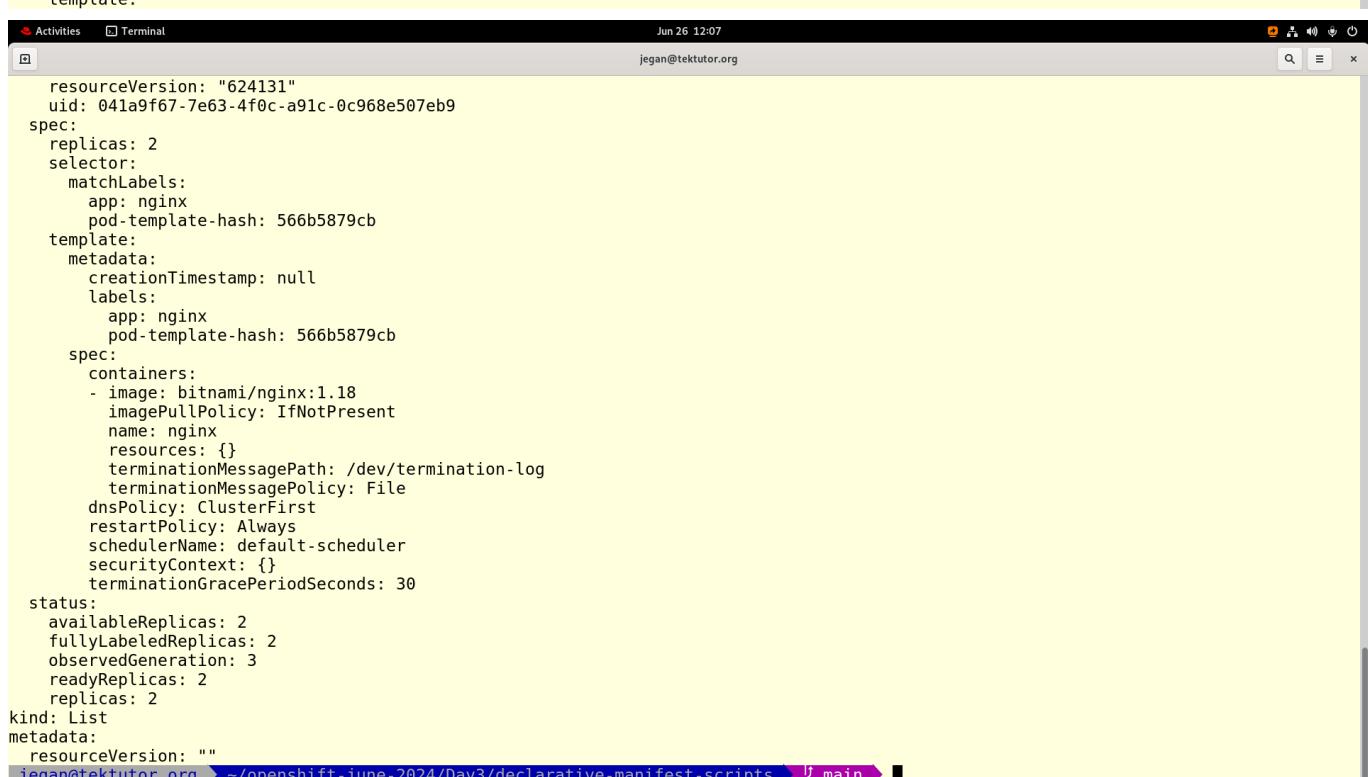
```
oc get rs  
oc get rs -o yaml  
oc get rs -o yaml > nginx-rs.yml  
vim nginx-rs.yml  
cat nginx-rs.yml  
oc create -f nginx-rs.yml
```

```
oc get deploy
oc get rs,po
```

## Expected output



```
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main> oc get rs -o yaml
apiVersion: v1
items:
- apiVersion: apps/v1
  kind: ReplicaSet
  metadata:
    annotations:
      deployment.kubernetes.io/desired-replicas: "2"
      deployment.kubernetes.io/max-replicas: "3"
      deployment.kubernetes.io/revision: "1"
    creationTimestamp: "2024-06-26T06:29:32Z"
    generation: 3
    labels:
      app: nginx
      pod-template-hash: 566b5879cb
    name: nginx-566b5879cb
    namespace: jegan
    ownerReferences:
    - apiVersion: apps/v1
      blockOwnerDeletion: true
      controller: true
      kind: Deployment
      name: nginx
      uid: ce4f9ba9-52c9-467f-826c-b9f66a6d1238
    resourceVersion: "624131"
    uid: 041a9f67-7e63-4f0c-a91c-0c968e507eb9
  spec:
    replicas: 2
    selector:
      matchLabels:
        app: nginx
        pod-template-hash: 566b5879cb
    template:
```

```
resourceVersion: "624131"
uid: 041a9f67-7e63-4f0c-a91c-0c968e507eb9
spec:
  replicas: 2
  selector:
    matchLabels:
      app: nginx
      pod-template-hash: 566b5879cb
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
        pod-template-hash: 566b5879cb
    spec:
      containers:
      - image: bitnami/nginx:1.18
        imagePullPolicy: IfNotPresent
        name: nginx
        resources: {}
        terminationMessagePath: /dev/termination-log
        terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: {}
      terminationGracePeriodSeconds: 30
  status:
    availableReplicas: 2
    fullyLabeledReplicas: 2
    observedGeneration: 3
    readyReplicas: 2
    replicas: 2
kind: List
metadata:
  resourceVersion: ""
```

```

apiVersion: apps/v1
kind: ReplicaSet
metadata:
  labels:
    app: nginx
    pod-template-hash: rs
  name: nginx-rs
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
      pod-template-hash: rs
  template:
    metadata:
      labels:
        app: nginx
        pod-template-hash: rs
    spec:
      containers:
        - image: bitnami/nginx:1.18
          imagePullPolicy: IfNotPresent
          name: nginx

```

"nginx-rs.yaml" 23L, 421B written

```

terminationGracePeriodSeconds: 30
status:
  availableReplicas: 5
  fullyLabeledReplicas: 5
  observedGeneration: 2
  readyReplicas: 5
  replicas: 5
kind: List
metadata:
  resourceVersion: ""
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main
oc get rs -o yaml > nginx-rs.yaml
vim nginx-rs.yaml
cat nginx-rs.yaml

```

```

apiVersion: apps/v1
kind: ReplicaSet
metadata:
  labels:
    app: nginx
    pod-template-hash: rs
  name: nginx-rs
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
      pod-template-hash: rs
  template:
    metadata:
      labels:
        app: nginx
        pod-template-hash: rs
    spec:
      containers:
        - image: bitnami/nginx:1.18
          imagePullPolicy: IfNotPresent
          name: nginx

```

jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main

## Points to note

- Though creating a replicaset without deployment is possible, it is not a best practice
- Without deployment, we won't get self-healing for replicaset, hence if the replicaset is deleted all the pods will be deleted
- the other reason, why this isn't a best practice is, we won't be able to perform rolling update as there is no deployment. Only scale up/down is possible
- Hence, always consider using deployment

## Lab - When to use oc create vs oc apply?

- oc create should be used when the deployment doesn't exist in the cluster already
- once the deployment is created in the cluster, we can't use create anymore, we can only use apply
- apply will update the delta changes done in the yml on the existing deployment resource in the openshift cluster

### Expected output

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main cat nginx-deploy.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: nginx
  name: nginx
spec:
  replicas: 2
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.18
          name: nginx
          resources: {}
status: {}
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main oc get deploy
No resources found in jegan namespace.
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main oc create -f nginx-deploy.yml
deployment.apps/nginx created
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main oc get deploy
NAME READY UP-TO-DATE AVAILABLE AGE
nginx 2/2 2 2 14s
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main oc create -f nginx-deploy.yml
Error from server (AlreadyExists): error when creating "nginx-deploy.yml": deployments.apps "nginx" already exists
x jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $
```

```

Activities Terminal Jun 26 12:12 jegan@tektutor.org
labels:
  app: nginx
  name: nginx
spec:
  replicas: 2
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.18
          name: nginx
          resources: {}
status: {}
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get deploy
No resources found in jegan namespace.
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc create -f nginx-deploy.yml
deployment.apps/nginx created
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get deploy
NAME READY UP-TO-DATE AVAILABLE AGE
nginx 2/2 2 2 14s
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc create -f nginx-deploy.yml
Error from server (AlreadyExists): error when creating "nginx-deploy.yml": deployments.apps "nginx" already exists
x jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc apply -f nginx-deploy.yml
Warning: resource deployments/nginx is missing the kubectl.kubernetes.io/last-applied-configuration annotation which is required by oc apply. oc apply should only be used on resources created declaratively by either oc create --save-config or oc apply. The missing annotation will be patched automatically.
deployment.apps/nginx configured
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc apply -f nginx-deploy.yml
deployment.apps/nginx configured
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > 

Activities Terminal Jun 26 12:14 jegan@tektutor.org
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get deploy
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc create -f nginx-deploy.yml --save-config=true
deployment.apps/nginx created
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > vim nginx-deploy.yml
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get po
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-h8gqm 1/1 Running 0 42s
nginx-566b5879cb-l6hw8 1/1 Running 0 42s
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > cat nginx-deploy.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.18
          name: nginx
          resources: {}
status: {}
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc apply -f nginx-deploy.yml
deployment.apps/nginx configured
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get po
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-9s66d 1/1 Running 0 3s
nginx-566b5879cb-c26lr 1/1 Running 0 3s
nginx-566b5879cb-h8gqm 1/1 Running 0 57s
nginx-566b5879cb-l6hw8 1/1 Running 0 57s
nginx-566b5879cb-m8s9r 1/1 Running 0 3s
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > main > 

```

## Lab - Creating a Pod in declarative style

Delete the existing replicaset and associated pods before proceeding

```

cd ~/openshift-june-2024
git pull
cd Day3/declarative-manifest-scripts
oc delete -f nginx-rs.yml

```

Let's create the pod in declarative style

```
cat my-pod.yml
oc create -f my-pod.yml
oc get po
oc get po -w
```

Expected output

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get rs
NAME DESIRED CURRENT READY AGE
nginx-rs 5 5 5 6m51s
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > oc delete -f nginx-rs.yml
replicaset.apps "nginx-rs" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > vim pod.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > oc apply -f pod.yml
error: unable to decode "pod.yml": Object 'Kind' is missing in '{"apiVersion": "v1", "metadata": {"name": "my-pod"}, "spec": {"containers": [{"image": "bitnami/nginx:latest", "name": "nginx"}]}'>
x jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > vim pod.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > cat pod.yml
apiVersion: v1
kind: Pod
metadata:
  name: my-pod
spec:
  containers:
  - name: nginx
    image: bitnami/nginx:latest
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > oc create -f pod.yml
Warning: would violate PodSecurity "restricted:v1.24": allowPrivilegeEscalation != false (container "nginx" must set securityContext.allowPrivilegeEscalation=false), unrestricted capabilities (container "nginx" must set securityContext.capabilities.drop=["ALL"], runAsNonRoot != true (pod or container "nginx" must set securityContext.runAsNonRoot=true), seccompProfile (pod or container "nginx" must set securityContext.seccompProfile.type to "RuntimeDefault" or "Localhost")>
pod/my-pod created
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get po
NAME READY STATUS RESTARTS AGE
my-pod 0/1 ContainerCreating 0 4s
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main > oc get po -w
NAME READY STATUS RESTARTS AGE
my-pod 1/1 Running 0 7s
^C
x jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts > main >
```

## Lab - Creating clusterip internal service in declarative style

First let's delete any existing deployments, replicsets, pod in declarative style

```
cd ~/openshift-june-2024
git pull
cd Day3/declarative-manifest-scripts
oc delete -f pod.yml
oc delete -f nginx-rs.yml
oc delete -f nginx-deploy.yml
oc get all
```

Let's now create then nginx deployment in declarative style and create a clusterip internal service also in declarative style

```
cd ~/openshift-june-2024
git pull
cd Day3/declarative-manifest-scripts
```

```
oc create -f nginx-deploy.yml
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 create -f nginx-clusterip-svc.yml
oc get svc
oc get describe svc/nginx
```

## Expected output

```
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc delete -f pod.yml
pod "my-pod" deleted
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc get all
Warning: apps.openshift.io/v1 DeploymentConfig is deprecated in v4.14+, unavailable in v4.10000+
No resources found in jegan namespace.
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc create -f nginx-deploy.yml
deployment.apps/nginx created
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc get po
NAME      READY   STATUS    RESTARTS   AGE
nginx-566b5879cb-99npg  1/1     Running   0          4s
nginx-566b5879cb-bkntd  1/1     Running   0          4s
nginx-566b5879cb-k7nk7  1/1     Running   0          4s
nginx-566b5879cb-n5cvg  1/1     Running   0          4s
nginx-566b5879cb-pmhzb  1/1     Running   0          4s
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc expose deploy/nginx --type=ClusterIP --port=8080 -o yaml --dry-run=client
apiVersion: v1
kind: Service
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  ports:
  - port: 8080
    protocol: TCP
    targetPort: 8080
  selector:
    app: nginx
    type: ClusterIP
status:
  loadBalancer: {}
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc expose deploy/nginx --type=ClusterIP --port=8080 -o yaml --dry-run=client > nginx-clusterip-svc.yml
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc apply -f nginx-clusterip-svc.yml
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
nginx     ClusterIP  172.30.71.152  <none>        8080/TCP    2s
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
nginx     ClusterIP  172.30.71.152  <none>        8080/TCP    2s
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main oc describe svc/nginx
Name:            nginx
Namespace:       jegan
Labels:          app=nginx
Annotations:    <none>
Selector:        app=nginx
Type:           ClusterIP
IP Family Policy: SingleStack
IP Families:    IPv4
IP:              172.30.71.152
IPs:             172.30.71.152
Port:            <unset>  8080/TCP
TargetPort:      8080/TCP
Endpoints:      10.128.0.59:8080,10.128.2.22:8080,10.129.0.80:8080 + 2 more...
Session Affinity: None
Events:          <none>
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
```

## Lab - Creating a nodeport external service in declarative style

First we need to delete the nginx clusterip service

```
cd ~/openshift-june-2024
git pull
cd Day3/declarative-manifest-scripts
oc delete -f nginx-clusterip-svc.yml
oc get svc
```

Let's create the nodeport service for existing nginx deployment

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

Expected output

The screenshot shows a terminal window with two tabs. The left tab is titled 'Activities' and the right tab is titled 'Terminal'. The terminal window has a title bar 'jegan@tektutor.org' and a status bar 'Jun 26 12:54'. The terminal content is as follows:

```
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > ls
nginx-clusterip-svc.yml nginx-deploy.yml nginx-rs.yml pod.yml
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > oc delete -f nginx-clusterip-svc.yml
service "nginx" deleted
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > oc get deploy
NAME READY UP-TO-DATE AVAILABLE AGE
nginx 5/5 5 5 15m
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > oc expose deploy/nginx --port=8080 --type=NodePort -o yaml --dry-run=client
apiVersion: v1
kind: Service
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  ports:
  - port: 8080
    protocol: TCP
    targetPort: 8080
  selector:
    app: nginx
    type: NodePort
status:
  loadBalancer: {}
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > oc expose deploy/nginx --port=8080 --type=NodePort -o yaml --dry-run=client > nginx-nodeport-svc.yml
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > oc create -f nginx-nodeport-svc.yml
service/nginx created
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts > oc get svc
NAME      TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)        AGE
nginx   NodePort   172.30.41.187   <none>       8080:31932/TCP   2s
jegan@tektutor.org > ~/openshift-june-2024/Day3/declarative-manifest-scripts >
```

## Lab - Creating a loadbalancer service for existing nginx deployment in declarative style

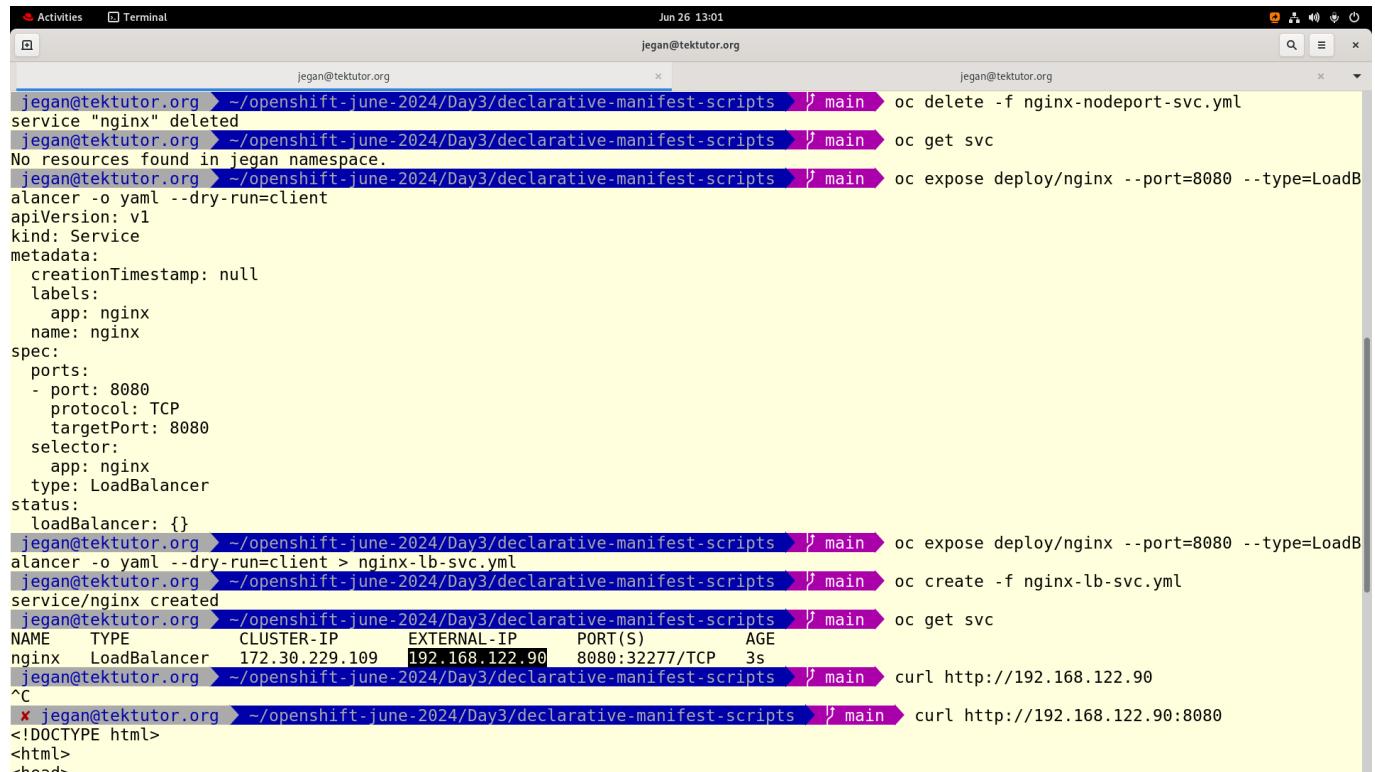
First we need to delete existing nodeport service

```
cd ~/openshift-june-2024
git pull
cd Day3/declarative-manifest-scripts
oc delete -f nginx-nodeport-svc.yml
oc get svc
```

Let's create the loadbalancer service for nginx deployment in declarative style

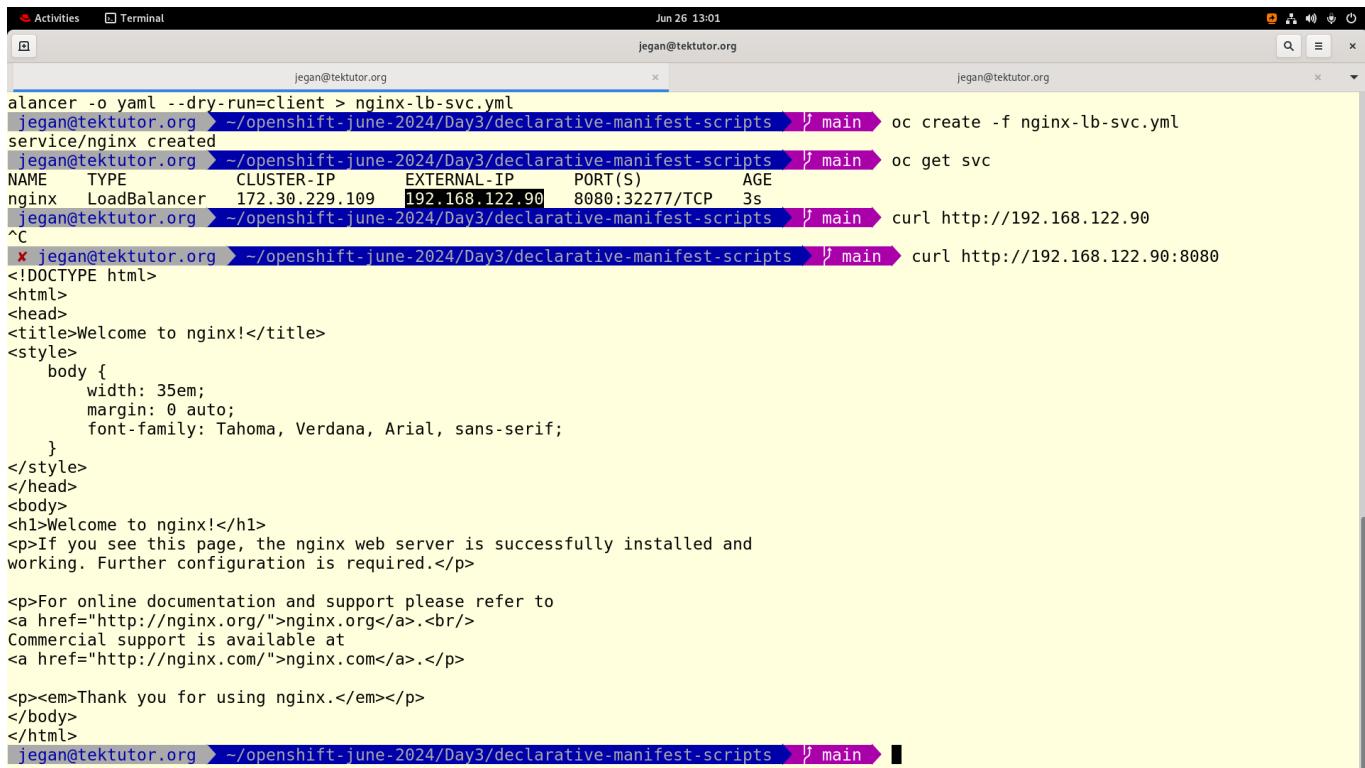
```
cd ~/openshift-june-2024
git pull
cd Day3/declarative-manifest-scripts
oc expose deploy/nginx --port=8080 --type=LoadBalancer -o yaml --dry-run=client
oc expose deploy/nginx --port=8080 --type=LoadBalancer -o yaml --dry-run=client > nginx-lb-svc.yml
oc create -f nginx-lb-svc.yml
oc get svc
curl http://192.168.122.90:8080
```

Expected output



The screenshot shows a terminal window with two tabs: 'Activities' and 'Terminal'. The 'Terminal' tab is active and displays the following command-line session:

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ oc delete -f nginx-nodeport-svc.yml
service "nginx" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ oc get svc
No resources found in jegan namespace.
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
oc expose deploy/nginx --port=8080 --type=LoadBalancer -o yaml --dry-run=client
apiVersion: v1
kind: Service
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  ports:
  - port: 8080
    protocol: TCP
    targetPort: 8080
  selector:
    app: nginx
  type: LoadBalancer
status:
  loadBalancer: {}
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
oc expose deploy/nginx --port=8080 --type=LoadBalancer -o yaml --dry-run=client > nginx-lb-svc.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
oc create -f nginx-lb-svc.yml
service/nginx created
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
oc get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
nginx     LoadBalancer   172.30.229.109   192.168.122.90   8080:32277/TCP   3s
jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
curl http://192.168.122.90
^C
x jegan@tektutor.org ~ /openshift-june-2024/Day3/declarative-manifest-scripts $ main
curl http://192.168.122.90:8080
<!DOCTYPE html>
<html>
<head>
```



```
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc get svc
service/nginx created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc get svc
NAME      TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
nginx    LoadBalancer  172.30.229.109  192.168.122.90  8080:32277/TCP  3s
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ curl http://192.168.122.90:8080
^C
x jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ curl http://192.168.122.90:8080
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
body {
    width: 35em;
    margin: 0 auto;
    font-family: Tahoma, Verdana, Arial, sans-serif;
}
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and working. Further configuration is required.</p>
<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>
<p><em>Thank you for using nginx.</em></p>
</body>
</html>
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main]
```

## Lab - Rolling update in declarative style

```
oc get deploy
oc get po
oc get po/nginx-566b5879cb-pmhzb -o yaml | grep image
cat nginx-deploy.yml| grep image
oc apply -f nginx-deploy.yml
oc get rs
oc rollout status deploy/nginx
oc rollout history deploy/nginx
```

## Expected output

```
jegan@tektutor.org ~/openshift-june-2024 $ main
jegan@tektutor.org ~/openshift-june-2024 $ ls
Day1 Day2 Day3 Day4 Day5 README.md
jegan@tektutor.org ~/openshift-june-2024 $ main
jegan@tektutor.org ~/openshift-june-2024/Day3 $ main
declarative-manifest-scripts README.md
jegan@tektutor.org ~/openshift-june-2024/Day3 $ main
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
nginx-clusterip-svc.yml nginx-deploy.yml nginx-lb-svc.yml nginx-nodeport-svc.yml nginx-rs.yml pod.yml
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
NAME READY UP-TO-DATE AVAILABLE AGE
nginx 5/5 5 5 87m
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-99npg 1/1 Running 0 87m
nginx-566b5879cb-bkntd 1/1 Running 0 87m
nginx-566b5879cb-k7nk7 1/1 Running 0 87m
nginx-566b5879cb-n5cvg 1/1 Running 0 87m
nginx-566b5879cb-pmhzb 1/1 Running 0 87m
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
oc get po/nginx-566b5879cb-pmhzb -o yaml | grep image
- image: bitnami/nginx:1.18
  imagePullPolicy: IfNotPresent
imagePullSecrets:
  image: docker.io/bitnami/nginx:1.18
  imageID: docker.io/bitnami/nginx@sha256:6b998c3c1a9e411346cff07fe48bcade4ab4775130da80efc00d223dfe03ce0b
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
jegan@tektutor.org ~/openshift-june-2024/Day3/declarative-manifest-scripts $ main
```

```
apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: nginx
  name: nginx
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.19
          name: nginx
          resources: {}
status: {}
```

"nginx-deploy.yml" 24L, 397B written

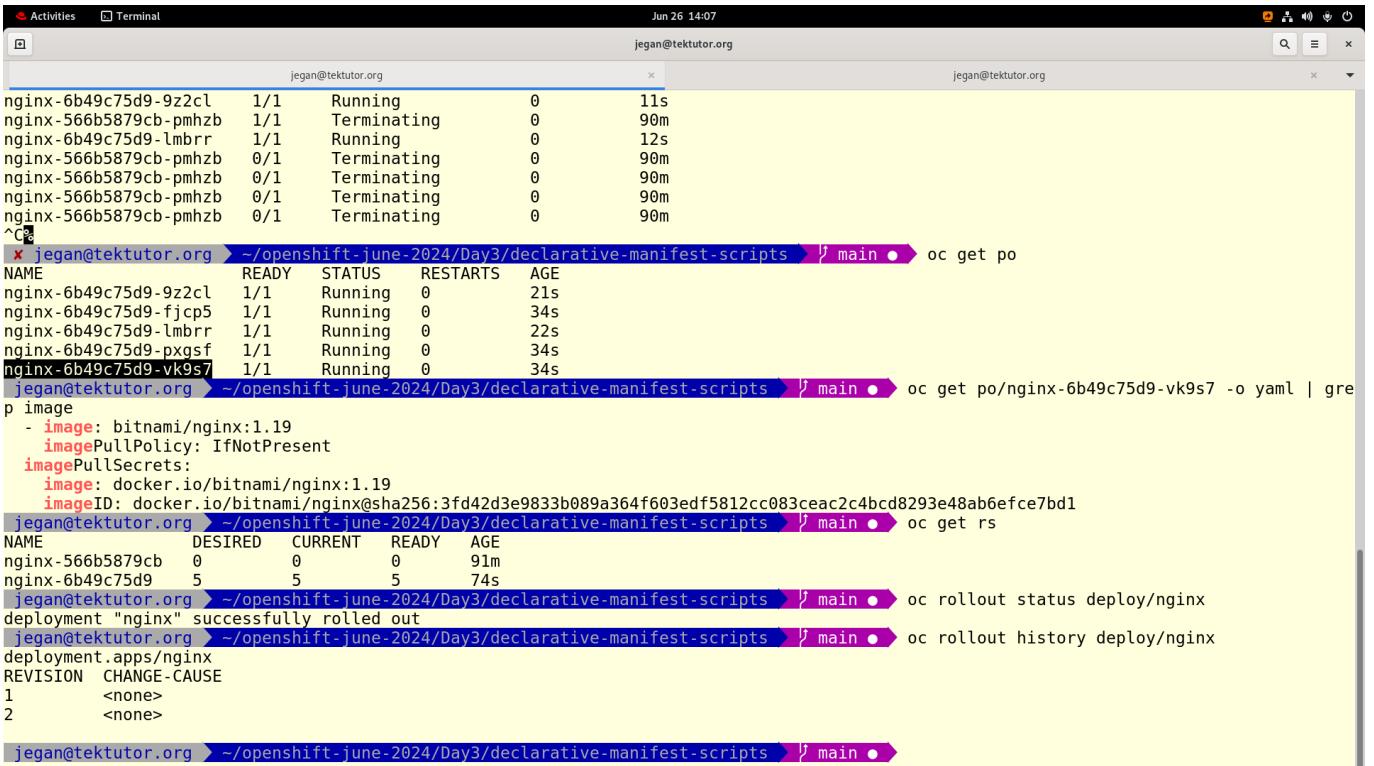
21,33

All

```

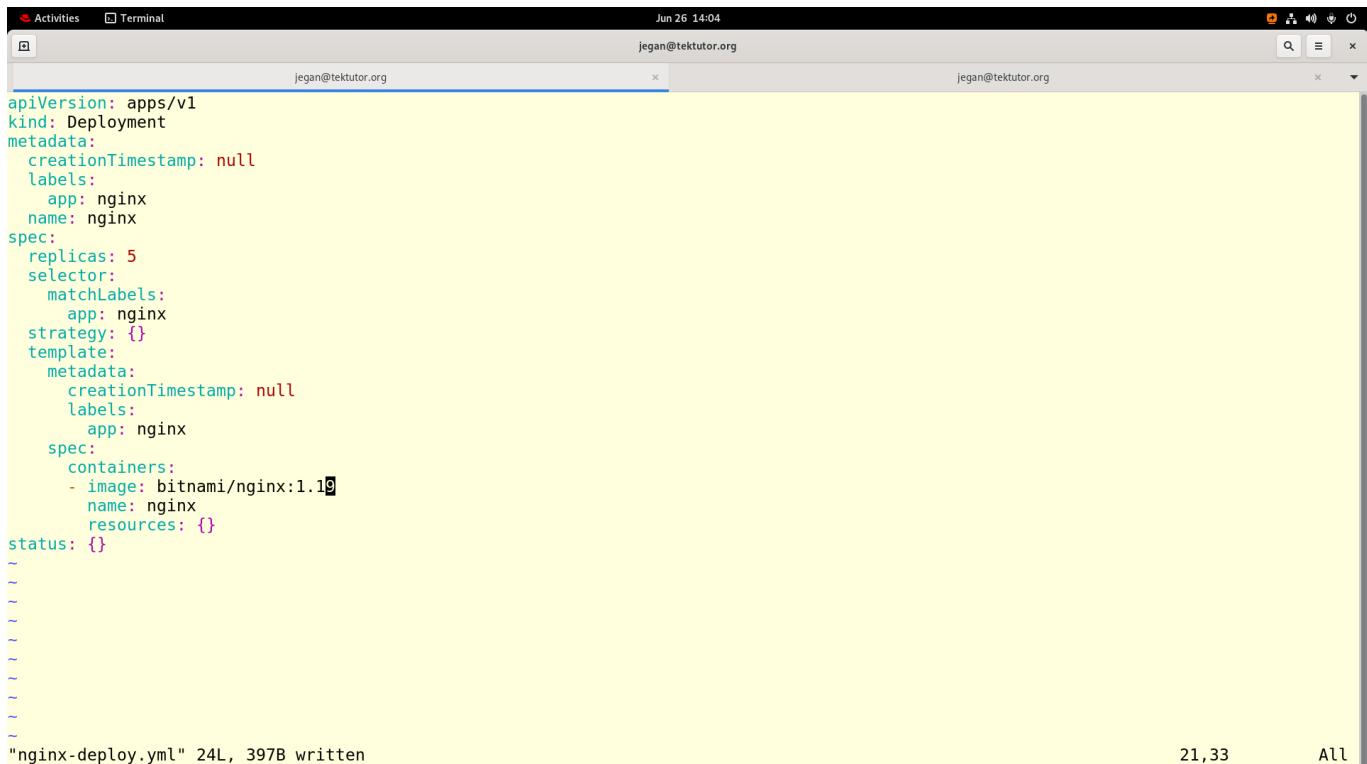
Activities Terminal Jun 26 14:06 jegan@tektutor.org
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > oc get po/nginx-566b5879cb-pmhzb -o yaml | grep image
image
- image: bitnami/nginx:1.18
  imagePullPolicy: IfNotPresent
imagePullSecrets:
  image: docker.io/bitnami/nginx:1.18
  imageID: docker.io/bitnami/nginx@sha256:6b998c3c1a9e411346cff07fe48bcade4ab4775130da80efc00d223dfe03ce0b
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > vim nginx-deploy.yml
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > cat nginx-deploy.yml | grep image
- image: bitnami/nginx:1.19
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > oc apply -f nginx-deploy.yml
Warning: resource deployments/nginx is missing the kubectl.kubernetes.io/last-applied-configuration annotation which is required by oc apply. oc apply should only be used on resources created declaratively by either oc create --save-config or oc apply. The missing annotation will be patched automatically.
deployment.apps/nginx configured
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > oc get po -w
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-99npg 1/1 Running 0 90m
nginx-566b5879cb-bkntd 1/1 Running 0 90m
nginx-566b5879cb-k7nk7 1/1 Running 0 90m
nginx-566b5879cb-pmhzb 1/1 Running 0 90m
nginx-6b49c75d9-fjcp5 0/1 ContainerCreating 0 3s
nginx-6b49c75d9-pxgsf 0/1 ContainerCreating 0 3s
nginx-6b49c75d9-vk9s7 0/1 ContainerCreating 0 3s
nginx-6b49c75d9-vk9s7 1/1 Running 0 12s
nginx-566b5879cb-99npg 1/1 Terminating 0 90m
nginx-6b49c75d9-lmbrr 0/1 Pending 0 0s
nginx-6b49c75d9-lmbrr 0/1 Pending 0 0s
nginx-6b49c75d9-lmbrr 0/1 Pending 0 0s
nginx-6b49c75d9-lmbrr 0/1 ContainerCreating 0 0s
nginx-566b5879cb-99npg 0/1 Terminating 0 90m
nginx-6b49c75d9-fjcp5 1/1 Running 0 13s
nginx-566b5879cb-bkntd 1/1 Terminating 0 90m
nginx-6b49c75d9-9z2cl 0/1 Pending 0 0s
nginx-6b49c75d9-9z2cl 0/1 Pending 0 0s
nginx-6b49c75d9-9z2cl 0/1 Pending 0 0s
^C
Activities Terminal Jun 26 14:07 jegan@tektutor.org
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > oc get po
NAME READY STATUS RESTARTS AGE
nginx-566b5879cb-99npg 0/1 Terminating 0 90m
nginx-566b5879cb-k7nk7 0/1 Terminating 0 90m
nginx-566b5879cb-bkntd 0/1 Terminating 0 90m
nginx-566b5879cb-bkntd 0/1 Terminating 0 90m
nginx-6b49c75d9-9z2cl 0/1 ContainerCreating 0 0s
nginx-6b49c75d9-lmbrr 0/1 ContainerCreating 0 1s
nginx-566b5879cb-k7nk7 0/1 Terminating 0 90m
nginx-566b5879cb-bkntd 0/1 Terminating 0 90m
nginx-566b5879cb-bkntd 0/1 Terminating 0 90m
nginx-566b5879cb-k7nk7 0/1 Terminating 0 90m
nginx-566b5879cb-k7nk7 0/1 Terminating 0 90m
nginx-6b49c75d9-9z2cl 0/1 Running 0 11s
nginx-566b5879cb-pmhzb 0/1 Terminating 0 90m
nginx-6b49c75d9-lmbrr 0/1 Running 0 12s
nginx-566b5879cb-pmhzb 0/1 Terminating 0 90m
nginx-566b5879cb-pmhzb 0/1 Terminating 0 90m
nginx-566b5879cb-pmhzb 0/1 Terminating 0 90m
^C
x jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > oc get po
NAME READY STATUS RESTARTS AGE
nginx-6b49c75d9-9z2cl 1/1 Running 0 21s
nginx-6b49c75d9-fjcp5 1/1 Running 0 34s
nginx-6b49c75d9-lmbrr 1/1 Running 0 22s
nginx-6b49c75d9-pxgsf 1/1 Running 0 34s
nginx-6b49c75d9-vk9s7 1/1 Running 0 34s
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main > oc get po/nginx-6b49c75d9-vk9s7 -o yaml | grep image
image
- image: bitnami/nginx:1.19
  imagePullPolicy: IfNotPresent
imagePullSecrets:
  image: docker.io/bitnami/nginx:1.19
  imageID: docker.io/bitnami/nginx@sha256:3fd42d3e9833b089a364f603edf5812cc083ceac2c4bcd8293e48ab6efce7bd1
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts > \ main >

```



```
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc get po
NAME           READY   STATUS    RESTARTS   AGE
nginx-6b49c75d9-9z2cl  1/1     Running   0          11s
nginx-566b5879cb-pmhzb 1/1     Terminating   0          90m
nginx-6b49c75d9-lmbrr  1/1     Running   0          12s
nginx-566b5879cb-pmhzb 0/1     Terminating   0          90m
^C
x jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc get po
NAME           READY   STATUS    RESTARTS   AGE
nginx-6b49c75d9-9z2cl  1/1     Running   0          21s
nginx-6b49c75d9-fjcp5  1/1     Running   0          34s
nginx-6b49c75d9-lmbrr  1/1     Running   0          22s
nginx-6b49c75d9-pxgsf  1/1     Running   0          34s
nginx-6b49c75d9-vk9s7  1/1     Running   0          34s
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc get po/nginx-6b49c75d9-vk9s7 -o yaml | grep image
- image: bitnami/nginx:1.19
  imagePullPolicy: IfNotPresent
imagePullSecrets:
  image: docker.io/bitnami/nginx:1.19
  imageID: docker.io/bitnami/nginx@sha256:3fd42d3e9833b089a364f603edf5812cc083ceac2c4bcd8293e48ab6efce7bd1
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc get rs
NAME           DESIRED   CURRENT   READY   AGE
nginx-566b5879cb  0         0         0      91m
nginx-6b49c75d9  5         5         5      74s
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc rollout status deploy/nginx
deployment "nginx" successfully rolled out
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $ oc rollout history deploy/nginx
deployment.apps/nginx
REVISION  CHANGE-CAUSE
1          <none>
2          <none>
jegan@tektutor.org ~ -/openshift-june-2024/Day3/declarative-manifest-scripts [main] $
```

## Lab - Declaratively deploying application from Openshift webconsole

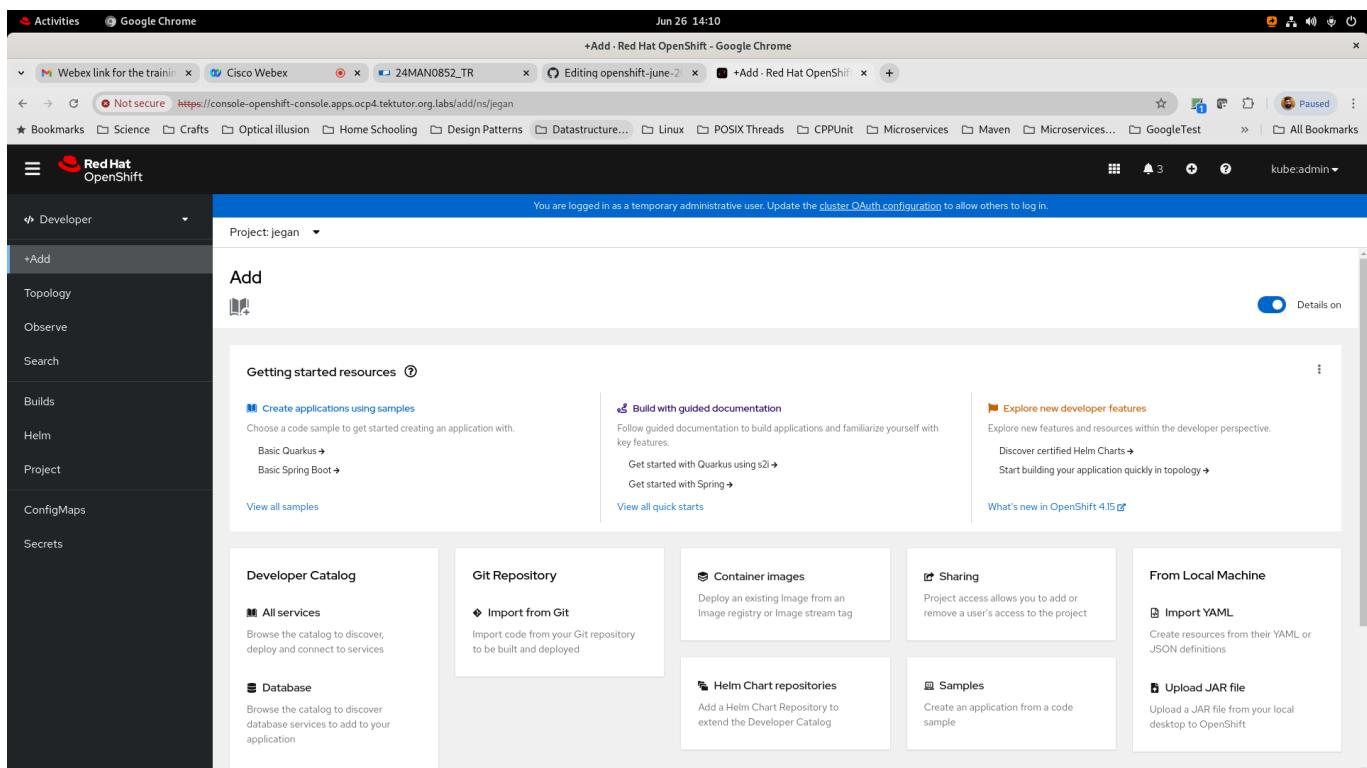


```

apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.10
          name: nginx
          resources: {}
status: {}

```

"nginx-deploy.yml" 24L, 397B written



You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.

## Add

**Getting started resources**

- Create applications using samples**  
Choose a code sample to get started creating an application with.
  - Basic Quarkus →
  - Basic Spring Boot →[View all samples](#)
- Build with guided documentation**  
Follow guided documentation to build applications and familiarize yourself with key features.
  - Get started with Quarkus using s2i →
  - Get started with Spring →[View all quick starts](#)
- Explore new developer features**  
Explore new features and resources within the developer perspective.
  - Discover certified Helm Charts →
  - Start building your application quickly in topology →[What's new in OpenShift 4.15](#)

**Developer Catalog**

- All services**  
Browse the catalog to discover, deploy and connect to services
- Database**  
Browse the catalog to discover database services to add to your application

**Git Repository**

- Import from Git**  
Import code from your Git repository to be built and deployed

**Container images**

- Helm Chart repositories**  
Add a Helm Chart Repository to extend the Developer Catalog

**Sharing**

- Samples**  
Create an application from a code sample

**From Local Machine**

- Import YAML**  
Create resources from their YAML or JSON definitions
- Upload JAR file**  
Upload a JAR file from your local desktop to OpenShift

The screenshot shows two windows side-by-side. The left window is the 'Import YAML' interface in the Red Hat OpenShift console. It has a sidebar with developer tools like Topology, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main area is titled 'Import YAML' with the sub-instruction 'Project: jegan'. A text editor is open with the number '1' at the top left. Below the editor are 'Create' and 'Cancel' buttons. The right window is a terminal window titled 'jegan@tektutor.org' with the command 'jegan@tektutor.org'. The terminal displays a YAML configuration for a Deployment named 'nginx'. The YAML includes fields for apiVersion, kind, metadata, spec (with replicas set to 5), selector, strategy, template, and status. The 'spec' field contains a 'containers' array with one item: a container named 'nginx' using the 'bitnami/nginx:1.19' image. The terminal status bar at the bottom shows the file name 'nginx-deploy.yaml', line count '24L', byte count '397B', and a 'All' filter.

```
apiVersion: apps/v1
kind: Deployment
metadata:
  creationTimestamp: null
  labels:
    app: nginx
    name: nginx
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx
  strategy: {}
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:1.19
          name: nginx
      resources: {}
status: {}
```

```

1 apiVersion: apps/v1
2 kind: Deployment
3 metadata:
4   creationTimestamp: null
5   labels:
6     app: nginx
7     name: nginx
8   spec:
9     replicas: 5
10    selector:
11      matchLabels:
12        app: nginx
13    strategy: {}
14    template:
15      metadata:
16        creationTimestamp: null
17        labels:
18          app: nginx
19      spec:
20        containers:
21          - image: bitnami/nginx:1.19
22            name: nginx
23            resources: {}
24    status: {}

```

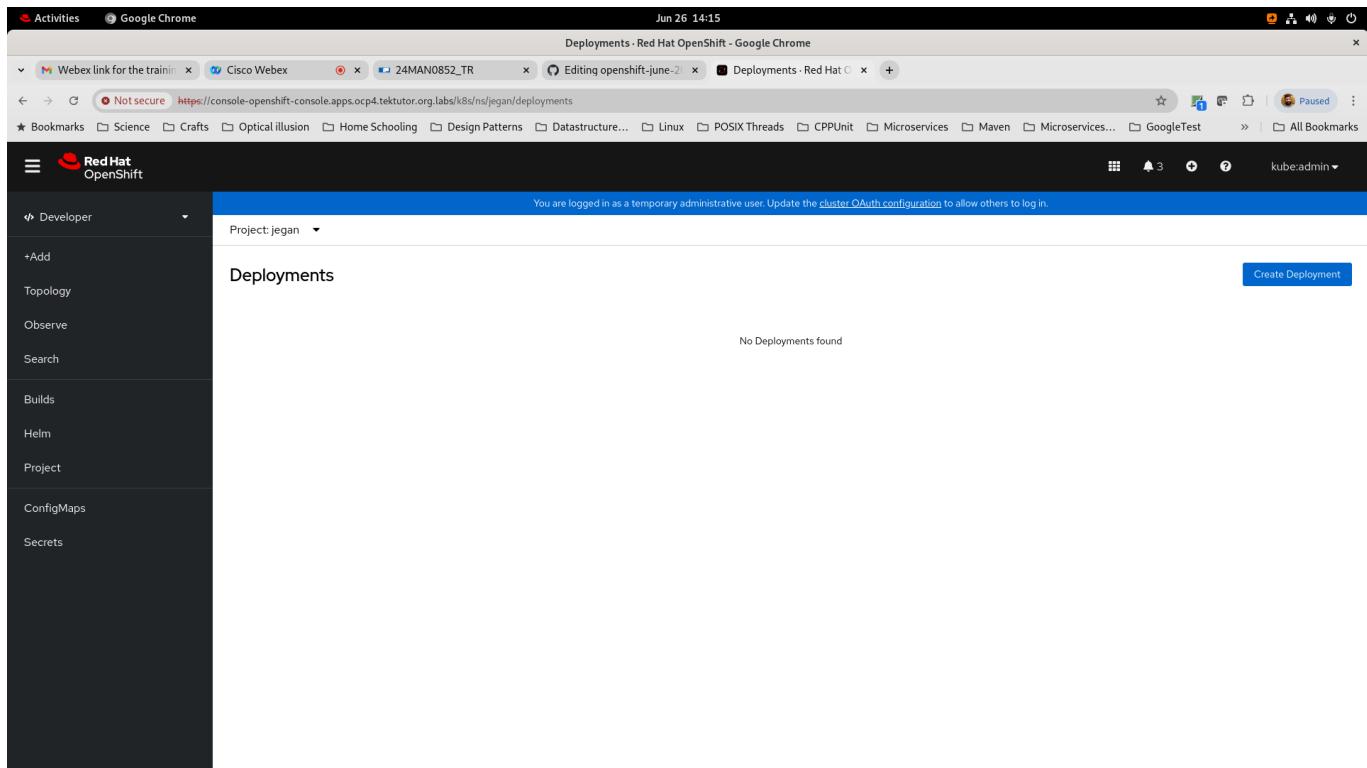
The 'Create' button is visible at the bottom left of the dialog.

| Name                  | Status  | Ready | Restarts | Owner              | Memory  | CPU | Created            |
|-----------------------|---------|-------|----------|--------------------|---------|-----|--------------------|
| nginx-6b49c75d9-46xmf | Running | 1/1   | 0        | RS nginx-6b49c75d9 | 7.0 MiB | -   | 26 Jun 2024, 14:12 |
| nginx-6b49c75d9-cqr2  | Running | 1/1   | 0        | RS nginx-6b49c75d9 | -       | -   | 26 Jun 2024, 14:12 |
| nginx-6b49c75d9-dm74l | Running | 1/1   | 0        | RS nginx-6b49c75d9 | 7.1 MiB | -   | 26 Jun 2024, 14:12 |
| nginx-6b49c75d9-kjnr  | Running | 1/1   | 0        | RS nginx-6b49c75d9 | -       | -   | 26 Jun 2024, 14:12 |
| nginx-6b49c75d9-mdllp | Running | 1/1   | 0        | RS nginx-6b49c75d9 | -       | -   | 26 Jun 2024, 14:12 |

## Lab - Deleting a deployment from openshift webconsole

The screenshot shows the Red Hat OpenShift web console. The URL is <https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/deployments>. The page title is "Deployments - Red Hat OpenShift". The left sidebar shows various project and cluster management options. The main content area is titled "Deployments" and displays a table for the "nginx" deployment. The table includes columns for Name (nginx), Status (5 of 5 pods), and Labels (app=nginx). A context menu is open over the "nginx" row, listing options such as Edit Pod count, Add HorizontalPodAutoscaler, Add PodDisruptionBudget, Pause rollouts, Restart rollout, Add Health Checks, Add storage, Edit update strategy, Edit resource limits, Edit labels, Edit annotations, Edit Deployment, and Delete Deployment.

The screenshot shows the Red Hat OpenShift web console with a modal dialog titled "Delete Deployment?". The dialog asks, "Are you sure you want to delete nginx in namespace jegan?" and includes a checked checkbox for "Delete dependent objects of this resource". Below the dialog are two buttons: "Cancel" and "Delete". The background of the page shows the same "Deployments" list as the previous screenshot, with the "nginx" deployment visible.



## Lab - Deploying mysql with Persistent Volume

### Points to note

- Persistent Volume is an external storage created by System Administrator
- Persistent Volumes can be provisioned by System Administrators
  - Manually ( By defining Persistent Volumes in a yaml file and apply )
  - Dynamically ( Storage Class )
- Persistent Volumes
  - will have a size in MB/GB
  - Will have AccessModes
  - will have Storage Class (optionally)
- Persistent volumes are available for any applications cluster-wide
  
- Application that require external storage will have ask for storage by defining PersistentVolumeClaim
  - Claim will have to mention
  - What is the size required?
  - What is the accessMode required?
  - Storage Class ( optionally )
  - PVC is defined by the development
- Openshift Storage Controller will search the cluster for matching PersistentVolume as per the PersistentVolumeClaim requirement, if it finds a match then, it will let the PVC go and bind the PV and use it any application deployment

```
cd ~/openshift-june-2024  
git pull
```

```
cd Day3/persistent-volume
cat mysql-pv.yml
showmount -e
oc apply -f mysql-pv.yml
oc get persistentvolumes
oc get persistentvolume
oc get pv

cat mysql-pvc.yml
oc apply -f mysql-pvc.yml
oc get persistentvolumeclaims
oc get persistentvolumeclaim
oc get pvc

cat mysql-deploy.yml
oc apply -f mysql-deploy.yml
oc get deploy
oc get po -w
```

## Expected output

```
jegan@tektutor.org > --/openshift-june-2024/Day3/persistent-volume/mysql > main • cat mysql-pv.yml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: mysql-pv-jegan # Replace 'jegan' with your name
  labels:
    name: jegan # Replace 'jegan' with your name
spec:
  capacity:
    storage: 100Mi
  volumeMode: Filesystem
  accessModes:
    - ReadWriteMany
  persistentVolumeReclaimPolicy: Retain
  nfs:
    server: 192.168.1.108 #Replace this IP with your RDP Linux Server IP
    path: /var/nfs/jegan/mysql # Replace this path with your path /var/nfs/user[xy]/mariadb
jegan@tektutor.org > --/openshift-june-2024/Day3/persistent-volume/mysql > main • showmount -e
Export list for tektutor.org:
/var/nfs/jegan/tekton *
/var/nfs/jegan/couchdb *
/var/nfs/jegan/awx *
/var/nfs/jegan/test *
/var/nfs/nfs-storage-class *
/var/nfs/jegan/redis *
/var/nfs/jegan/wordpress *
/var/nfs/jegan/mongodb *
/var/nfs/jegan/mysql *
/var/nfs/jegan/mariadb *
jegan@tektutor.org > --/openshift-june-2024/Day3/persistent-volume/mysql > main • oc apply -f mysql-pv.yml
persistentvolume/mysql-pv-jegan created
jegan@tektutor.org > --/openshift-june-2024/Day3/persistent-volume/mysql > main • oc get pv
NAME          CAPACITY   ACCESS MODES  RECLAIM POLICY  STATUS   CLAIM      STORAGECLASS  REASON  AGE
mysql-pv-jegan  100Mi     RWX        Retain         Available             8s
jegan@tektutor.org > --/openshift-june-2024/Day3/persistent-volume/mysql > main •
```

```
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● oc apply -f mysql-pv.yml
persistentvolume/mysql-pv-jegan created
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● oc get pv
NAME      CAPACITY   ACCESS MODES  RECLAIM POLICY  STATUS   CLAIM   STORAGECLASS  REASON  AGE
mysql-pv-jegan  100Mi      RWX        Retain           Available          8s
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● cat mysql-pvc.yml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: mysql-pvc-jegan # Replace 'jegan' with your name
spec:
  selector:
    matchLabels:
      name: jegan # Replace 'jegan' with your name
  accessModes:
  - ReadWriteMany
  volumeMode: Filesystem
  resources:
    requests:
      storage: 100Mi
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● oc apply -f mysql-pvc.yml
persistentvolumeclaim/mysql-pvc-jegan created
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● oc get pvc
NAME      STATUS   VOLUME      CAPACITY   ACCESS MODES  STORAGECLASS  AGE
mysql-pvc-jegan  Bound   mysql-pv-jegan  100Mi      RWX           3s
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● cat mysql-deploy.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: mysql
  name: mysql
spec:
  replicas: 1
  selector:
    matchLabels:
      app: mysql
mysql-pvc-jegan  Bound   mysql-pv-jegan  100Mi      RWX
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ● cat mysql-deploy.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: mysql
  name: mysql
spec:
  replicas: 1
  selector:
    matchLabels:
      app: mysql
  strategy: {}
  template:
    metadata:
      labels:
        app: mysql
    spec:
      volumes:
      - name: mysql-storage
        persistentVolumeClaim:
          claimName: mysql-pvc-jegan # Replace 'jegan' with your name
      containers:
      - image: bitnami/mysql:latest
        name: mysql
        imagePullPolicy: IfNotPresent
      volumeMounts:
      - name: mysql-storage
        mountPath: /bitnami/mysql/data
      env:
      - name: MYSQL_ROOT_PASSWORD
        value: root@123
jegan@tektutor.org ~ ~/openshift-june-2024/Day3/persistent-volume/mysql > main ●
```

```

Activities Terminal Jun 26 14:35 jegan@tektutor.org
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mysql > main ● oc get deploy,po
NAME READY UP-TO-DATE AVAILABLE AGE
deployment.apps/mysql 1/1 1 1 4s

NAME READY STATUS RESTARTS AGE
pod/mysql-66ff7b7486-mpxj6 1/1 Running 0 4s
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mysql > main ● oc logs -f pod/mysql-66ff7b7486-mpxj6
mysql 09:05:28.54 INFO ==>
mysql 09:05:28.54 INFO ==> Welcome to the Bitnami mysql container
mysql 09:05:28.54 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
mysql 09:05:28.55 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
mysql 09:05:28.55 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
mysql 09:05:28.55 INFO ==>
mysql 09:05:28.55 INFO ==> ** Starting MySQL setup **
mysql 09:05:28.57 INFO ==> Validating settings in MYSQL_*/MARIADB_* env vars
mysql 09:05:28.57 INFO ==> Initializing mysql database
mysql 09:05:28.58 INFO ==> Updating 'my.cnf' with custom configuration
mysql 09:05:28.59 INFO ==> Setting slow_query_log option
mysql 09:05:28.59 INFO ==> Setting long_query_time option
mysql 09:05:28.60 INFO ==> Using persisted data
mysql 09:05:28.63 INFO ==> Running mysql_upgrade
mysql 09:05:28.63 INFO ==> Starting mysql in background
2024-06-26T09:05:28.652031Z 0 [System] [MY-015015] [Server] MySQL Server - start.
2024-06-26T09:05:28.897213Z 0 [System] [MY-010116] [Server] /opt/bitnami/mysql/bin/mysqld (mysqld 8.4.0) starting as process 62
2024-06-26T09:05:28.909109Z 0 [Warning] [MY-000054] [Server] World-writable config file '/bitnami/mysql/data/auto.cnf' is ignored.
2024-06-26T09:05:28.909712Z 0 [Warning] [MY-010107] [Server] World-writable config file '/bitnami/mysql/data/auto.cnf' has been removed.
2024-06-26T09:05:28.910117Z 0 [Warning] [MY-010075] [Server] No existing UUID has been found, so we assume that this is the first time that this server has been started. Generating a new UUID: 3bdd98b9-339b-11ef-86a8-0a580a800219.
2024-06-26T09:05:28.917025Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2024-06-26T09:05:29.311302Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2024-06-26T09:05:29.539094Z 4 [System] [MY-013381] [Server] Server upgrade from '80400' to '80400' started.
2024-06-26T09:05:35.126831Z 4 [System] [MY-013381] [Server] Server upgrade from '80400' to '80400' completed.
2024-06-26T09:05:35.288049Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2024-06-26T09:05:35.288087Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2024-06-26T09:05:35.306962Z 0 [System] [MY-010931] [Server] /opt/bitnami/mysql/bin/mysqld: ready for connections. Version: '8.4.0' socket: '/opt/bitnami/mysql/tmp/mysql.sock' port: 3306 Source distribution.
2024-06-26T09:05:35.563542Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: '/tmp/mysql.sock'
find: '/docker-entrypoint-startdb.d': No such file or directory
mysql 09:05:36.65 INFO ==> Stopping mysql
2024-06-26T09:05:36.654652Z 0 [System] [MY-013172] [Server] Received SHUTDOWN from user <via user signal>. Shutting down mysqld (Version 8.4.0).
2024-06-26T09:05:38.261735Z 0 [System] [MY-010910] [Server] /opt/bitnami/mysql/bin/mysqld: Shutdown complete (mysqld 8.4.0) Source distribution.
2024-06-26T09:05:38.261765Z 0 [System] [MY-015016] [Server] MySQL Server - end.
mysql 09:05:38.67 INFO ==> ** MySQL setup finished! **
```

```

mysql 09:05:38.69 INFO ==> ** Starting MySQL **
2024-06-26T09:05:38.713512Z 0 [System] [MY-015015] [Server] MySQL Server - start.
2024-06-26T09:05:38.951399Z 0 [System] [MY-010116] [Server] /opt/bitnami/mysql/bin/mysqld (mysqld 8.4.0) starting as process 1
2024-06-26T09:05:38.966982Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
2024-06-26T09:05:39.314236Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
2024-06-26T09:05:39.614946Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
2024-06-26T09:05:39.614984Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
2024-06-26T09:05:39.667834Z 0 [System] [MY-010931] [Server] /opt/bitnami/mysql/bin/mysqld: ready for connections. Version: '8.4.0' socket: '/opt/bitnami/mysql/tmp/mysql.sock' port: 3306 Source distribution.
2024-06-26T09:05:39.930117Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: '/tmp/mysql.sock'
```

The screenshot shows the Red Hat OpenShift Topology interface. The left sidebar has a 'Developer' section with '+Add' and several categories: Topology (selected), Observe, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main content area displays a MySQL application. At the top, it says 'Project: jegan Application: All applications'. Below that is a search bar with 'Display options', 'Filter by resource', 'Name', and 'Find by name...'. The MySQL application card features a blue circular icon with a white 'D' and a red 'mysql' logo. It includes tabs for 'Details', 'Resources' (selected), and 'Observe'. Under 'Resources', there's a pod named 'mysql-66ff7b7486-mpxj6' in 'Running' status with a 'View logs' link. The 'Services' tab shows no services found. The 'Routes' tab also shows no routes found.

The screenshot shows the Red Hat OpenShift console interface. The top navigation bar displays the URL "mysql-66ff7b7486-mpxj6 - Pod - Events - Red Hat OpenShift - Google Chrome". The left sidebar contains links for Developer, +Add, Topology, Observe, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main content area is titled "Pods > Pod details" for the pod "mysql-66ff7b7486-mpxj6". The pod status is "Running". The "Events" tab is selected, showing a list of events:

- Streaming events...
- mysql-66ff7b7486-mpxj6 Generated from multus (NS jegan) 26 Jun 2024, 14:35
- Add eth0 [10.128.2.25/23] from ovn-kubernetes
- mysql-66ff7b7486-mpxj6 Generated from kubelet on worker-1c0p4.tektutor.org.labs (NS jegan) 26 Jun 2024, 14:35
- Container image "bitnami/mysql:latest" already present on machine
- mysql-66ff7b7486-mpxj6 Generated from kubelet on worker-1c0p4.tektutor.org.labs (NS jegan) 26 Jun 2024, 14:35
- Created container mysql
- mysql-66ff7b7486-mpxj6 Generated from kubelet on worker-1c0p4.tektutor.org.labs (NS jegan) 26 Jun 2024, 14:35
- Started container mysql
- mysql-66ff7b7486-mpxj6 Generated from default-scheduler (NS jegan) 26 Jun 2024, 14:35
- Successfully assigned jegan/mysql:66ff7b7486-mpxj6 to worker-1c0p4.tektutor.org.labs

```

mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.126831Z 4 [System] [MY-013811] [Server] Server upgrade from '80400' to '80400' completed.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.288049Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-010301] [Server] /opt/bitnami/mysql/bin/mysql: ready for connections. Version: '8.4.0' socket: '/opt/bitnami/mysql/tmp/mysql.sock' port: 33060, socket: '/tmp/mysql.sock'
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-010301] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: '/tmp/mysql.sock'
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-010323] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: '/tmp/mysql.sock'
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-010323] [Server] CA certificate ca.pem is self signed.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-010323] [Server] Received SHUTDOWN from user <via user signal>. Shutting down mysqld (Version: 8.4.0).
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-010323] [Server] /opt/bitnami/mysql/bin/mysql: Shutdown complete (mysqld 8.4.0) Source distribution.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-015016] [Server] MySQL Server - end.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:35.306562Z 0 [System] [MY-015016] [Server] MySQL setup finished!
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:36.65 0 [INFO] => ** Starting MySQL ** 
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:38.713512Z 0 [System] [MY-015015] [Server] MySQL Server - start.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:38.956599Z 0 [System] [MY-010116] [Server] /opt/bitnami/mysql/bin/mysql (mysqld 8.4.0) starting as process 1
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:38.966982Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:39.314236Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:39.614946Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:39.614946Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:39.614946Z 0 [System] [MY-010010] [Server] /opt/bitnami/mysql/bin/mysql: ready for connections. Version: '8.4.0' socket: '/opt/bitnami/mysql/tmp/mysql.sock' port: 33060
mysql-66ff7b7486-mpxj6 2024-06-26T09:05:39.930117Z 0 [System] [MY-011123] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: '/tmp/mysql.sock'

```

Activities Terminal Jun 26 14:46 jegan@tektutor.org jegan@tektutor.org

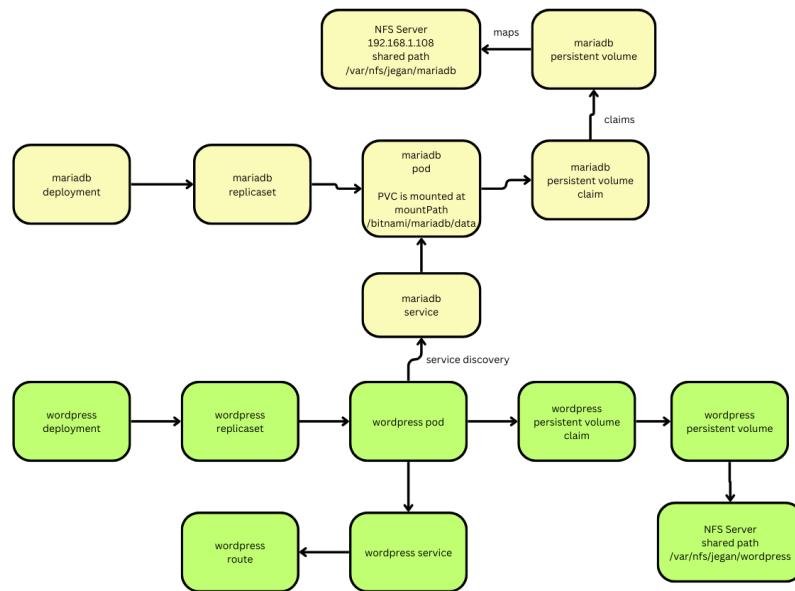
```

jegan@tektutor.org ~-/openshift-june-2024 main git config credential.helper store
jegan@tektutor.org ~-/openshift-june-2024 main sudo -i
[sudo] password for jegan:
[root@tektutor.org ~]# cd /var/nfs/jegan/mysql/
[root@tektutor.org mysql]# ls -lha
total 107M
drwxrwxrwx. 8 nobody nobody 4.0K Jun 26 14:35 .
drwxrwxrwx. 14 nobody nobody 186 Jun 19 12:15 ..
-rw-r----- 1 1000780000 root 56 Jun 26 14:35 auto.cnf
-rw-r----- 1 nobody nobody 2.0K May 29 15:41 binlog.000001
-rw-r----- 1 nobody nobody 181 May 29 15:42 binlog.000002
-rw-r----- 1 nobody nobody 533K May 29 15:58 binlog.000003
-rw-r----- 1 1000780000 root 181 Jun 26 14:35 binlog.000004
-rw-r----- 1 1000780000 root 158 Jun 26 14:35 binlog.000005
-rw-r----- 1 1000780000 root 80 Jun 26 14:35 binlog.index
-rw-r----- 1 nobody nobody 1.7K May 29 15:41 ca-key.pem
-rw-r----- 1 nobody nobody 1.1K May 29 15:41 ca.pem
-rw-r----- 1 nobody nobody 1.1K May 29 15:41 client-cert.pem
-rw-r----- 1 nobody nobody 1.7K May 29 15:41 client-key.pem
-rw-r----- 1 nobody nobody 6.0M Jun 26 14:37 #ib_16384_0.iblwr'
-rw-r----- 1 nobody nobody 14M Jun 26 14:35 #ib_16384_1.iblwr'
-rw-r----- 1 1000780000 root 8.7K Jun 26 14:35 ib_buffer_pool
-rw-r----- 1 nobody nobody 12M Jun 26 14:35 ibdata1
-rw-r----- 1 1000780000 root 12M Jun 26 14:35 ibtmp1
drwxrwxrwx 2 nobody nobody 4.0K Jun 26 14:35 #innodb_redo
drwxrwxrwx 2 nobody nobody 187 Jun 26 14:35 #innodb_temp
drwxrwxrwx 2 nobody nobody 143 Jun 26 14:35 ibmdl
-rw-r----- 1 nobody nobody 30M Jun 26 14:35 mysql.ibd
-rw-r----- 1 nobody nobody 124 May 29 15:41 mysql_upgrade_history
drwxrwxrwx 2 nobody nobody 8.0K May 29 15:41 performance_schema
-rw-r----- 1 nobody nobody 1.7K May 29 15:41 private_key.pem
-rw-r----- 1 nobody nobody 452 May 29 15:41 public_key.pem
-rw-r----- 1 nobody nobody 1.1K May 29 15:41 server-cert.pem
-rw-r----- 1 nobody nobody 1.7K May 29 15:41 server-key.pem
drwxrwxrwx 2 nobody nobody 28 May 29 15:41 iis
-rw-r----- 1 nobody nobody 16M Jun 26 14:37 undo_001
-rw-r----- 1 nobody nobody 16M Jun 26 14:37 undo_002
drwxrwxrwx 2 nobody nobody 4.0K May 29 15:41 wordpress
[root@tektutor.org mysql]# pwd
/var/nfs/jegan/mysql
[root@tektutor.org mysql]#

```

## Lab - Deploying wordpress and mariadb multi-pod application in declarative style

## Wordpress & Mariadb Deployment



```

cd ~/openshift-june-2024
git pull
cd Day3/persistent-volume/wordpress
oc apply -f mariadb-pv.yml
oc apply -f mariadb-pvc.yml
oc apply -f mariadb-deploy.yml
oc apply -f mariadb-svc.yml

oc apply -f wordpress-pv.yml
oc apply -f wordpress-pvc.yml
oc apply -f wordpress-deploy.yml
oc apply -f wordpress-svc.yml
oc apply -f wordpress-route.yml

oc get po
oc logs mariadb-5b9895469b-mqhbl
oc logs wordpress-98c9cb676-k7hvk

oc get route

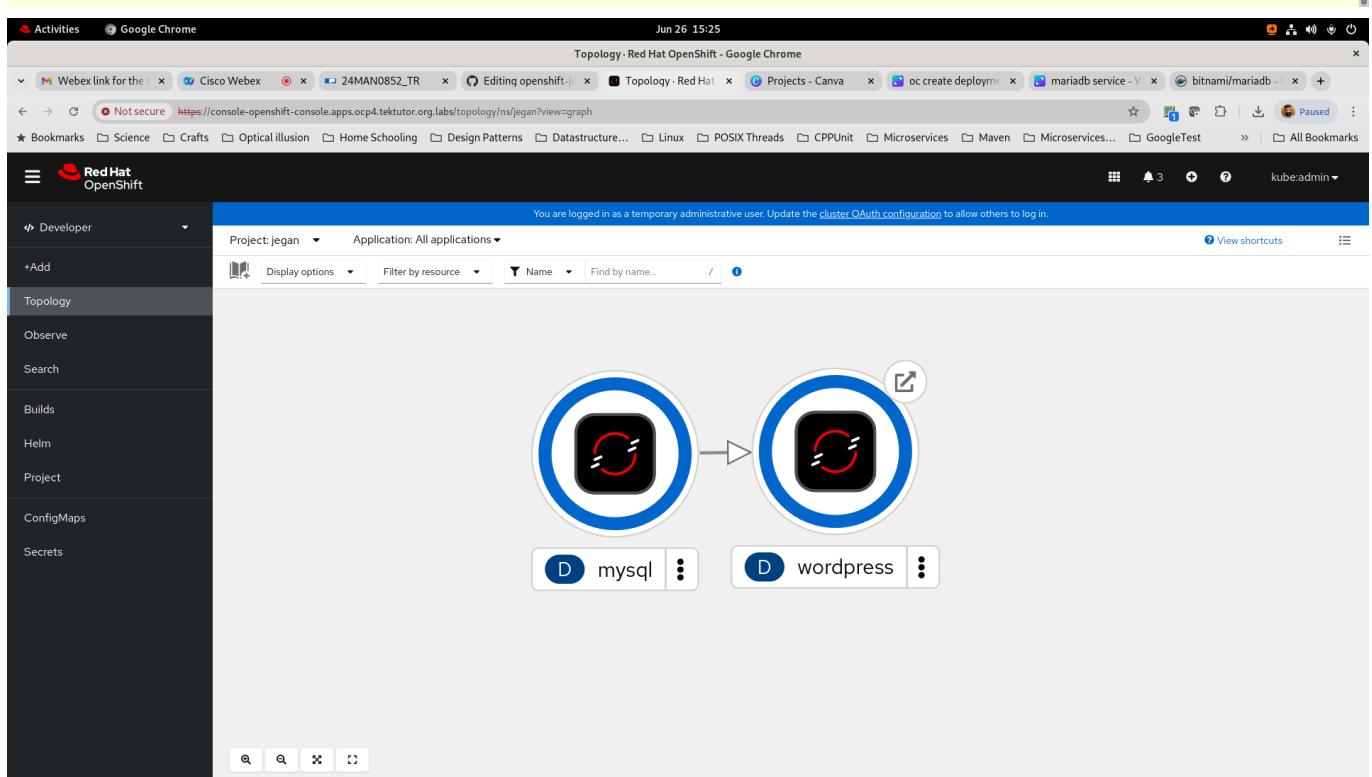
```

## Expected output

```

Activities Terminal Jun 26 15:29
jegan@tektutor.org
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> ls
mariadb-deploy.yml mariadb-pv.yml wordpress-deploy.yml wordpress-pv.yml wordpress-svc.yml
mariadb-pvc.yml mariadb-svc.yml wordpress-pvc.yml wordpress-route.yml
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f mariadb-pv.yml
persistentvolume/mariadb-pv-jegan created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f mariadb-pvc.yml
persistentvolumeclaim/mariadb-pvc-jegan created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f mariadb-deploy.yml
deployment.apps/mariadb created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f mariadb-svc.yml
service/mariadb created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f wordpress-pv.yml
persistentvolume/wordpress-pv-jegan created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f wordpress-pvc.yml
persistentvolumeclaim/wordpress-pvc-jegan created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f wordpress-deploy.yml
deployment.apps/wordpress created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f wordpress-svc.yml
service/wordpress created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc apply -f wordpress-route.yml
route.route.openshift.io/wordpress created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc get po
NAME READY STATUS RESTARTS AGE
mariadb-5b9895469b-4p5r5 1/1 Running 0 34s
mysql-66ff7b7486-mpxj6 1/1 Running 0 54m
wordpress-98c9cb676-v5w5k 1/1 Running 0 14s
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main> oc get route
NAME HOST/PORT PATH SERVICES PORT TERMINATION WILDCARD
wordpress wordpress-jegan.apps.ocp4.tektutor.org.labs wordpress 8080 None
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress > main>

```



Once you are done with the lab exercise, you may delete the wordpress and mariadb in the reverse order

```

cd ~/openshift-june-2024
git pull
cd Day3/persistent-volume/wordpress
oc delete -f wordpress-route.yml
oc delete -f wordpress-svc.yml
oc delete -f wordpress-deploy.yml
oc delete -f wordpress-pvc.yml
oc delete -f wordpress-pv.yml

```

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

## Expected output

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > ls
mariadb-deploy.yml mariadb-pv.yml wordpress-deploy.yml wordpress-pv.yml wordpress-svc.yml
mariadb-pvc.yml mariadb-svc.yml wordpress-pvc.yml wordpress-route.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > ls -l
total 36
-rw-r--r-- 1 jegan jegan 744 Jun 26 15:16 mariadb-deploy.yml
-rw-r--r-- 1 jegan jegan 304 Jun 26 15:06 mariadb-pvc.yml
-rw-r--r-- 1 jegan jegan 472 Jun 26 15:06 mariadb-pv.yml
-rw-r--r-- 1 jegan jegan 200 Jun 26 15:07 mariadb-svc.yml
-rw-r--r-- 1 jegan jegan 947 Jun 26 15:21 wordpress-deploy.yml
-rw-r--r-- 1 jegan jegan 306 Jun 26 15:08 wordpress-pvc.yml
-rw-r--r-- 1 jegan jegan 478 Jun 26 15:08 wordpress-pv.yml
-rw-r--r-- 1 jegan jegan 199 Jun 26 15:24 wordpress-route.yml
-rw-r--r-- 1 jegan jegan 206 Jun 26 15:14 wordpress-svc.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f wordpress-route.yml
route.route.openshift.io "wordpress" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f wordpress-svc.yml
service "wordpress" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f wordpress-deploy.yml
deployment.apps "wordpress" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f wordpress-pvc.yml
persistentvolumeclaim "wordpress-pvc-jegan" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f wordpress-pv.yml
persistentvolume "wordpress-pv-jegan" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f mariadb-svc.yml
service "mariadb" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f mariadb-deploy.yml
deployment.apps "mariadb" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f mariadb-pvc.yml
persistentvolumeclaim "mariadb-pvc-jegan" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main > oc delete -f mariadb-pv.yml
persistentvolume "mariadb-pv-jegan" deleted
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/wordpress > main >
```

## Lab - Wordpress & Mariadb Multi Pod application fetching values from configmap and secret

### Points to note

- configmap can be used to store environment variables, tools path, etc
- configmap stores them as key-value pair
- the information stored in configmap should be non-sensitive in nature
- in case, you wish to store any sensitive information like password, you can use secret for the same
- secret also internally stores the data in the form of key-value pair just like configmap
- secret won't reveal the value stores
- we need to provide the values as a base64 encoded string

Make sure the wordpress and mysql deployed earlier are deleted before proceeding

```
cd ~/openshift-june-2024
git pull
cd Day3/persistent-volume/wordpress
```

```
oc delete -f wordpress-route.yml  
oc delete -f wordpress-svc.yml  
oc delete -f wordpress-deploy.yml  
oc delete -f wordpress-pvc.yml  
oc delete -f wordpress-pv.yml
```

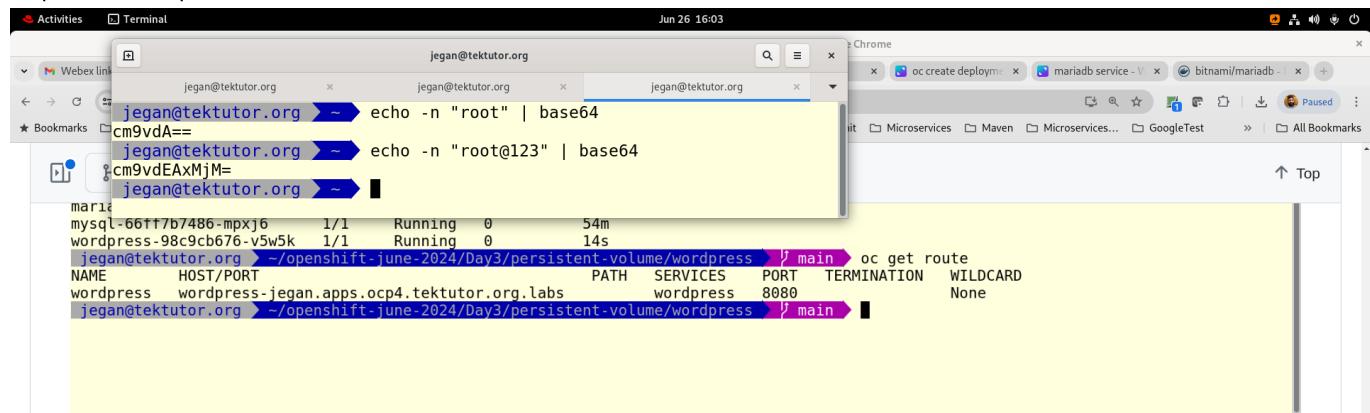
```
oc delete -f mariadb-svc.yml  
oc delete -f mariadb-deploy.yml  
oc delete -f mariadb-pvc.yml  
oc delete -f mariadb-pv.yml
```

```
cd ../mysql  
oc delete -f mysql-deploy.yml  
oc delete -f mysql-pvc.yml  
oc delete -f mysql-pv.yml
```

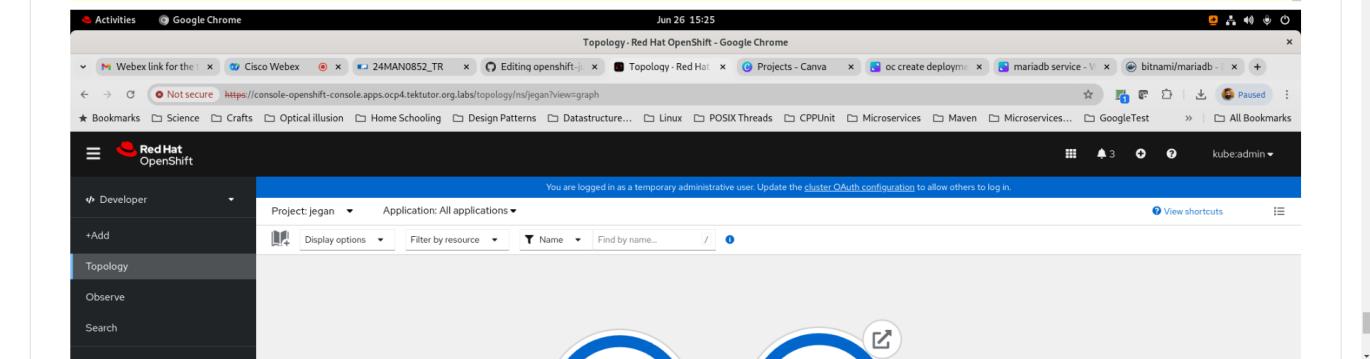
Now you may proceed deploying mariadb and wordpress as shown below

```
cd ~/openshift-june-2024  
git pull  
cd Day3/persistent-volume/wordpress-with-configmap-and-secret  
cat wordpress-cm.yml  
cat wordpress-secret.yml  
cat mariadb-deploy.yml  
cat wordpress-deploy.yml  
  
oc apply -f wordpress-cm.yml  
oc apply -f wordpress-secret.yml  
oc apply -f mariadb-pv.yml  
oc apply -f mariadb-pvc.yml  
oc apply -f mariadb-deploy.yml  
oc apply -f mariadb-svc.yml  
  
oc apply -f wordpress-pv.yml  
oc apply -f wordpress-pvc.yml  
oc apply -f wordpress-deploy.yml  
oc apply -f wordpress-svc.yml  
oc apply -f wordpress-route.yml
```

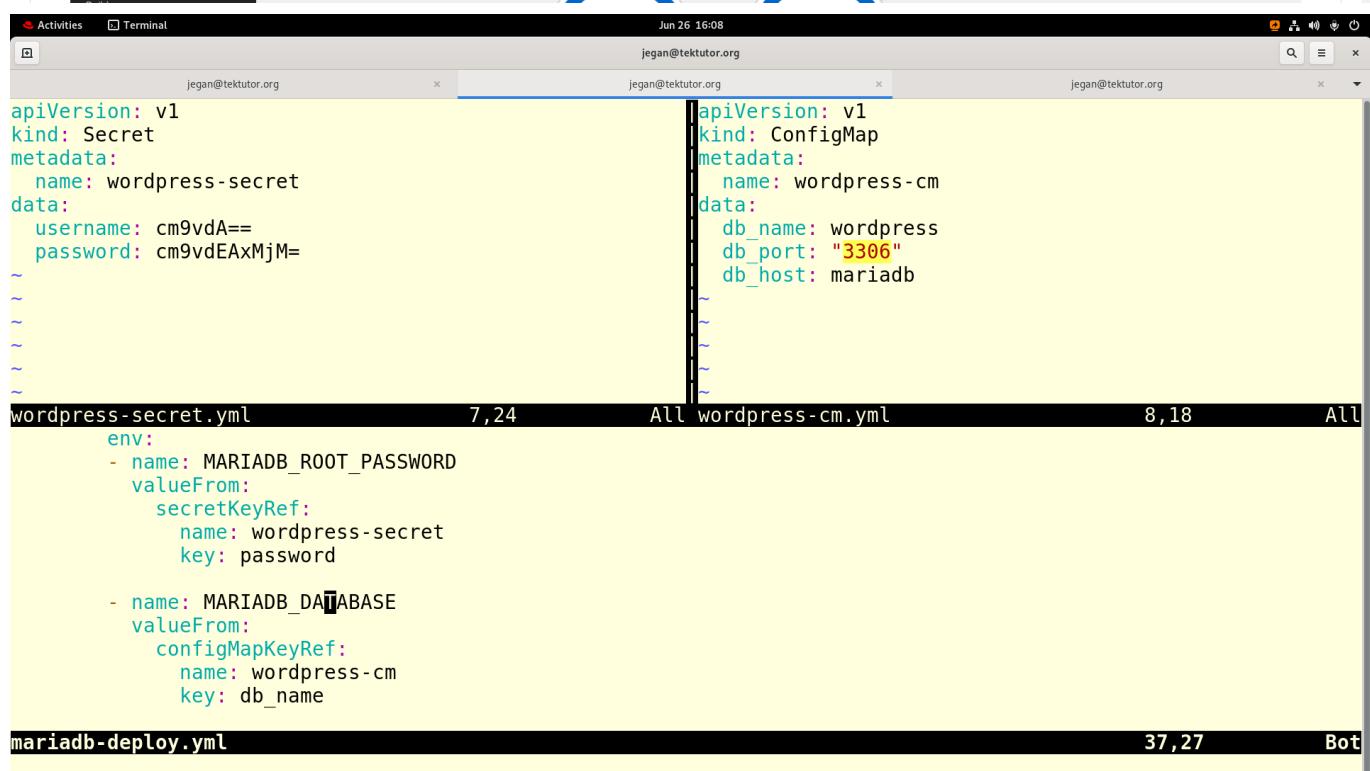
## Expected output



```
jegan@tektutor.org ~$ echo -n "root" | base64
cm9vdA==
jegan@tektutor.org ~$ echo -n "root@123" | base64
cm9vdEAxMjM=
jegan@tektutor.org ~$ mariadb
mysql> SELECT * FROM pod WHERE name = 'wordpress';
+-----+-----+-----+-----+
| NAME | HOST/PORT | PATH | SERVICES | PORT | TERMINATION | WILDCARD |
+-----+-----+-----+-----+
| wordpress | wordpress-jegan.apps.ocp4.tektutor.org.labs | wordpress | 8080 |  | None |
+-----+-----+-----+-----+
jegan@tektutor.org ~$ oc get route
NAME          HOST/PORT        PATH  SERVICES    PORT  TERMINATION   WILDCARD
wordpress     wordpress-jegan.apps.ocp4.tektutor.org.labs  wordpress  8080  None
jegan@tektutor.org ~$
```

The screenshot shows the Red Hat OpenShift Topology interface. The left sidebar has 'Topology' selected. The main area displays a network diagram with nodes and connections, representing the application topology. A message at the top says: 'You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.'

```
apiVersion: v1
kind: Secret
metadata:
  name: wordpress-secret
data:
  username: cm9vdA==
  password: cm9vdEAxMjM=
~
~
~
~
~
```

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: wordpress-cm
data:
  db_name: wordpress
  db_port: "3306"
  db_host: mariadb
~
~
```

| wordpress-secret.yaml         | 7,24 | All | 8,18 | All |
|-------------------------------|------|-----|------|-----|
| env:                          |      |     |      |     |
| - name: MARIADB_ROOT_PASSWORD |      |     |      |     |
| valueFrom:                    |      |     |      |     |
| secretKeyRef:                 |      |     |      |     |
| name: wordpress-secret        |      |     |      |     |
| key: password                 |      |     |      |     |
| - name: MARIADB_DATABASE      |      |     |      |     |
| valueFrom:                    |      |     |      |     |
| configMapKeyRef:              |      |     |      |     |
| name: wordpress-cm            |      |     |      |     |
| key: db_name                  |      |     |      |     |

mariadb-deploy.yaml 37,27

```
jegan@tektutor.org Jun 26 16:09 jegan@tektutor.org Jun 26 16:09 jegan@tektutor.org Jun 26 16:09
apiVersion: v1 kind: Secret metadata: name: wordpress-secret data: username: cm9vdA== password: cm9vdEAxMjM= ~ ~ ~ ~ ~
apiVersion: v1 kind: ConfigMap metadata: name: wordpress-cm data: db_name: wordpress db_port: "3306" db_host: mariadb ~ ~ ~ ~ ~
wordpress-secret.yml 7,24 All wordpress-cm.yml 8,18 All
apiVersion: apps/v1 kind: Deployment metadata: labels: app: wordpress name: wordpress spec: selector: matchLabels: app: wordpress template: metadata: labels:
wordpress-deploy.yml 1,1 Top
"wordpress-secret.yml" 7L, 115B
```

```
jegan@tektutor.org Jun 26 16:09 jegan@tektutor.org Jun 26 16:09 jegan@tektutor.org Jun 26 16:09
apiVersion: v1 kind: Secret metadata: name: wordpress-secret data: username: cm9vdA== password: cm9vdEAxMjM= ~ ~ ~ ~ ~
apiVersion: v1 kind: ConfigMap metadata: name: wordpress-cm data: db_name: wordpress db_port: "3306" db_host: mariadb ~ ~ ~ ~ ~
wordpress-secret.yml 7,24 All wordpress-cm.yml 8,18 All
env:
- name: WORDPRESS_DATABASE_USER
  value: root
- name: WORDPRESS_DATABASE_PASSWORD
  value: root@123
- name: WORDPRESS_DATABASE_NAME
  value: wordpress
- name: WORDPRESS_DATABASE_HOST
  value: mariadb
wordpress-deploy.yml 35,14 93%
```

The screenshot shows three terminal windows side-by-side, all connected to the same host (jegan@tektutor.org) and session (Jun 26 16:11). The windows are titled "wordpress-secret.yml", "wordpress-cm.yml", and "wordpress-deploy.yml".

**wordpress-secret.yml:**

```
apiVersion: v1
kind: Secret
metadata:
  name: wordpress-secret
data:
  username: cm9vdA==
  password: cm9vdEAxMjM=
```

**wordpress-cm.yml:**

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: wordpress-cm
data:
  db_name: wordpress
  db_port: "3306"
  db_host: mariadb
```

**wordpress-deploy.yml:**

```
env:
- name: WORDPRESS_DATABASE_USER
  valueFrom:
    secretKeyRef:
      name: wordpress-secret
      key: username
- name: WORDPRESS_DATABASE_PASSWORD
  valueFrom:
    secretKeyRef:
      name: wordpress-secret
      key: password
```

**wordpress-deploy.yml (Continued):**

```
apiVersion: v1
kind: Secret
metadata:
  name: wordpress-secret
data:
  username: cm9vdA==
  password: cm9vdEAxMjM=
```

**wordpress-cm.yml (Continued):**

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: wordpress-cm
data:
  db_name: wordpress
  db_port: "3306"
  db_host: mariadb
```

**wordpress-deploy.yml (Continued):**

```
- name: WORDPRESS_DATABASE_NAME
  valueFrom:
    configMapKeyRef:
      name: wordpress-cm
      key: db_name
- name: WORDPRESS_DATABASE_HOST
  valueFrom:
    configMapKeyRef:
      name: wordpress-cm
      key: db_host
```

**wordpress-deploy.yml (Final):**

```
47, 26 88%
```

```

apiVersion: v1
kind: Secret
metadata:
  name: wordpress-secret
data:
  username: cm9vdA==
  password: cm9vdEAxMjM=
~  

~  

~  

~  

~  

~  

wordpress-secret.yaml          7,24           All wordpress-cm.yaml      8,18           All
  key: db_name  

    - name: WORDPRESS_DATABASE_HOST
      valueFrom:
        configMapKeyRef:
          name: wordpress-cm
          key: db_host  

    - name: WORDPRESS_DATABASE_PORT_NUMBER
      valueFrom:
        configMapKeyRef:
          name: wordpress-cm
          key: db_port
wordpress-deploy.yaml          57,26          Bot

```

```

Activities Terminal Jun 26 16:14
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ⌘ main ➔ ls -l
total 44
-rw-r--r-- 1 jegan jegan 915 Jun 26 16:08 mariadb-deploy.yaml
-rw-r--r-- 1 jegan jegan 304 Jun 26 15:59 mariadb-pvc.yaml
-rw-r--r-- 1 jegan jegan 472 Jun 26 15:59 mariadb-pv.yaml
-rw-r--r-- 1 jegan jegan 200 Jun 26 15:59 mariadb-svc.yaml
-rw-r--r-- 1 jegan jegan 126 Jun 26 16:00 wordpress-cm.yaml
-rw-r--r-- 1 jegan jegan 1376 Jun 26 16:11 wordpress-deploy.yaml
-rw-r--r-- 1 jegan jegan 306 Jun 26 15:59 wordpress-pvc.yaml
-rw-r--r-- 1 jegan jegan 478 Jun 26 15:59 wordpress-pv.yaml
-rw-r--r-- 1 jegan jegan 199 Jun 26 15:59 wordpress-route.yaml
-rw-r--r-- 1 jegan jegan 115 Jun 26 16:07 wordpress-secret.yaml
-rw-r--r-- 1 jegan jegan 206 Jun 26 15:59 wordpress-svc.yaml
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ⌘ main ➔ cat wordpress-cm.yaml
apiVersion: v1
kind: ConfigMap
metadata:
  name: wordpress-cm
data:
  db_name: wordpress
  db_port: "3306"
  db_host: mariadb
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ⌘ main ➔ cat wordpress-secret.yaml
apiVersion: v1
kind: Secret
metadata:
  name: wordpress-secret
data:
  username: cm9vdA==
  password: cm9vdEAxMjM=
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ⌘ main ➔

```

```
selector:
  matchLabels:
    app: mariadb
strategy: {}
template:
  metadata:
    labels:
      app: mariadb
spec:
  volumes:
    - name: mariadb-storage
      persistentVolumeClaim:
        claimName: mariadb-pvc-jegan # Replace 'jegan' with your name
  containers:
    - image: bitnami/mariadb:latest
      name: mariadb
      imagePullPolicy: IfNotPresent
      volumeMounts:
        - name: mariadb-storage
          mountPath: /bitnami/mariadb/data
  env:
    - name: MARIADB_ROOT_PASSWORD
      valueFrom:
        secretKeyRef:
          name: wordpress-secret
          key: password
    - name: MARIADB_DATABASE
      valueFrom:
        configMapKeyRef:
          name: wordpress-cm
          key: db_name
```

```
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main
```

```
volumeMounts:
  - name: wordpress-storage
    mountPath: /bitnami/wordpress
env:
  - name: WORDPRESS_DATABASE_USER
    valueFrom:
      secretKeyRef:
        name: wordpress-secret
        key: username
  - name: WORDPRESS_DATABASE_PASSWORD
    valueFrom:
      secretKeyRef:
        name: wordpress-secret
        key: password
  - name: WORDPRESS_DATABASE_NAME
    valueFrom:
      configMapKeyRef:
        name: wordpress-cm
        key: db_name
  - name: WORDPRESS_DATABASE_HOST
    valueFrom:
      configMapKeyRef:
        name: wordpress-cm
        key: db_host
  - name: WORDPRESS_DATABASE_PORT_NUMBER
    valueFrom:
      configMapKeyRef:
        name: wordpress-cm
        key: db_port
```

```
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main
```

```

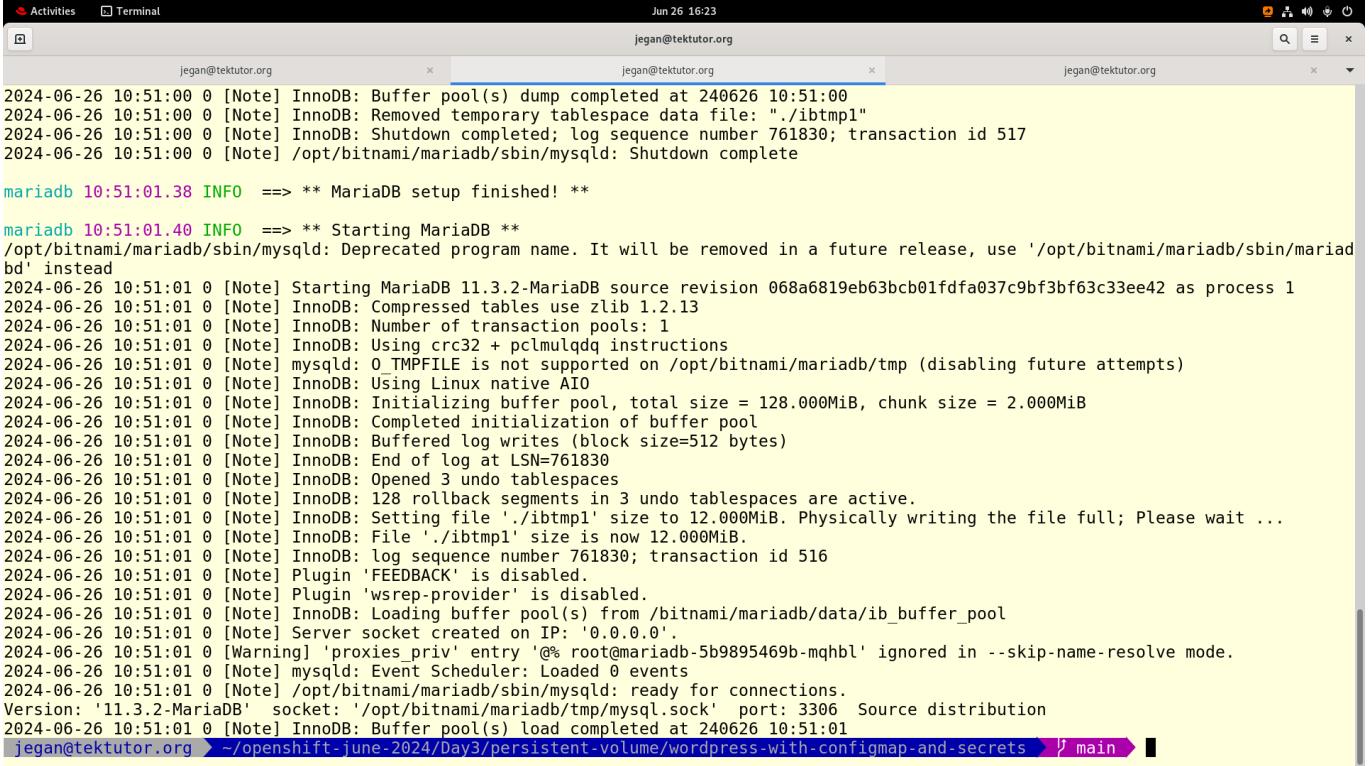
Activities Terminal Jun 26 16:22 jegan@tektutor.org
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main ls -l
total 44
-rw-r--r-- 1 jegan jegan 915 Jun 26 16:08 mariadb-deploy.yml
-rw-r--r-- 1 jegan jegan 304 Jun 26 15:59 mariadb-pvc.yml
-rw-r--r-- 1 jegan jegan 472 Jun 26 15:59 mariadb-pv.yml
-rw-r--r-- 1 jegan jegan 200 Jun 26 15:59 mariadb-svc.yml
-rw-r--r-- 1 jegan jegan 126 Jun 26 16:00 wordpress-cm.yml
-rw-r--r-- 1 jegan jegan 1376 Jun 26 16:11 wordpress-deploy.yml
-rw-r--r-- 1 jegan jegan 306 Jun 26 15:59 wordpress-pvc.yml
-rw-r--r-- 1 jegan jegan 478 Jun 26 15:59 wordpress-pv.yml
-rw-r--r-- 1 jegan jegan 199 Jun 26 15:59 wordpress-route.yml
-rw-r--r-- 1 jegan jegan 115 Jun 26 16:07 wordpress-secret.yml
-rw-r--r-- 1 jegan jegan 206 Jun 26 15:59 wordpress-svc.yml
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-cm.yml
configmap/wordpress-cm created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-secret.yml
secret/wordpress-secret created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f mariadb-pv.yml
persistentvolume/mariadb-pv-jegan created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f mariadb-pvc.yml
persistentvolumeclaim/mariadb-pvc-jegan created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f mariadb-deploy.yml
deployment.apps/mariadb created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f mariadb-svc.yml
service/mariadb created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-pv.yml
persistentvolume/wordpress-pv-jegan created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-pvc.yml
persistentvolumeclaim/wordpress-pvc-jegan created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-deploy.yml
The Deployment "wordpress" is invalid:
* spec.template.spec.containers[0].env[0].valueFrom: Invalid value: "": must specify one of: `fieldRef`, `resourceFieldRef`, `configMapKeyRef` or `secretKeyRef`
* spec.template.spec.containers[0].env[1].valueFrom: Invalid value: "": must specify one of: `fieldRef`, `resourceFieldRef`, `configMapKeyRef` or `secretKeyRef`
* jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main vim wordpress-deploy.yml
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-deploy.yml
deployment.apps/wordpress created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-svc.yml
service/wordpress created
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc apply -f wordpress-route.yml
route route openshift-in/wordpress created

```

```

Activities Terminal Jun 26 16:23 jegan@tektutor.org
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc logs mariadb-54bbf75ddd-jqjns
wordpress-5988f6f6d6-qclld 1/1 Running 0 40s
jegan@tektutor.org ~ -/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets > main oc logs mariadb-54bbf75ddd-jqjns
mariadb 10:50:58.21 INFO ===>
mariadb 10:50:58.22 INFO ===> Welcome to the Bitnami mariadb container
mariadb 10:50:58.22 INFO ===> Subscribe to project updates by watching https://github.com/bitnami/containers
mariadb 10:50:58.22 INFO ===> Submit issues and feature requests at https://github.com/bitnami/containers/issues
mariadb 10:50:58.22 INFO ===> Upgrade to Tanzu Application Catalog for production environments to access custom-configured and pre-packed 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 10:50:58.22 INFO ===>
mariadb 10:50:58.23 INFO ===> ** Starting MariaDB setup **
mariadb 10:50:58.24 INFO ===> Validating settings in MYSQL_* /MARIADB_* env vars
mariadb 10:50:58.25 INFO ===> Initializing mariadb database
mariadb 10:50:58.26 INFO ===> Updating 'my.cnf' with custom configuration
mariadb 10:50:58.26 INFO ===> Setting slow_query_log option
mariadb 10:50:58.27 INFO ===> Setting long_query_time option
mariadb 10:50:58.28 INFO ===> Using persisted data
/opt/bitnami/mariadb/bin/mysql: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/bin/mariadb' instead
/opt/bitnami/mariadb/bin/mysql: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/bin/mariadb' instead
/opt/bitnami/mariadb/bin/mysql: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/bin/mariadb' instead
mariadb 10:50:58.31 INFO ===> Running mysql_upgrade
mariadb 10:50:58.31 INFO ===> Starting mariadb in background
2024-06-26 10:50:58 0 [Note] Starting MariaDB 11.3.2-MariaDB source revision 068a6819eb63bcb01fdfa037c9bf3bf63c33ee42 as process 61
2024-06-26 10:50:58 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-06-26 10:50:58 0 [Note] InnoDB: Number of transaction pools: 1
2024-06-26 10:50:58 0 [Note] InnoDB: Using crc32 + pclmulqdq instructions
2024-06-26 10:50:58 0 [Note] mysqld: _TMPFILE is not supported on /opt/bitnami/mariadb/tmp (disabling future attempts)
2024-06-26 10:50:58 0 [Note] InnoDB: Using Linux native AIO
2024-06-26 10:50:58 0 [Note] InnoDB: Initializing buffer pool, total size = 128.000MiB, chunk size = 2.000MiB
2024-06-26 10:50:58 0 [Note] InnoDB: Completed initialization of buffer pool
2024-06-26 10:50:58 0 [Note] InnoDB: Buffered log writes (block size=512 bytes)
2024-06-26 10:50:59 0 [Note] InnoDB: End of log at 1 SCN=761020

```



```

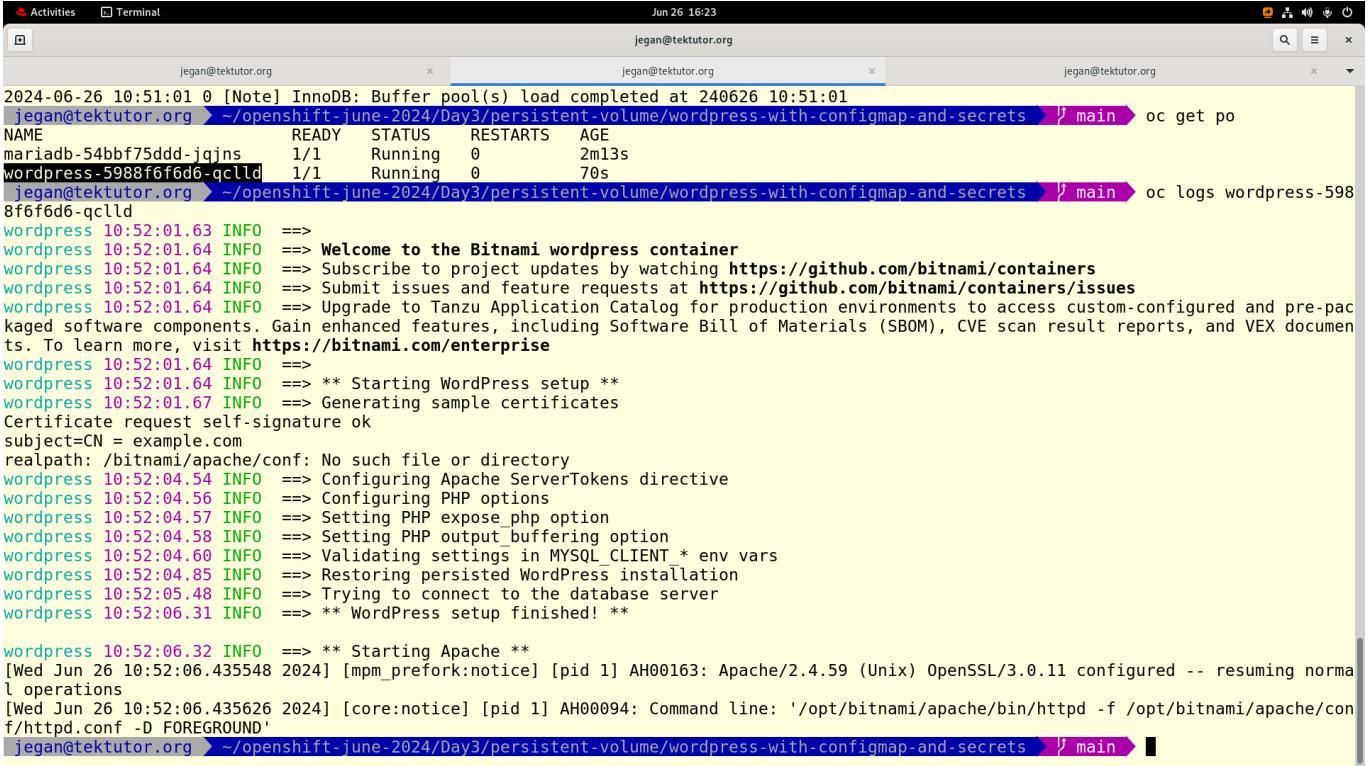
Activities Terminal Jun 26 16:23 jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
2024-06-26 10:51:00 0 [Note] InnoDB: Buffer pool(s) dump completed at 240626 10:51:00
2024-06-26 10:51:00 0 [Note] InnoDB: Removed temporary tablespace data file: "./ibtmp1"
2024-06-26 10:51:00 0 [Note] InnoDB: Shutdown completed; log sequence number 761830; transaction id 517
2024-06-26 10:51:00 0 [Note] /opt/bitnami/mariadb/sbin/mysqld: Shutdown complete

mariadb 10:51:01.38 INFO  ==> ** MariaDB setup finished! **

mariadb 10:51:01.40 INFO  ==> ** Starting MariaDB **

/opt/bitnami/mariadb/sbin/mysqld: Deprecated program name. It will be removed in a future release, use '/opt/bitnami/mariadb/sbin/mariadb' instead
2024-06-26 10:51:01 0 [Note] Starting MariaDB 11.3.2-MariaDB source revision 068a6819eb63cb01fdfa037c9bf3bf63c33ee42 as process 1
2024-06-26 10:51:01 0 [Note] InnoDB: Compressed tables use zlib 1.2.13
2024-06-26 10:51:01 0 [Note] InnoDB: Number of transaction pools: 1
2024-06-26 10:51:01 0 [Note] InnoDB: Using crc32 + pclmulqdq instructions
2024-06-26 10:51:01 0 [Note] mysqld: O_TMPFILE is not supported on /opt/bitnami/mariadb/tmp (disabling future attempts)
2024-06-26 10:51:01 0 [Note] InnoDB: Using Linux native AIO
2024-06-26 10:51:01 0 [Note] InnoDB: Initializing buffer pool, total size = 128.000MiB, chunk size = 2.000MiB
2024-06-26 10:51:01 0 [Note] InnoDB: Completed initialization of buffer pool
2024-06-26 10:51:01 0 [Note] InnoDB: Buffered log writes (block size=512 bytes)
2024-06-26 10:51:01 0 [Note] InnoDB: End of log at LSN=761830
2024-06-26 10:51:01 0 [Note] InnoDB: Opened 3 undo tablespaces
2024-06-26 10:51:01 0 [Note] InnoDB: 128 rollback segments in 3 undo tablespaces are active.
2024-06-26 10:51:01 0 [Note] InnoDB: Setting file './ibtmp1' size to 12.000MiB. Physically writing the file full; Please wait ...
2024-06-26 10:51:01 0 [Note] InnoDB: File './ibtmp1' size is now 12.000MiB.
2024-06-26 10:51:01 0 [Note] InnoDB: Log sequence number 761830; transaction id 516
2024-06-26 10:51:01 0 [Note] Plugin 'FEEDBACK' is disabled.
2024-06-26 10:51:01 0 [Note] Plugin 'wsrep-provider' is disabled.
2024-06-26 10:51:01 0 [Note] InnoDB: Loading buffer pool(s) from /bitnami/mariadb/data/ib_buffer_pool
2024-06-26 10:51:01 0 [Note] Server socket created on IP: '0.0.0.0'.
2024-06-26 10:51:01 0 [Warning] proxies_priv entry '@root@mariadb-5b9895469b-mqhbl' ignored in --skip-name-resolve mode.
2024-06-26 10:51:01 0 [Note] mysqld: Event Scheduler: Loaded 0 events
2024-06-26 10:51:01 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
2024-06-26 10:51:01 0 [Note] InnoDB: Buffer pool(s) load completed at 240626 10:51:01
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ↵ main ➔

```

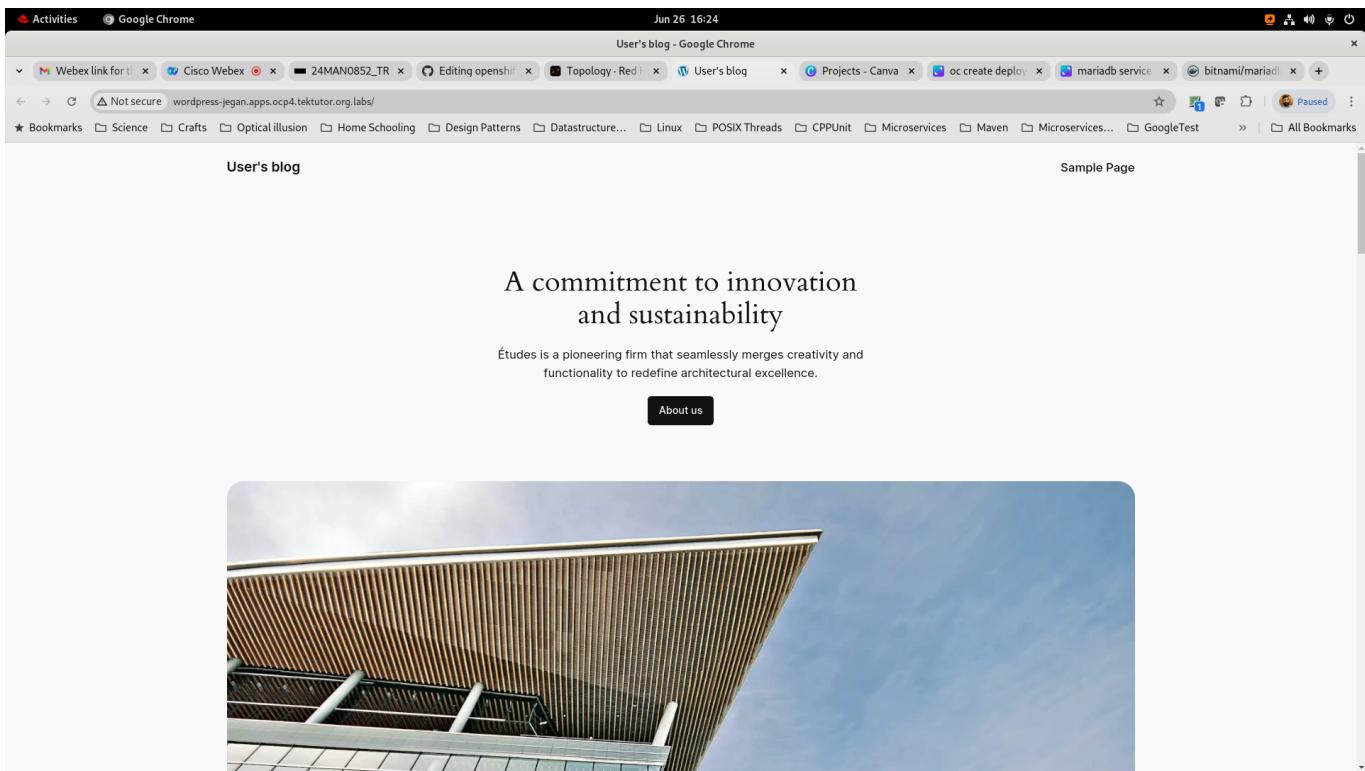
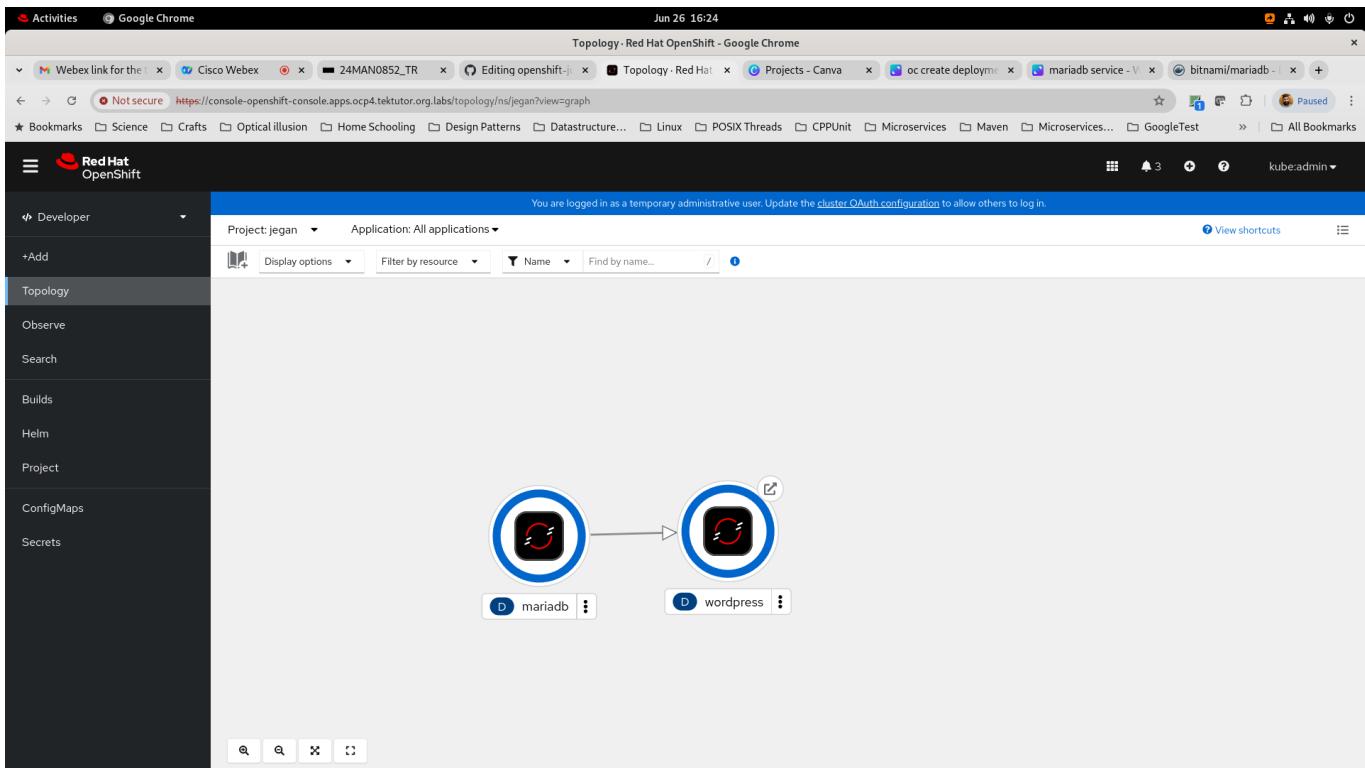


```

Activities Terminal Jun 26 16:23 jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
jegan@tektutor.org
2024-06-26 10:51:01 0 [Note] InnoDB: Buffer pool(s) load completed at 240626 10:51:01
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ↵ main ➔ oc get po
NAME          READY   STATUS    RESTARTS   AGE
mariadb-54bbf75ddd-jqjns   1/1     Running   0          2m13s
wordpress-5988f6f6d6-qclld  1/1     Running   0          70s
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ↵ main ➔ oc logs wordpress-5988f6d6-qclld
wordpress 10:52:01.63 INFO  ==>
wordpress 10:52:01.64 INFO  ==> Welcome to the Bitnami wordpress container
wordpress 10:52:01.64 INFO  ==> Subscribe to project updates by watching https://github.com/bitnami/containers
wordpress 10:52:01.64 INFO  ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
wordpress 10:52:01.64 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
wordpress 10:52:01.64 INFO  ==>
wordpress 10:52:01.64 INFO  ==> ** Starting WordPress setup **
wordpress 10:52:01.67 INFO  ==> Generating sample certificates
Certificate request self-signature ok
subject=CN = example.com
realpath: /bitnami/apache/conf: No such file or directory
wordpress 10:52:04.54 INFO  ==> Configuring Apache ServerTokens directive
wordpress 10:52:04.56 INFO  ==> Configuring PHP options
wordpress 10:52:04.57 INFO  ==> Setting PHP expose_php option
wordpress 10:52:04.58 INFO  ==> Setting PHP output_buffering option
wordpress 10:52:04.60 INFO  ==> Validating settings in MYSQL_CLIENT * env vars
wordpress 10:52:04.85 INFO  ==> Restoring persisted WordPress installation
wordpress 10:52:05.48 INFO  ==> Trying to connect to the database server
wordpress 10:52:06.31 INFO  ==> ** WordPress setup finished! **

wordpress 10:52:06.32 INFO  ==> ** Starting Apache **
[Wed Jun 26 10:52:06.435548 2024] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.59 (Unix) OpenSSL/3.0.11 configured -- resuming normal operations
[Wed Jun 26 10:52:06.435626 2024] [core:notice] [pid 1] AH00094: Command line: '/opt/bitnami/apache/bin/httpd -f /opt/bitnami/apache/conf/httpd.conf -D FOREGROUND'
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/wordpress-with-configmap-and-secrets ↵ main ➔

```



## Lab - Deploying redis with persistent volume

```
cd ~/openshift-june-2024
git pull
cd Day3/persistent-volume/redis
showmount -e
cat redis-pv.yml
cat redis-pvc.yml
cat redis-deploy.yml

oc apply -f redis-pv.yml
```

```
oc apply -f redis-pvc.yml
oc apply -f redis-deploy.yml

oc get po
oc logs redis-c7bf8bd5-xf2ng
```

## Expected output

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~] ls
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~] showmount -e
Export list for tektutor.org:
/var/nfs/jegan/tekton *
/var/nfs/jegan/couchdb *
/var/nfs/jegan/awx *
/var/nfs/jegan/test *
/var/nfs/nfs-storage-class *
/var/nfs/jegan/redis *
/var/nfs/jegan/wordpress *
/var/nfs/jegan/mongodb *
/var/nfs/jegan/mysql *
/var/nfs/jegan/mariadb *

jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~] cat redis-pv.yml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: redis-pv-jegan # Replace 'jegan' with your name
  labels:
    name: jegan # Replace 'jegan' with your name
spec:
  capacity:
    storage: 100Mi
  volumeMode: Filesystem
  accessModes:
    - ReadWriteMany
  persistentVolumeReclaimPolicy: Retain
  nfs:
    server: 192.168.1.108 #Replace this IP with your RDP Linux Server IP
    path: /var/nfs/jegan/redis # Replace this path with your path /var/nfs/user[xy]/mariadb

jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~]
```

```
jegan@tektutor.org ~ /var/nfs/jegan/mysql *
jegan@tektutor.org ~ /var/nfs/jegan/mariadb *
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~] cat redis-pv.yml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: redis-pv-jegan # Replace 'jegan' with your name
  labels:
    name: jegan # Replace 'jegan' with your name
spec:
  capacity:
    storage: 100Mi
  volumeMode: Filesystem
  accessModes:
    - ReadWriteMany
  persistentVolumeReclaimPolicy: Retain
  nfs:
    server: 192.168.1.108 #Replace this IP with your RDP Linux Server IP
    path: /var/nfs/jegan/redis # Replace this path with your path /var/nfs/user[xy]/mariadb

jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~] cat redis-pvc.yml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: redis-pvc-jegan # Replace 'jegan' with your name
spec:
  selector:
    matchLabels:
      name: jegan # Replace 'jegan' with your name
  accessModes:
    - ReadWriteMany
  volumeMode: Filesystem
  resources:
    requests:
      storage: 100Mi

jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/redis [jegan@tektutor.org ~]
```

```

accessModes:
- ReadWriteMany
volumeMode: Filesystem
resources:
  requests:
    storage: 100Mi
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: redis
    name: redis
spec:
  selector:
    matchLabels:
      app: redis
  template:
    metadata:
      labels:
        app: redis
    spec:
      volumes:
        - name: redis-storage
          persistentVolumeClaim:
            claimName: redis-pvc-jegan # Replace 'jegan' with your name
      containers:
        - image: bitnami/redis:latest
          name: redis
          imagePullPolicy: IfNotPresent
      volumeMounts:
        - name: redis-storage
          mountPath: /bitnami/redis/data
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] cat redis-deploy.yml

```

```

mountPath: /bitnami/redis/data
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] oc apply -f redis-pv.yml
persistentvolume/redis-pv-jegan created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] oc apply -f redis-pvc.yml
persistentvolumeclaim/redis-pvc-jegan created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] oc apply -f redis-deploy.yml
deployment.apps/redis created
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] oc get po -w
NAME           READY   STATUS      RESTARTS   AGE
redis-694fd66884-z7m9j  0/1     ContainerCreating   0          2s
redis-694fd66884-z7m9j  0/1     Error       0          10s
redis-694fd66884-z7m9j  0/1     Error       1 (2s ago)  11s
redis-694fd66884-z7m9j  0/1     CrashLoopBackOff  1 (2s ago)  12s
^C
x jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] oc logs redis-694fd66884-z7m9j
redis 11:21:02.16 INFO ==>
redis 11:21:02.16 INFO ==> Welcome to the Bitnami redis container
redis 11:21:02.16 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
redis 11:21:02.16 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
redis 11:21:02.16 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
redis 11:21:02.17 INFO ==>
redis 11:21:02.17 INFO ==> ** Starting Redis setup **
redis 11:21:02.18 ERROR ==> The REDIS_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-june-2024/Day3/persistent-volume/redis > [main] vim redis-deploy.yml
jegan@tektutor.org > ~/openshift-june-2024/Day3/persistent-volume/redis > [main] cat redis-deploy.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: redis
    name: redis
spec:
  selector:

```

```

redis 11:21:02.18 ERROR ==> The REDIS_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-june-2024/Day3/persistent-volume/redis > main > vim redis-deploy.yml
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/redis > main > cat redis-deploy.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: redis
  name: redis
spec:
  selector:
    matchLabels:
      app: redis
  template:
    metadata:
      labels:
        app: redis
    spec:
      volumes:
        - name: redis-storage
          persistentVolumeClaim:
            claimName: redis-pvc-jegan # Replace 'jegan' with your name
      containers:
        - image: bitnami/redis:latest
          name: redis
          imagePullPolicy: IfNotPresent
      env:
        - name: REDIS_PASSWORD
          value: root@123
      volumeMounts:
        - name: redis-storage
          mountPath: /bitnami/redis/data
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/redis > main >

Activities Terminal Jun 26 16:52 jegan@tektutor.org
jegan@tektutor.org >
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/redis > main > oc apply -f redis-deploy.yml
deployment.apps/redis configured
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/redis > main > oc get po -w
NAME READY STATUS RESTARTS AGE
redis-c7bf8bd5-xf2ng 1/1 Running 0 4s
^C
x jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/redis > main > oc logs redis-c7bf8bd5-xf2ng
redis 11:22:01 INFO ==>
redis 11:22:01 INFO ==> Welcome to the Bitnami redis container
redis 11:22:01 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
redis 11:22:01 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
redis 11:22:01 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
redis 11:22:02 INFO ==>
redis 11:22:02 INFO ==> ** Starting Redis setup **
redis 11:22:03 INFO ==> Initializing Redis
redis 11:22:04 INFO ==> Setting Redis config file
redis 11:22:07 INFO ==> ** Redis setup finished! **

redis 11:22:12.08 INFO ==> ** Starting Redis **
1:C 26 Jun 2024 11:22:12.097 * 00000000000 Redis is starting 000000000000
1:C 26 Jun 2024 11:22:12.097 * Redis version=7.2.5, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 26 Jun 2024 11:22:12.097 * Configuration loaded
1:M 26 Jun 2024 11:22:12.097 * monotonic clock: POSIX clock_gettime
1:M 26 Jun 2024 11:22:12.098 * Running mode=standalone, port=6379.
1:M 26 Jun 2024 11:22:12.098 * Server initialized
1:M 26 Jun 2024 11:22:12.102 * Creating AOF base file appendonly.aof.1.base.rdb on server start
1:M 26 Jun 2024 11:22:12.106 * Creating AOF incr file appendonly.aof.1.incr.aof on server start
1:M 26 Jun 2024 11:22:12.106 * Ready to accept connections tcp
jegan@tektutor.org >~/openshift-june-2024/Day3/persistent-volume/redis > main >
```

## Lab - Deploying mongodb with Persistent volume

```

cd ~/openshift-june-2024
git pull
cd Day3/persistent-volume/mongodb
cat mongodb-pv.yml
cat mongodb-pvc.yml
cat mongodb-deploy.yml
oc apply -f mongodb-pv.yml
oc apply -f mongodb-pvc.yml
oc apply -f mongodb-deploy.yml
/
```

```
oc get po -w
oc get po
oc logs
```

## Expected output

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % ls -l
total 12
-rw-r--r-- 1 jegan jegan 649 Jun 26 16:56 mongodb-deploy.yml
-rw-r--r-- 1 jegan jegan 304 Jun 26 16:54 mongodb-pvc.yml
-rw-r--r-- 1 jegan jegan 472 Jun 26 16:54 mongodb-pv.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % cat mongodb-pv.yml
apiVersion: v1
kind: PersistentVolume
metadata:
  name: mongodb-pv-jegan # Replace 'jegan' with your name
  labels:
    name: jegan # Replace 'jegan' with your name
spec:
  capacity:
    storage: 100Mi
  volumeMode: Filesystem
  accessModes:
    - ReadWriteMany
  persistentVolumeReclaimPolicy: Retain
  nfs:
    server: 192.168.1.108 #Replace this IP with your RDP Linu Server IP
    path: /var/nfs/jegan/mongodb # Replace this path with your path /var/nfs/user[xy]/mariadb
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % cat mongodb-pvc.yml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: mongodb-pvc-jegan # Replace 'jegan' with your name
spec:
  selector:
    matchLabels:
      name: jegan # Replace 'jegan' with your name
  accessModes:
    - ReadWriteMany
  volumeMode: Filesystem
  resources:
    requests:
      storage: 100Mi
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb %
```

```
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc apply -f mongodb-pv.yml
persistentvolume/mongodb-pv-jegan created
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc apply -f mongodb-pvc.yml
persistentvolumeclaim/mongodb-pvc-jegan created
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc apply -f mongodb-deploy.yml
error: resource mapping not found for name: "mongodb" namespace: "" from "mongodb-deploy.yml": no matches for kind "Deployment" in version ""
ensure CRDs are installed first
x jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % vim mongodb-deploy.yml
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc apply -f mongodb-deploy.yml
deployment.apps/mongodb created
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc get po
NAME          READY   STATUS    RESTARTS   AGE
mongodb-5bc86db6bf-brv27  0/1   ContainerCreating  0          3s
redis-c7bf8bd5-xf2ng     1/1   Running   0          6m13s
jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc get po -w
NAME          READY   STATUS    RESTARTS   AGE
mongodb-5bc86db6bf-brv27  0/1   ContainerCreating  0          7s
redis-c7bf8bd5-xf2ng     1/1   Running   0          6m17s
mongodb-5bc86db6bf-brv27  1/1   Running   0          22s
^C
x jegan@tektutor.org ~ /openshift-june-2024/Day3/persistent-volume/mongodb % oc logs mongodb-5bc86db6bf-brv27
mongodb 11:28:43.04 INFO ==>
mongodb 11:28:43.04 INFO ==> Welcome to the Bitnami mongodb container
mongodb 11:28:43.04 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
mongodb 11:28:43.04 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
mongodb 11:28:43.04 INFO ==> Upgrade to Tanzu Application Catalog for production environments to access custom-configured and pre-packaged software component
s. Gain enhanced features, including Software Bill of Materials (SBOM), CVE scan result reports, and VEX documents. To learn more, visit https://bitnami.com/e
nterprise
mongodb 11:28:43.04 INFO ==>
mongodb 11:28:43.05 INFO ==> ** Starting MongoDB setup **
mongodb 11:28:43.06 INFO ==> Validating settings in MONGODB_* env vars...
mongodb 11:28:43.11 INFO ==> Initializing MongoDB...
mongodb 11:28:43.17 INFO ==> Deploying MongoDB from scratch...
MongoNetworkError: connect ECONNREFUSED 10.128.2.37:27017
mongodb 11:28:44.20 INFO ==> Creating users...
mongodb 11:28:44.21 INFO ==> Users created
mongodb 11:28:44.22 INFO ==> Enabling authentication...
mongodb 11:28:44.23 INFO ==> Stopping MongoDB...
mongodb 11:28:45.25 TINFO ==> ** MongoDB setup finished! **
```

```

Activities Terminal Jun 26 16:59
jegan@tektutor.org
redis-c7bf8d5-xf2ng 1/1 Running 0 6m17s
mongodb-5bc86db6bf-brv27 1/1 Running 0 22s
^C
* jegan@tektutor.org -> /openshift-june-2024/Day3/persistent-volume/mongodb > \ main > oc logs mongodb-5bc86db6bf-brv27
mongod 11:28:43.04 INFO =>
mongod 11:28:43.04 INFO => Welcome to the Bitnami mongodb container
mongod 11:28:43.04 INFO => Subscribe to project updates by watching https://github.com/bitnami/containers
mongod 11:28:43.04 INFO => Submit issues and feature requests at https://github.com/bitnami/containers/issues
mongod 11:28:43.04 INFO => Upgrade to Tanzu Application Catalog for production environments to access custom-configured and pre-packaged software component
s. Gain enhanced features, including Software Bill of Materials (SBOM), CVE scan result reports, and VEX documents. To learn more, visit https://bitnami.com/e
nterprise
mongod 11:28:43.04 INFO =>
mongod 11:28:43.05 INFO => ** Starting MongoDB setup **
mongod 11:28:43.06 INFO => Validating settings in MONGODB_* env vars...
mongod 11:28:43.11 INFO => Initializing MongoDB...
mongod 11:28:43.17 INFO => Deploying MongoDB from scratch...
MongoNetworkError: connect ECONNREFUSED 10.128.2.37:27017
mongod 11:28:44.20 INFO => Creating users...
mongod 11:28:44.21 INFO => Users created
mongod 11:28:44.22 INFO => Enabling authentication...
mongod 11:28:44.23 INFO => Stopping MongoDB...
mongod 11:28:45.25 INFO => ** MongoDB setup finished! **

mongod 11:28:45.26 INFO => ** Starting MongoDB **
{"t": {"$date": "2024-06-26T11:28:45.301+00:00"}, "s": "I", "c": "CONTROL", "id": 5760901, "ctx": "main", "msg": "Applied --setParameter options", "attr": {"serverParameter": "s": {"enableLocalhostAuthBypass": {"default": "true", "value": "false"}}, "t": {"$date": "2024-06-26T11:28:45.301+00:00"}, "s": "I", "c": "CONTROL", "id": 20698, "ctx": "main", "msg": "***** SERVER RESTARTED *****"}, {"t": {"$date": "2024-06-26T11:28:45.303+00:00"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "main", "msg": "Initialized wire specification", "attr": {"spec": {"inComingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}, {"t": {"$date": "2024-06-26T11:28:45.304+00:00"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "main", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}, {"t": {"$date": "2024-06-26T11:28:45.304+00:00"}, "s": "I", "c": "NETWORK", "id": 4648601, "ctx": "main", "msg": "Implicit TCP FastOpen unavailable. If TCP FastOpen is required, set tcpFastOpenServer, tcpFastOpenClient, and tcpFastOpenQueueSize."}, {"t": {"$date": "2024-06-26T11:28:45.305+00:00"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "main", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}, {"t": {"$date": "2024-06-26T11:28:45.305+00:00"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "main", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}, {"t": {"$date": "2024-06-26T11:28:45.305+00:00"}, "s": "I", "c": "CONTROL", "id": 5945603, "ctx": "main", "msg": "Multi threading initialized"}, {"t": {"$date": "2024-06-26T11:28:45.306+00:00"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "main", "msg": "Starting TenantMigrationAccessBlockerRegistry"}, {"t": {"$date": "2024-06-26T11:28:45.306+00:00"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"nid": 1, "port": 27017}}}

Activities Terminal Jun 26 16:59
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_sec:1719401326, "ts_usec": 379798, "thread": "1:0x7fa158694c80", "session_name": "txn-recover", "category": "WT_VERB_RECOVERY_PROGRESS", "category_id": 30, "verbose_level": "DEBUG_1", "verbose_level_id": 1, "msg": "recovery was completed successfully and took 508ms, including 498ms for the log replay, 0ms for the rollback to stable, and 9ms for the checkpoint."}, {"t": {"$date": "2024-06-26T11:28:46.381+00:00"}, "s": "I", "c": "STORAGE", "id": 4795906, "ctx": "initandlisten", "msg": "WiredTiger opened", "attr": {"durationMillis": 1073}}, {"t": {"$date": "2024-06-26T11:28:46.381+00:00"}, "s": "I", "c": "RECOVERY", "id": 23987, "ctx": "initandlisten", "msg": "WiredTiger recoveryTimestamp", "attr": {"recoveryTimestamp": "$timestamp": [{"t": 0, "i": 0}]}, {"t": {"$date": "2024-06-26T11:28:46.389+00:00"}, "s": "W", "c": "CONTROL", "id": 22178, "ctx": "initandlisten", "msg": "/sys/kernel/mm/transparent_hugepage/enable is always. We suggest setting it to 'never' in this binary version", "tags": ["startupWarnings"]}, {"t": {"$date": "2024-06-26T11:28:46.389+00:00"}, "s": "W", "c": "CONTROL", "id": 5123300, "ctx": "initandlisten", "msg": "vm.max_map_count is too low", "attr": {"currentValue": 262144, "recommendedMinimum": 1677720, "maxConns": 1838860}, "tags": ["startupWarnings"]}, {"t": {"$date": "2024-06-26T11:28:46.392+00:00"}, "s": "I", "c": "NETWORK", "id": 4915702, "ctx": "initandlisten", "msg": "Updated wire specification", "attr": {"oldSpec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}, "newSpec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 21, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 21, "maxWireVersion": 21}, "isInternalClient": true}}, 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8423403, "ctx": "initandlisten", "msg": "mongod startup complete", "attr": {"Summary": "of time elapsed": "Startup from clean shutdown?: true, \"Statistics\": {\"Transport layer setup\": \"0 ms\", \"Run initial syncer crash recovery\": \"0 ms\", \"Create storage engine lock file in the data directory\": \"0 ms\", \"Get metadata describing storage engine\": \"0 ms\", \"Validate options in metadata against current startup options\": \"0 ms\", \"Create storage engine\": \"1074 ms\", \"Write current PID to file\": \"0 ms\", \"Initialize FCV before rebuilding indexes\": \"4 ms\", \"Drop abandoned idents and get b ack indexes that need to be rebuilt or builds that need to be restarted\": \"0 ms\", \"Rebuild indexes for collections\": \"0 ms\", \"Load cluster parameters from disk for a standalone\": \"0 ms\", \"Build user and roles graph\": \"0 ms\", \"Set up the background thread pool responsible for waiting for optTimes to be majority committed\": \"1 ms\", \"Initialize information needed to make a mongod instance shard aware\": \"0 ms\", \"Start up the replication coordinator\": \"2 ms\", \"Start transport layer\": \"0 ms\", \"initAndListen total elapsed time\": \"1093 ms\"}}"}, {"t": {"$date": "2024-06-26T11:28:46.400+00:00"}, "s": "I", "c": "CONTROL", "id": 8423403, "ctx": "initandlisten", "msg": "mongod startup complete", "attr": {"Summary": "of time elapsed": "Startup from clean shutdown?: true, \"Statistics\": {\"Transport layer setup\": \"0 ms\", \"Run initial syncer crash recovery\": \"0 ms\", \"Create storage engine lock file in the data directory\": \"0 ms\", \"Get metadata describing storage engine\": \"0 ms\", \"Validate options in metadata against current startup options\": \"0 ms\", \"Create storage engine\": \"1074 ms\", \"Write current PID to file\": \"0 ms\", \"Initialize FCV before rebuilding indexes\": \"4 ms\", \"Drop abandoned idents and get b ack indexes that need to be rebuilt or builds that need to be restarted\": \"0 ms\", \"Rebuild indexes for collections\": \"0 ms\", \"Load cluster parameters from disk for a standalone\": \"0 ms\", \"Build user and roles graph\": \"0 ms\", \"Set up the background thread pool responsible for waiting for optTimes to be majority committed\": \"1 ms\", \"Initialize information needed to make a mongod instance shard aware\": \"0 ms\", \"Start up the replication coordinator\": \"2 ms\", \"Start transport layer\": \"0 ms\", \"initAndListen total elapsed time\": \"1093 ms\"}}"}]

```

## Lab - Running a one time task as an Openshift Job

```

cd ~/openshift-june-2024
git pull
cd Day3/job
cat job.yml
oc apply -f job.yml
oc get jobs
oc logs -f job/hello-job

```

## Lab - Running recurring CronJob at a specified time

```
cd ~/openshift-june-2024
git pull
cd Day3/cronjob
cat cronjob.yml
oc apply -f cronjob.yml
oc get cronjobs
oc get po
oc logs -f cron-job-28657823-p6bgx
```

Expected output

```
jegan@tektutor.org $ oc apply -f cronjob.yml
cronjob.batch/cron-job configured

jegan@tektutor.org $ oc get po -w
NAME           READY   STATUS    RESTARTS   AGE
cron-job-28657815-fnqbl   0/1     Completed   0          6m56s
hello-job-km8pg      0/1     Completed   0          47m
pause-5df6b47b66-zjvpl  1/1     Running    0          49m
cron-job-28657823-p6bgx  0/1     Pending    0          0s
cron-job-28657823-p6bgx  0/1     Pending    0          0s
cron-job-28657823-p6bgx  0/1     Pending    0          0s
cron-job-28657823-p6bgx  0/1     ContainerCreating 0          0s
cron-job-28657823-p6bgx  0/1     ContainerCreating 0          0s
cron-job-28657823-p6bgx  0/1     Completed   0          3s
cron-job-28657823-p6bgx  0/1     Completed   0          4s
cron-job-28657823-p6bgx  0/1     Completed   0          5s
cron-job-28657823-p6bgx  0/1     Completed   0          5s

jegan@tektutor.org $ oc logs -f cron-job-28657823-p6bgx
Hello
```