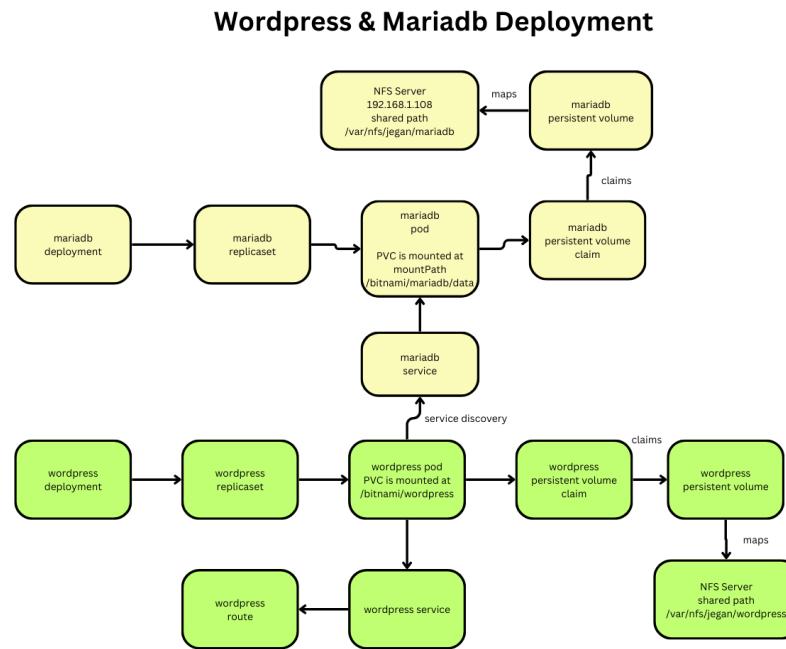


Day 3

Lab - Deploying multi-pod(wordpress & mariadb) wordpress application



Let's deploy wordpress and mariadb

```
cd ~/openshift-3june-2024
git pull
cd Day3/persistent-volume/wordpress

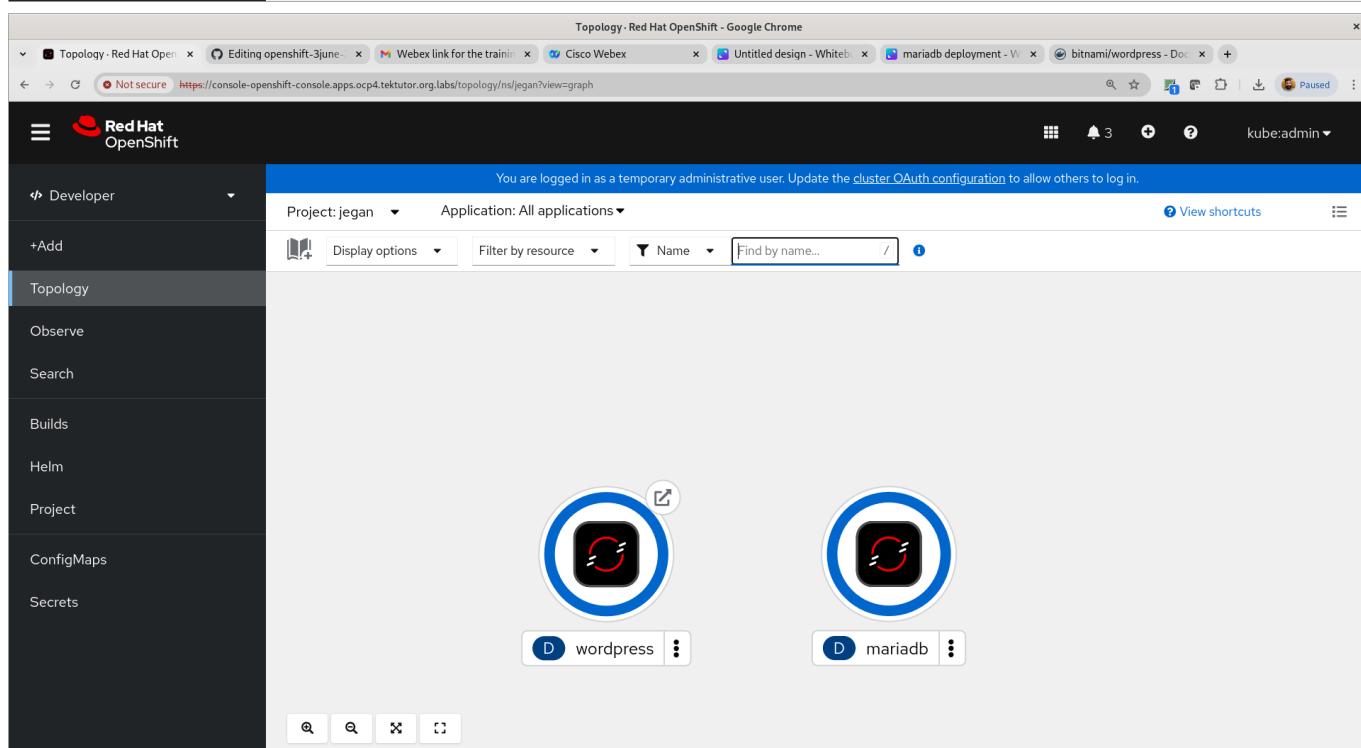
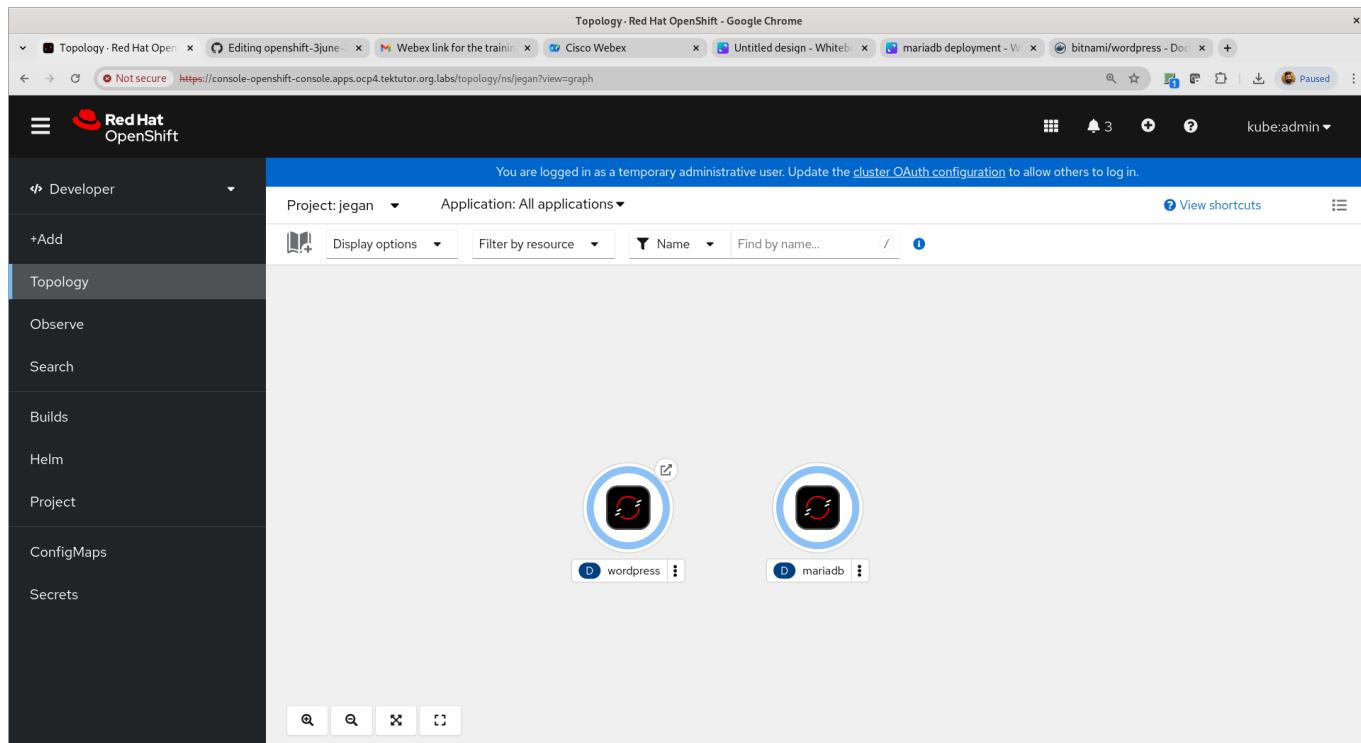
./deploy.sh
```

Expected output

```
jegan@tektutor.org ~/openshift-3june-2024 > / main > cd Day3/persistent-volume/wordpress
jegan@tektutor.org ~/openshift-3june-2024/Day3/persistent-volume/wordpress > / main > pwd
/home/jegan/openshift-3june-2024/Day3/persistent-volume/wordpress
jegan@tektutor.org ~/openshift-3june-2024/Day3/persistent-volume/wordpress > / main > ls -l
total 44
-rwxr-xr-x 1 jegan jegan 340 Jun 5 12:50 delete-all.sh
-rwxr-xr-x 1 jegan jegan 333 Jun 5 12:50 deploy.sh
-rw-r--r-- 1 jegan jegan 700 Jun 5 12:50 mariadb-deploy.yml
-rw-r--r-- 1 jegan jegan 302 Jun 5 12:50 mariadb-pvc.yml
-rw-r--r-- 1 jegan jegan 544 Jun 5 12:50 mariadb-pv.yml
-rw-r--r-- 1 jegan jegan 227 Jun 5 12:50 mariadb-svc.yml
-rw-r--r-- 1 jegan jegan 925 Jun 5 12:50 wordpress-deploy.yml
-rw-r--r-- 1 jegan jegan 304 Jun 5 12:50 wordpress-pvc.yml
-rw-r--r-- 1 jegan jegan 550 Jun 5 12:50 wordpress-pv.yml
-rw-r--r-- 1 jegan jegan 231 Jun 5 12:50 wordpress-route.yml
-rw-r--r-- 1 jegan jegan 233 Jun 5 12:50 wordpress-svc.yml
jegan@tektutor.org ~/openshift-3june-2024/Day3/persistent-volume/wordpress > / main > ./deploy.sh
\nDeploying mariadb ...
persistentvolume/mariadb-pv-jegan created
persistentvolumeclaim/mariadb-pvc-jegan created
deployment.apps/mariadb created
service/mariadb created
\nDeploying wordpress ...
persistentvolume/wordpress-pv-jegan created
persistentvolumeclaim/wordpress-pvc-jegan created
deployment.apps/wordpress created
service/wordpress created
route.route.openshift.io/wordpress created
jegan@tektutor.org ~/openshift-3june-2024/Day3/persistent-volume/wordpress > / main > oc get po,pv,pvc
jegan@tektutor.org ~/openshift-3june-2024/Day3/persistent-volume/wordpress > / main > oc get po,pv,pvc
NAME READY STATUS RESTARTS AGE
pod/mariadb-6cff55fb9d-w57r8 0/1 ImagePullBackOff 0 7s
pod/wordpress-6dd5f99d86-hjxgk 0/1 ImagePullBackOff 0 6s

NAME CAPACITY ACCESS MODES RECLAIM POLICY STATUS CLAIM
STORAGECLASS AGE
persistentvolume/mariadb-pv-jegan 100Mi RWX Retain Bound jegan/mariadb-pvc-jegan
8s
persistentvolume/wordpress-pv-jegan 100Mi RWX Retain Bound jegan/wordpress-pvc-jegan
7s

NAME STATUS VOLUME CAPACITY ACCESS MODES STORAGECLASS AGE
persistentvolumeclaim/mariadb-pvc-jegan Bound mariadb-pv-jegan 100Mi RWX
9s
persistentvolumeclaim/wordpress-pvc-jegan Bound wordpress-pv-jegan 100Mi RWX
7s
jegan@tektutor.org ~/openshift-3june-2024/Day3/persistent-volume/wordpress > / main > 
```



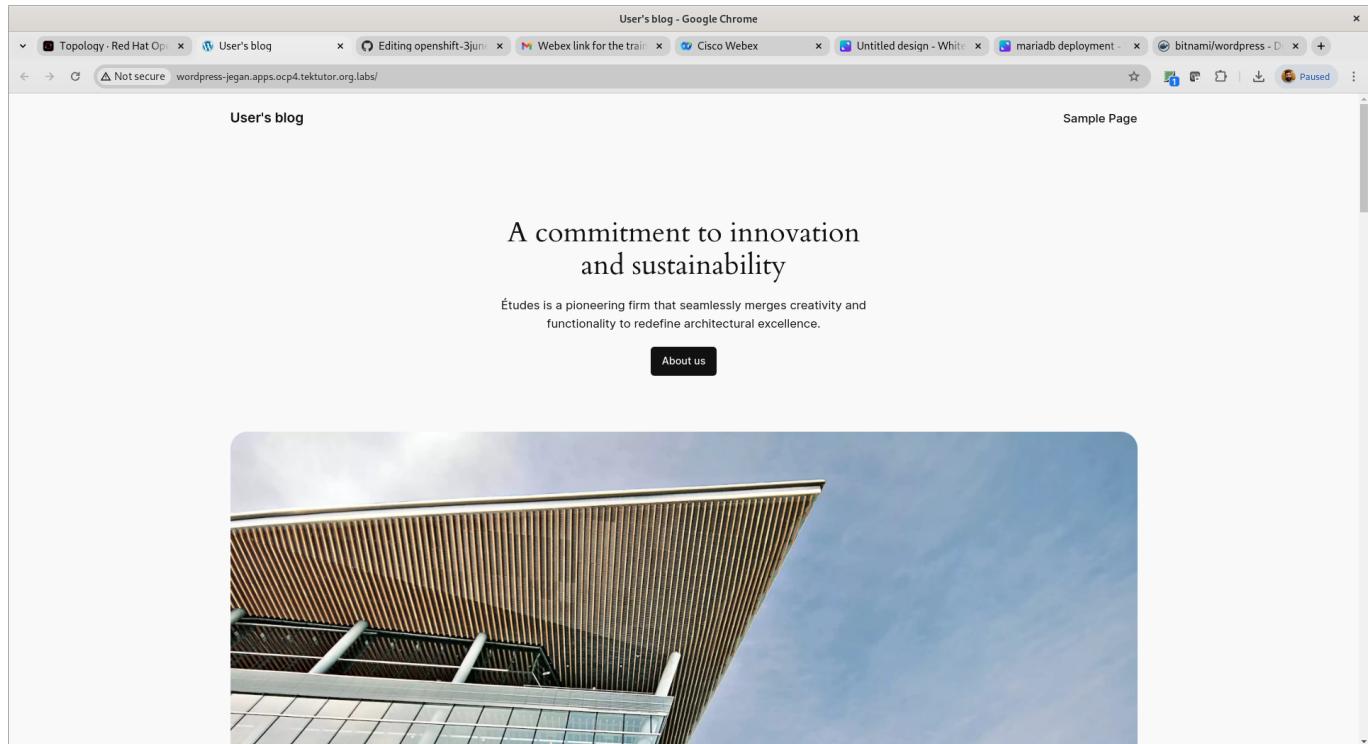
The screenshot shows the Red Hat OpenShift console interface. On the left, a sidebar lists various project components: Developer (+Add), Topology, Observe, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main area is titled "Project: jegan". Under "Pods", the "Logs" tab is selected for the pod "mariadb-5b9895469b-sb9lf". The terminal window displays the MySQL prompt, showing the output of the command "SHOW DATABASES;". The output lists several databases: information_schema, mysql, performance_schema, sys, test, and wordpress. A note at the top of the terminal says: "Type 'help;' or '\\h' for help. Type '\\c' to clear the current input statement."

```
MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| performance_schema |
| sys            |
| test           |
| wordpress      |
+-----+
6 rows in set (0.003 sec)

MariaDB [(none)]>
```

The screenshot shows the Red Hat OpenShift console interface. The sidebar and project selection are identical to the previous screenshot. The main area is titled "Project: jegan". Under "Pods", the "Logs" tab is selected for the pod "wordpress-98c9cb676-hvmdp". The log streaming interface shows the WordPress setup process. Lines 15 through 28 of the log output are visible, detailing the configuration of MySQL, the database connection attempt, and the successful completion of the WordPress installation.

```
15    wordpress 07:26:33.17 INFO --> Setting PMR output buffering option
16    wordpress 07:26:33.19 INFO --> Validating settings in MYSQL_CLIENT_* env vars
17    wordpress 07:26:33.40 INFO --> Ensuring WordPress directories exist
18    wordpress 07:26:33.40 INFO --> Trying to connect to the database server
19    wordpress 07:26:33.42 INFO --> Configuring WordPress with settings provided via environment variables
20    wordpress 07:26:34.41 INFO --> Installing WordPress
21    wordpress 07:26:36.41 INFO --> Persisting WordPress installation
22    wordpress 07:27:14.05 INFO --> ** WordPress setup finished! **
23
24    wordpress 07:27:14.06 INFO --> ** Starting Apache **
25    [Wed Jun 05 07:27:14.180062 2024] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.59 (Unix) OpenSSL/3.0.11 configured -- resuming normal
26    [Wed Jun 05 07:27:14.181124 2024] [core:notice] [pid 1] AH00094: Command line: '/opt/bitnami/apache/bin/httpd -f /opt/bitnami/apache/conf
27    10.129.0.2 - - [05/Jun/2024:07:27:14 +0000] "GET /favicon.ico HTTP/1.1" 302 -
28    10.129.0.2 - - [05/Jun/2024:07:27:15 +0000] "GET /wp-includes/images/w-logo-blue-white-bg.png HTTP/1.1" 200 4119
```



Once you are done with this exercise, you may clean up the resources

```
cd ~/openshift-3june-2024
cd Day3/persistent-volume/wordpress

./delete-all.sh
```

Expected output

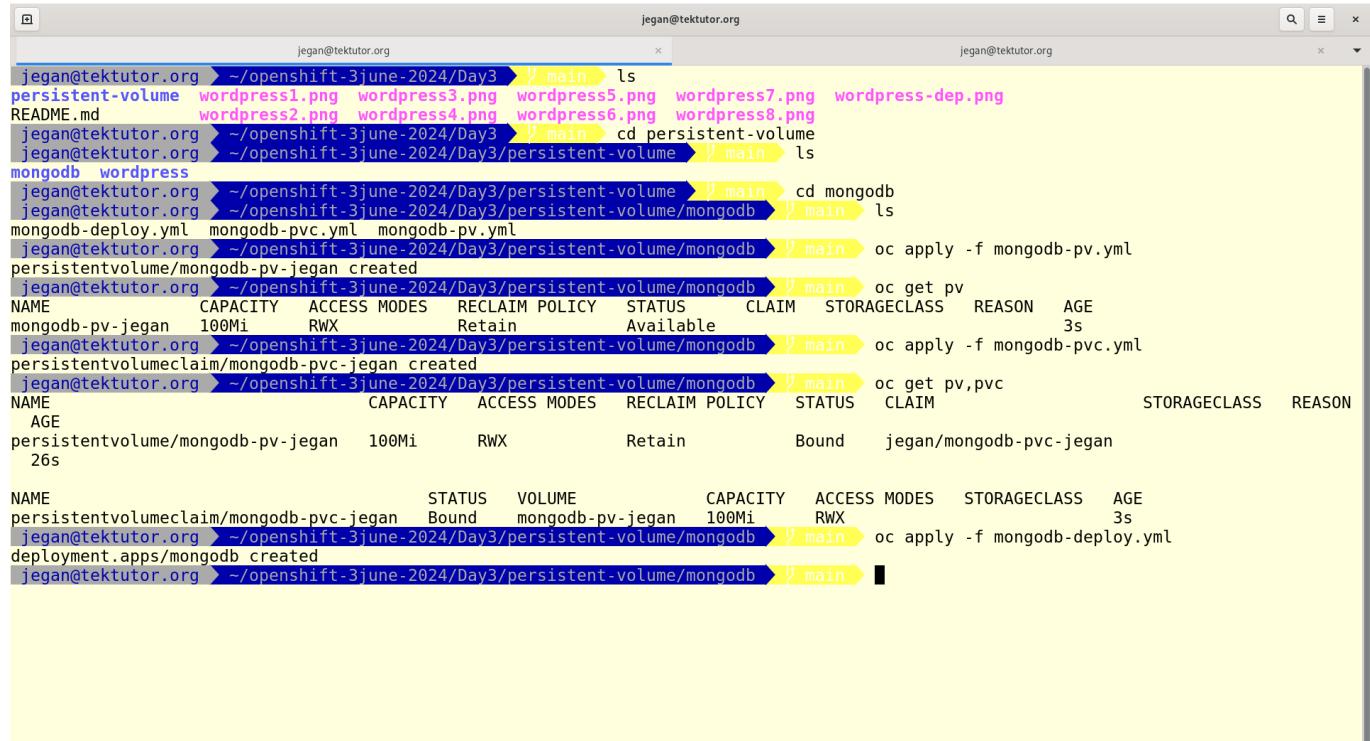
```
jegan@tektutor.org ~ /~/openshift-3june-2024 > main > cd Day3/persistent-volume/wordpress
jegan@tektutor.org ~ /~/openshift-3june-2024/Day3/persistent-volume/wordpress > main > ls
delete-all.sh mariadb-pvc.yml wordpress-deploy.yml wordpress-route.yml
deploy.sh mariadb-pv.yml wordpress-pvc.yml wordpress-svc.yml
mariadb-deploy.yml mariadb-svc.yml wordpress-pv.yml
jegan@tektutor.org ~ /~/openshift-3june-2024/Day3/persistent-volume/wordpress > main > ./delete-all.sh
\nDeleting wordpress ...
route.route.openshift.io "wordpress" deleted
service "wordpress" deleted
deployment.apps "wordpress" deleted
persistentvolumeclaim "wordpress-pvc-jegan" deleted
persistentvolume "wordpress-pv-jegan" deleted
\nDeleting mariadb ...
service "mariadb" deleted
deployment.apps "mariadb" deleted
persistentvolumeclaim "mariadb-pvc-jegan" deleted
persistentvolume "mariadb-pv-jegan" deleted
jegan@tektutor.org ~ /~/openshift-3june-2024/Day3/persistent-volume/wordpress > main > oc get po,pv,pvc,svc,route
No resources found
jegan@tektutor.org ~ /~/openshift-3june-2024/Day3/persistent-volume/wordpress > main > [REDACTED]
```

Lab - Deploying mongodb with Persistent volume

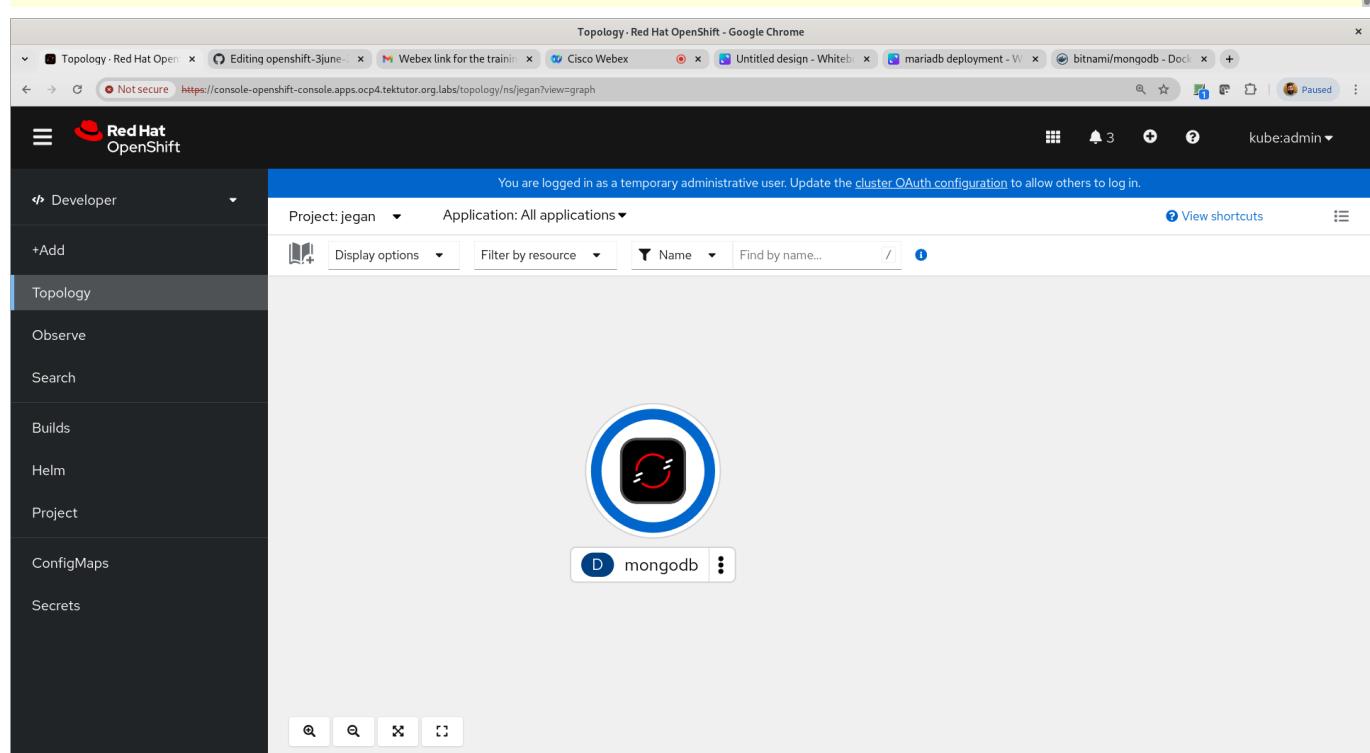
```
cd ~/openshift-3june-2024
git pull
cd Day3/persistent-volume/mongodb

oc apply -f mongodb-pv.yml
oc apply -f mongodb-pvc.yml
oc apply -f mongodb-deploy.yml
```

Expected output



```
jegan@tektutor.org ~ -/openshift-3june-2024/Day3 > main > ls
jegan@tektutor.org ~ -/openshift-3june-2024/Day3 > main > ls
persistent-volume README.md
jegan@tektutor.org ~ -/openshift-3june-2024/Day3 > main > cd persistent-volume
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume > main > ls
mongodb wordpress
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume > main > cd mongodb
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main > ls
mongodb-deploy.yml mongodb-pvc.yml mongodb-pv.yml
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main > oc apply -f mongodb-pv.yml
persistentvolume/mongodb-pv-jegan created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main > oc get pv
NAME CAPACITY ACCESS MODES RECLAIM POLICY STATUS CLAIM STORAGECLASS REASON AGE
mongodb-pv-jegan 100Mi RWX Retain Available 3s
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main > oc apply -f mongodb-pvc.yml
persistentvolumeclaim/mongodb-pvc-jegan created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main > oc get pv,pvc
NAME CAPACITY ACCESS MODES RECLAIM POLICY STATUS CLAIM STORAGECLASS REASON AGE
persistentvolume/mongodb-pv-jegan 100Mi RWX Retain Bound jegan/mongodb-pvc-jegan 26s
persistentvolumeclaim/mongodb-pvc-jegan STATUS VOLUME CAPACITY ACCESS MODES STORAGECLASS AGE
Bound mongodb-pv-jegan 100Mi RWX 3s
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main > oc apply -f mongodb-deploy.yml
deployment.apps/mongodb created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/mongodb > main >
```



Topology - Red Hat OpenShift - Google Chrome

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

Project: jegan Application: All applications

Topology

Developer

+Add

Topology

Observe

Search

Builds

Helm

Project

ConfigMaps

Secrets

Display options Filter by resource Name Find by name... Actions

D mongodb

Health checks Container mongodb does not have health checks to ensure your application is running correctly. Add health checks

Details Resources Observe

P mongodb-5bfd6f8989-4gdgl Running View logs

D mongodb

D mongodb-5bfd6f8989-4gdgl

S Services No Services found for this resource.

R Routes No Routes found for this resource.

mongodb-5bfd6f8989-4gdgl - Pod - Logs - Red Hat OpenShift - Google Chrome

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

Project: jegan

Developer

+Add

Topology

Observe

Search

Builds

Helm

Project

ConfigMaps

Secrets

Logs Events Terminal

⚠ Some lines have been abridged because they are exceptionally long.
To view unabridged log content, you can either open the raw file in another window or download it.

Log streaming... mongodb Current log Search

Show full log Wrap lines Raw Download Expand

58 lines

```

45     { "t": {"$date": "2024-06-05T09:18:19.783+00:00"}, "s": "W", "c": "CONTROL", "id": 22118, "ctx": "initandlisten", "msg": "sys/kernel/mm/transparent_hugepage/enabled = always", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
46     {"t": {"$date": "2024-06-05T09:18:19.783+00:00"}, "s": "W", "c": "CONTROL", "id": 5123300, "ctx": "initandlisten", "msg": "vm.max_map_count is too low, increasing to the system default 262144", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
47     {"t": {"$date": "2024-06-05T09:18:19.788+00:00"}, "s": "I", "c": "NETWORK", "id": 4915702, "ctx": "initandlisten", "msg": "Updated wire specification to match the current featureCompatibilityVersion", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
48     {"t": {"$date": "2024-06-05T09:18:19.788+00:00"}, "s": "I", "c": "REPL", "id": 56853300, "ctx": "initandlisten", "msg": "current featureCompatibilityVersion is 6, upgrading to match", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
49     {"t": {"$date": "2024-06-05T09:18:19.788+00:00"}, "s": "I", "c": "STORAGE", "id": 5071100, "ctx": "initandlisten", "msg": "Clearing temp directory /tmp/mongodb-5bfd6f8989-4gdgl/_temp", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
50     {"t": {"$date": "2024-06-05T09:18:19.790+00:00"}, "s": "I", "c": "CONTROL", "id": 6608200, "ctx": "initandlisten", "msg": "Initializing cluster settings", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
51     {"t": {"$date": "2024-06-05T09:18:19.790+00:00"}, "s": "I", "c": "CONTROL", "id": 20536, "ctx": "initandlisten", "msg": "Flow Control is enabled on the connection from 127.0.0.1:50000 to 127.0.0.1:27017", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
52     {"t": {"$date": "2024-06-05T09:18:19.790+00:00"}, "s": "I", "c": "FTDC", "id": 20625, "ctx": "initandlisten", "msg": "Initializing full-time diagnostic data collection thread", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
53     {"t": {"$date": "2024-06-05T09:18:19.795+00:00"}, "s": "I", "c": "REPL", "id": 6015317, "ctx": "initandlisten", "msg": "Setting new configuration for replicaset", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
54     {"t": {"$date": "2024-06-05T09:18:19.795+00:00"}, "s": "I", "c": "STORAGE", "id": 22262, "ctx": "initandlisten", "msg": "Timestamp monitor starting up", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
55     {"t": {"$date": "2024-06-05T09:18:19.796+00:00"}, "s": "I", "c": "NETWORK", "id": 23015, "ctx": "listener", "msg": "Listening on", "attr": {"address": "0.0.0.0", "port": 27017}, "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
56     {"t": {"$date": "2024-06-05T09:18:19.796+00:00"}, "s": "I", "c": "NETWORK", "id": 23016, "ctx": "listener", "msg": "Waiting for connections", "attr": {"address": "0.0.0.0", "port": 27017}, "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
57     {"t": {"$date": "2024-06-05T09:18:19.796+00:00"}, "s": "I", "c": "CONTROL", "id": 8423403, "ctx": "initandlisten", "msg": "mongod startup complete", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1
58     {"t": {"$date": "2024-06-05T09:18:19.796+00:00"}, "s": "I", "c": "CONTROL", "id": 5123300, "ctx": "initandlisten", "msg": "vm.max_map_count is too low, increasing to the system default 262144", "pid": 1, "tid": 1, "v": 1, "l": 1, "v2": 1, "v3": 1, "v4": 1, "v5": 1, "v6": 1, "v7": 1, "v8": 1, "v9": 1, "v10": 1, "v11": 1, "v12": 1, "v13": 1, "v14": 1, "v15": 1, "v16": 1, "v17": 1, "v18": 1, "v19": 1, "v20": 1, "v21": 1, "v22": 1, "v23": 1, "v24": 1, "v25": 1, "v26": 1, "v27": 1, "v28": 1, "v29": 1, "v30": 1, "v31": 1, "v32": 1, "v33": 1, "v34": 1, "v35": 1, "v36": 1, "v37": 1, "v38": 1, "v39": 1, "v40": 1, "v41": 1, "v42": 1, "v43": 1, "v44": 1, "v45": 1, "v46": 1, "v47": 1, "v48": 1, "v49": 1, "v50": 1, "v51": 1, "v52": 1, "v53": 1, "v54": 1, "v55": 1, "v56": 1, "v57": 1, "v58": 1

```

mongdb-5bfd6f8989-4dgdl - Pod - Events - Red Hat OpenShift - Google Chrome

Editing openshift-3june... Webex link for the trainin... Cisco Webex Untitled design - Whiteboard mariadb deployment - W... bitnami/mongodb - Doc... Paused kube:admin

Not secure https://console.openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/pods/mongdb-5bfd6f8989-4dgdl/events

Red Hat OpenShift

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

Project: jegan

Pod details

mongodb-5bfd6f8989-4dgdl Running

Actions

Details Metrics YAML Environment Logs Events Terminal

Streaming events...

Showing 5 events

5 Jun 2024, 14:48

NS jegan

Generated from multus

Add eth0 [10.128.2.27/23] from ovn-kubernetes

5 Jun 2024, 14:48

NS jegan

Generated from kubelet on worker-1.ocp4.tektutor.org.labs

Container image 'bitnami/mongodb:latest' already present on machine

5 Jun 2024, 14:48

NS jegan

Generated from kubelet on worker-1.ocp4.tektutor.org.labs

Created container mongodb

5 Jun 2024, 14:48

NS jegan

Generated from kubelet on worker-1.ocp4.tektutor.org.labs

jegan@tektutor.org

jegan@tektutor.org ~ /openshift-3june-2024/Day3 > \main cd persistent-volume

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume > \main ls

mongodb wordpress

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume > \main cd mongodb

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main ls

mongodb-deploy.yml mongodb-pvc.yml mongodb-pv.yml

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc apply -f mongodb-pv.yml

persistentvolume/mongodb-pv-jegan created

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc get pv

NAME	CAPACITY	ACCESS MODES	RECLAIM POLICY	STATUS	CLAIM	STORAGECLASS	REASON	AGE
mongodb-pv-jegan	100Mi	RWX	Retain	Available				3s

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc apply -f mongodb-pvc.yml

persistentvolumeclaim/mongodb-pvc-jegan created

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc get pv,pvc

NAME	CAPACITY	ACCESS MODES	RECLAIM POLICY	STATUS	CLAIM	STORAGECLASS	REASON
persistentvolume/mongodb-pv-jegan	100Mi	RWX	Retain	Bound	jegan/mongodb-pvc-jegan		

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc get volume

NAME	STATUS	VOLUME	CAPACITY	ACCESS MODES	STORAGECLASS	AGE
persistentvolumeclaim/mongodb-pvc-jegan	Bound	mongodb-pv-jegan	100Mi	RWX		3s

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc apply -f mongodb-deploy.yml

deployment.apps/mongodb created

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc delete -f mongodb-deploy.yml

deployment.apps "mongodb" deleted

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc delete -f mongodb-pvc.yml

persistentvolumeclaim "mongodb-pvc-jegan" deleted

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc delte -f mongodb-pv.yml

error: unknown command "delte" for "oc"

Did you mean this?

delete

x jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main oc delete -f mongodb-pv.yml

persistentvolume "mongodb-pv-jegan" deleted

jegan@tektutor.org ~ /openshift-3june-2024/Day3/persistent-volume/mongodb > \main

Lab - Deploying redis database with persistent volume

```
cd ~/openshift-3june-2024
git pull
cd Day3/persistent-volume/redis
```

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

Expectd output

```
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] vim redis-pv.yml
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] vim redis-pv.yml
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] oc apply -f redis-pv.yml
persistentvolume/redis-pv-jegan created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] oc apply -f redis-pvc.yml
persistentvolumeclaim/redis-pvc-jegan created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] oc apply -f redis-deploy.yml
deployment.apps/redis created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] oc get po -w
NAME          READY   STATUS    RESTARTS   AGE
redis-c7bf8bd5-4v4xx  0/1     ContainerCreating   0          2s
redis-c7bf8bd5-4v4xx  1/1     Running   0          11s
^C
^C
x jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] oc logs -f redis-c7bf8bd5-4v4xx
redis 09:29:03.14 INFO ==>
redis 09:29:03.14 INFO ==> Welcome to the Bitnami redis container
redis 09:29:03.14 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
redis 09:29:03.15 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
redis 09:29:03.15 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 09:29:03.15 INFO ==>
redis 09:29:03.15 INFO ==> ** Starting Redis setup **
redis 09:29:03.17 INFO ==> Initializing Redis
redis 09:29:03.18 INFO ==> Setting Redis config file

redis 09:29:03.20 INFO ==> ** Redis setup finished! **
redis 09:29:03.21 INFO ==> ** Starting Redis **
1:C 05 Jun 2024 09:29:03.227 * o0000000000 Redis is starting o0000000000
1:C 05 Jun 2024 09:29:03.227 * Redis version=7.2.5, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 05 Jun 2024 09:29:03.227 * Configuration loaded
1:M 05 Jun 2024 09:29:03.228 * monotonic clock: POSIX clock_gettime
1:M 05 Jun 2024 09:29:03.228 * Running mode=standalone, port=6379.
1:M 05 Jun 2024 09:29:03.229 * Server initialized
1:M 05 Jun 2024 09:29:03.229 * Pending RDB base file on AOF loading
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ] vim redis-c7bf8bd5-4v4xx
redis 09:29:03.14 INFO ==>
redis 09:29:03.14 INFO ==> Welcome to the Bitnami redis container
redis 09:29:03.14 INFO ==> Subscribe to project updates by watching https://github.com/bitnami/containers
redis 09:29:03.15 INFO ==> Submit issues and feature requests at https://github.com/bitnami/containers/issues
redis 09:29:03.15 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 09:29:03.15 INFO ==>
redis 09:29:03.15 INFO ==> ** Starting Redis setup **
redis 09:29:03.17 INFO ==> Initializing Redis
redis 09:29:03.18 INFO ==> Setting Redis config file

redis 09:29:03.20 INFO ==> ** Redis setup finished! **
redis 09:29:03.21 INFO ==> ** Starting Redis **
1:C 05 Jun 2024 09:29:03.227 * o0000000000 Redis is starting o0000000000
1:C 05 Jun 2024 09:29:03.227 * Redis version=7.2.5, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 05 Jun 2024 09:29:03.227 * Configuration loaded
1:M 05 Jun 2024 09:29:03.228 * monotonic clock: POSIX clock_gettime
1:M 05 Jun 2024 09:29:03.228 * Running mode=standalone, port=6379.
1:M 05 Jun 2024 09:29:03.229 * Server initialized
1:M 05 Jun 2024 09:29:03.231 * Reading RDB base file on AOF loading...
1:M 05 Jun 2024 09:29:03.231 * Loading RDB produced by version 7.2.4
1:M 05 Jun 2024 09:29:03.231 * RDB age 4150056 seconds
1:M 05 Jun 2024 09:29:03.231 * RDB memory usage when created 0.83 Mb
1:M 05 Jun 2024 09:29:03.231 * RDB is base AOF
1:M 05 Jun 2024 09:29:03.231 * Done loading RDB, keys loaded: 0, keys expired: 0.
1:M 05 Jun 2024 09:29:03.231 * DB loaded from base file appendonly.aof.1.base.rdb: 0.001 seconds
1:M 05 Jun 2024 09:29:03.231 * DB loaded from incr file appendonly.aof.1.incr.aof: 0.000 seconds
1:M 05 Jun 2024 09:29:03.231 * DB loaded from append only file: 0.001 seconds
1:M 05 Jun 2024 09:29:03.232 * Opening AOF incr file appendonly.aof.1.incr.aof on server start
1:M 05 Jun 2024 09:29:03.232 * Ready to accept connections tcp
```

Topology - Red Hat OpenShift - Google Chrome

Topology · Red Hat OpenShift · openshift-3june-2024 · Webex link for the trainin · Cisco Webex · Untitled design - Whiteb · mariadb deployment - W · bitnami/redis - Docker In · Paused · kube:admin

Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/topology/ns/jegan?view=graph&selectId=f0642798-88d0-4c9e-958d-3d80a6ff88e2

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

Project: jegan Application: All applications

Developer Topology Observe Search Builds Helm Project ConfigMaps Secrets

Display options Filter by resource Name Find by name... i

redis

D redis

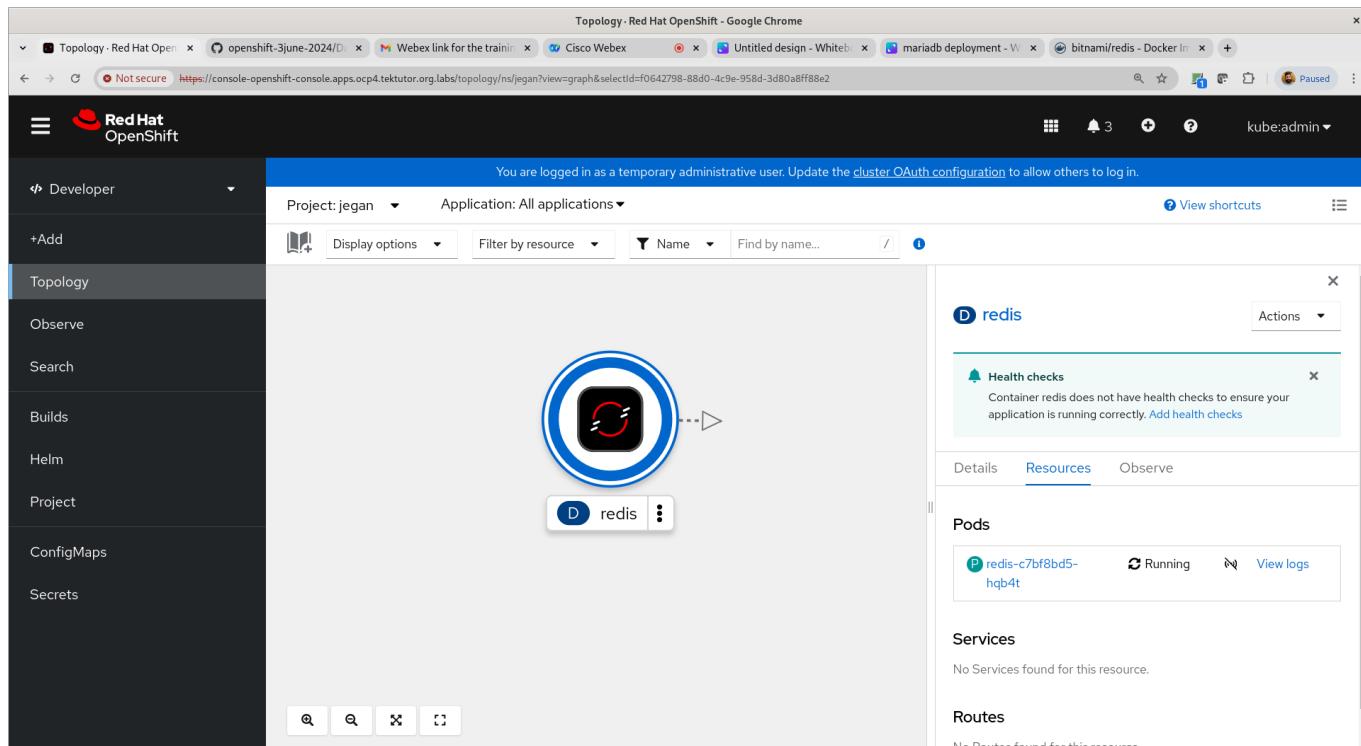
Health checks Container redis does not have health checks to ensure your application is running correctly. Add health checks

Details Resources Observe

Pods redis-c7bf8bd5-hqb4t Running View logs

Services No Services found for this resource.

Routes No Routes found for this resource.



redis-c7bf8bd5-hqb4t · Pod - Logs - Red Hat OpenShift - Google Chrome

redis-c7bf8bd5-hqb4t · openshift-3june-2024 · Webex link for the trainin · Cisco Webex · Untitled design - Whiteb · mariadb deployment - W · bitnami/redis - Docker In · Paused · kube:admin

Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/pods/redis-c7bf8bd5-hqb4t/logs

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

Project: jegan

Developer Topology Observe Search Builds Helm Project ConfigMaps Secrets

Pods > Pod details

P redis-c7bf8bd5-hqb4t Running

Actions

Details Metrics YAML Environment Logs Events Terminal

Log streaming... redis Current log Search

Show full log Wrap lines Raw Download Expand

21 lines

```
redis 09:30:36.01 INFO ==> initializing Redis
redis 09:30:36.02 INFO ==> Setting Redis config file
redis 09:30:36.04 INFO ==> ** Redis setup finished! **

redis 09:30:36.06 INFO ==> ** Starting Redis **
1:C 05 Jun 2024 09:30:36.072 * o000o000o000o Redis is starting o000o000o000o
1:C 05 Jun 2024 09:30:36.072 * Redis version=7.2.5, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 05 Jun 2024 09:30:36.072 * Configuration loaded
1:M 05 Jun 2024 09:30:36.072 * monotonic clock: POSIX clock_gettime
1:M 05 Jun 2024 09:30:36.073 * Running mode=standalone, port=6379.
1:M 05 Jun 2024 09:30:36.073 * Server initialized
1:M 05 Jun 2024 09:30:36.077 * Creating AOF base file appendonly.aof.1.base.rdb on server start
1:M 05 Jun 2024 09:30:36.080 * Creating AOF incr file appendonly.aof.1.incr.aof on server start
1:M 05 Jun 2024 09:30:36.080 * Ready to accept connections tcp
```

The screenshot shows the Red Hat OpenShift console interface. On the left, a sidebar menu includes options like Developer, +Add, Topology, Observe, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main content area displays a pod named 'redis-c7bf8bd5-hqb4t' under the 'Pods' section. The 'Events' tab is selected, showing a timeline of events:

- Streaming events...
- redis-c7bf8bd5-hqb4t Generated from multus (NS jegan) 5 Jun 2024, 15:00
- Add eth0 [10.128.2.29/23] from ovn-kubernetes (NS jegan) 5 Jun 2024, 15:00
- redis-c7bf8bd5-hqb4t Generated from kubelet on worker-1.ocp4.tektutor.org.labs (NS jegan) 5 Jun 2024, 15:00
- Container image 'bitnami/redis:latest' already present on machine (NS jegan) 5 Jun 2024, 15:00
- redis-c7bf8bd5-hqb4t Generated from kubelet on worker-1.ocp4.tektutor.org.labs (NS jegan) 5 Jun 2024, 15:00
- Created container redis (NS jegan) 5 Jun 2024, 15:00
- redis-c7bf8bd5-hqb4t (NS jegan) 5 Jun 2024, 15:00

You may delete the redis deployment once you are done with this exercise.

```
cd ~/openshift-3june-2024
cd Day3/persistent-volume/redis

oc delete -f redis-deploy.yml
oc delete -f redis-pvc.yml
oc delete -f redis-pv.yml

oc get po,pv,pvc
```

Expected output

```
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main ls
redis-deploy.yml redis-pvc.yml redis-pv.yml
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main oc delete -f redis-deploy.yml
deployment.apps "redis" deleted
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main oc delete -f redis-pvc.yml
persistentvolumeclaim "redis-pvc-jegan" deleted
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main oc delete -f redis-deploy.yml
Error from server (NotFound): error when deleting "redis-deploy.yml": deployments.apps "redis" not found
x jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main oc delete -f redis-pv.yml
persistentvolume "redis-pv-jegan" deleted
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main oc get po,pv,pvc
No resources found
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/persistent-volume/redis ➜ main
```

Lab - Using configmap and secrets to store configuration data and credentials in secrets

Things to note

- config map is used to store non-sensitive data
- config map can store many key/value pairs
- For example
 - We can store the JAVA_HOME=/usr/lib/jdk11 path
 - We can store application log path
- secret is also a map that can store several key pairs
- the only difference between configmap and secret is , the values stores in secrets is opaque, hence we can securely store passwords, retrieve them on need basis and use them in our application

Let's understand how to practically use configmap and secrets in the wordpress & mariadb deployments

```
cd ~/openshift-3june-2024
git pull
cd Day3/configs-and-secrets/wordpress

./deploy.sh
oc get po,pv,pvc,svc,route
```

Expected output

```
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/configs-and-secrets/wordpress ✘ main ➔ ./deploy.sh
\Deploying mariadb ...
secret/wordpress-secret created
configmap/wordpress-cm created
persistentvolume/mariadb-pv-jegan created
persistentvolumeclaim/mariadb-pvc-jegan created
deployment.apps/mariadb created
service/mariadb created
\Deploying wordpress ...
persistentvolume/wordpress-pv-jegan created
persistentvolumeclaim/wordpress-pvc-jegan created
deployment.apps/wordpress created
service/wordpress created
route.route.openshift.io/wordpress created
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/configs-and-secrets/wordpress ✘ main ➔ oc get deploy,po,pv,pvc,svc,route
NAME           READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/mariadb   1/1     1          1          51s
deployment.apps/wordpress 1/1     1          1          49s

NAME           READY   STATUS    RESTARTS   AGE
pod/mariadb-54bbf75ddd-cnrwm  1/1   Running   0          51s
pod/wordpress-5988f6fd6-65tf  1/1   Running   0          49s

NAME          CAPACITY   ACCESS MODES   RECLAIM POLICY   STATUS   CLAIM
persistentvolume/mariadb-pv-jegan  100Mi      RWX           Retain        Bound   jegan/mariadb-pvc-jegan
persistentvolume/wordpress-pv-jegan 100Mi      RWX           Retain        Bound   jegan/wordpress-pvc-jegan

NAME          STATUS    VOLUME
persistentvolumeclaim/mariadb-pvc-jegan  Bound   mariadb-pv-jegan
persistentvolumeclaim/wordpress-pvc-jegan  Bound   wordpress-pv-jegan

NAME          STATUS    VOLUME
persistentvolumeclaim/mariadb-pvc-jegan  Bound   mariadb-pvc-jegan
persistentvolumeclaim/wordpress-pvc-jegan  Bound   wordpress-pvc-jegan

NAME      TYPE    CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
service/mariadb  ClusterIP  172.30.67.211  <none>       3306/TCP  50s
service/wordpress ClusterIP  172.30.83.237  <none>       8080/TCP  49s

NAME          HOST/PORT      PATH      SERVICES      PORT      TERMINATION      WILDCARD
route.route.openshift.io/wordpress  wordpress-jegan.apps.ocp4.tektutor.org.labs  /      wordpress      8080      None
jegan@tektutor.org ~ -/openshift-3june-2024/Day3/configs-and-secrets/wordpress ✘ main ➔
```

Topology - Red Hat OpenShift - Google Chrome

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

Project: jegan Application: All applications

Display options Filter by resource Name Find by name... Actions

Topology Developer +Add Topology Observe Search Builds Helm Project ConfigMaps Secrets

D mariadb

Health checks Container mariadb does not have health checks to ensure your application is running correctly. Add health checks

Details Resources Observe

Pods

mariadb-54bbf75ddd-cnrwm Running View logs

Services

mariadb Service port: TCP/3306 → Pod port: 3306

mariadb-54bbf75ddd-cnrwm - Pod - Logs - Red Hat OpenShift - Google Chrome

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

Project: jegan

Pods > Pod details

P mariadb-54bbf75ddd-cnrwm Running Actions

Details Metrics YAML Environment Logs Events Terminal

Log streaming... mariadb Current log Search Show full log Wrap lines Raw Download Expand

81 lines

```

68 2024-06-05 10:00:09 0 [Note] InnoDB: Opened 3 undo tablespaces
69 2024-06-05 10:00:09 0 [Note] InnoDB: 128 rollback segments in 3 undo tablespaces are active.
70 2024-06-05 10:00:09 0 [Note] InnoDB: Setting file './ibtmp1' size to 12.000MIB. Physically writing the file full; Please wait ...
71 2024-06-05 10:00:09 0 [Note] InnoDB: File './ibtmp1' size is now 12.000MIB.
72 2024-06-05 10:00:09 0 [Note] InnoDB: log sequence number 794358; transaction id 508
73 2024-06-05 10:00:09 0 [Note] Plugin 'FEEDBACK' is disabled.
74 2024-06-05 10:00:09 0 [Note] Plugin 'wsrep-provider' is disabled.
75 2024-06-05 10:00:09 0 [Note] InnoDB: Loading buffer pool(s) from /bitnami/mariadb/data/ib_buffer_pool
76 2024-06-05 10:00:09 0 [Note] Server socket created on IP: '0.0.0.0'.
77 2024-06-05 10:00:09 0 [Warning] 'proxies_priv' entry '@% root@mariadb-5b9895469b-sb9lf' ignored in --skip-name-resolve mode.
78 2024-06-05 10:00:09 0 [Note] mysqld: Event Scheduler: Loaded 0 events
79 2024-06-05 10:00:09 0 [Note] /opt/bitnami/mariadb/sbin/mysqld: ready for connections.
80 Version: '11.3.2-MariaDB' socket: '/opt/bitnami/mariadb/tmp/mysql.sock' port: 3306 Source distribution

```

The screenshot shows the Red Hat OpenShift Topology interface. The left sidebar includes options like Developer, +Add, Topology (selected), Observe, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main area displays a cluster diagram with two nodes: 'wordpress' (blue circle) and 'mariadb' (orange circle). The 'wordpress' node has a red circular icon with a white 'C' inside. The 'mariadb' node also has a red circular icon with a white 'C'. Below each node is a label: 'D wordpress' and 'D mariadb'. To the right, a detailed view for the 'wordpress' application is shown, including sections for Health checks, Details, Resources (selected), and Observers. It also lists Pods and Services, with a 'View logs' link for the wordpress pod.

wordpress-5988f6f6d6-65tfd - Pod - Logs - Red Hat OpenShift - Google Chrome

wordpress-5988f6f6d6-65tfd - User's blog - openshift-3june-2024 - Web link for the train - Cisco Webex - Untitled design - White - mariadb deployment - bitnami/redis - Docker - +

Not secure https://console.openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/pods/wordpress-5988f6f6d6-65tfd/logs

Red Hat OpenShift kube:admin

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

Project: jegan

Pods > Pod details

P Wordpress-5988f6f6d6-65tfd Running

Actions

Developer

+Add

Topology

Observe

Search

Builds

Helm

Project

ConfigMaps

Secrets

Logs

Events

Terminal

Log stream paused

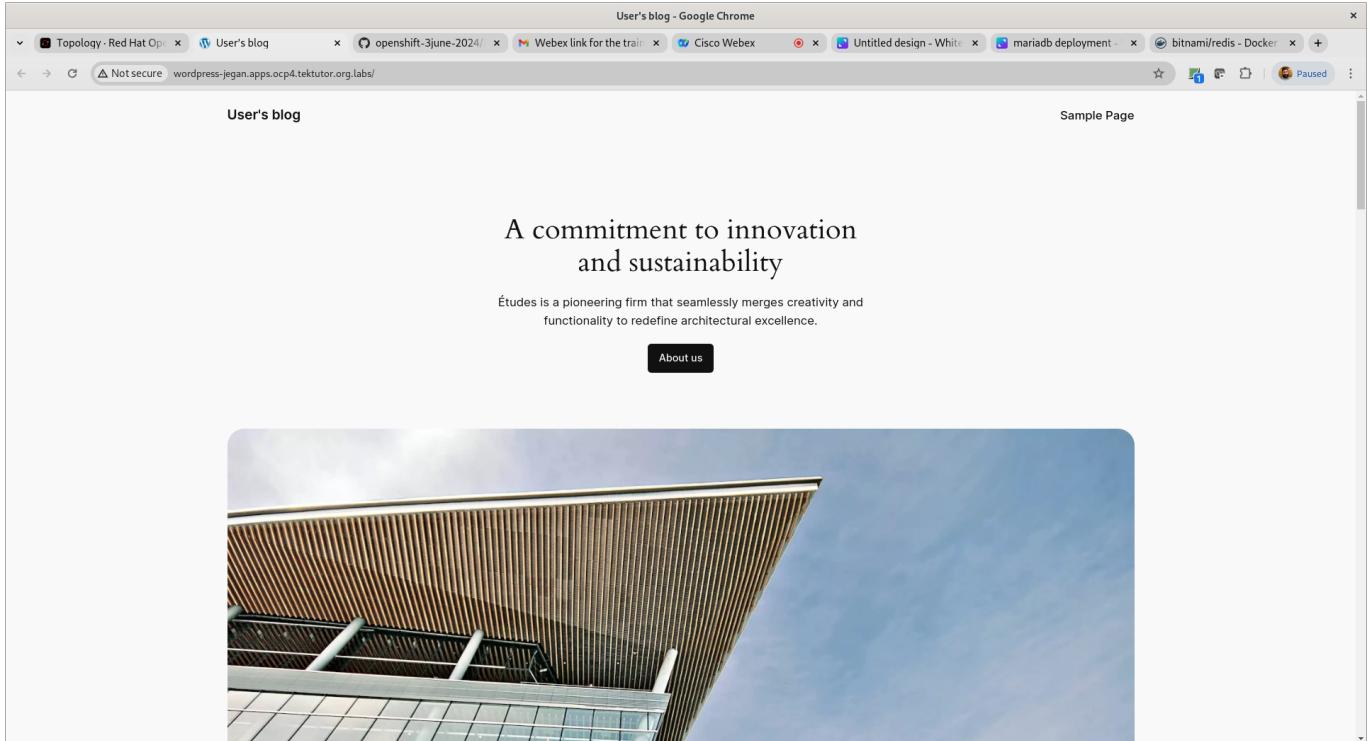
wordpress Current log Search

Show full log Wrap lines Raw Download Expand

31 lines

```
1 wordpress 10:00:12.00 INFO --> Configuring PHP options
2 wordpress 10:00:12.01 INFO ==> Setting PHP expose_php option
3 wordpress 10:00:12.02 INFO ==> Setting PHP output_buffering option
4 wordpress 10:00:12.04 INFO ==> Validating settings in MYSQL_CLIENT_* env vars
5 wordpress 10:00:12.25 INFO ==> Restoring persisted WordPress installation
6 wordpress 10:00:12.81 INFO ==> Trying to connect to the database server
7 wordpress 10:00:13.63 INFO ==> ** WordPress setup finished! **
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
```

Resume stream



Once you are done with this lab exercise, you may clean up the resources as shown below

```
cd ~/openshift-3june-2024
cd Day3/configs-and-secrets/wordpress

./delete-all.sh
oc get po,pv,pvc,svc,route
```

Expected output

```
jegan@tektutor.org ~ / openshift-3june-2024 > cd main > git push
7 files changed, 19 insertions(+)
create mode 100644 Day3/cm1.png
create mode 100644 Day3/cm2.png
create mode 100644 Day3/cm3.png
create mode 100644 Day3/cm4.png
create mode 100644 Day3/cm5.png
create mode 100644 Day3/cm6.png
jegan@tektutor.org ~ / openshift-3june-2024 > cd main > git push
Enumerating objects: 25, done.
Counting objects: 100% (25/25), done.
Delta compression using up to 48 threads
Compressing objects: 100% (20/20), done.
Writing objects: 100% (21/21), 3.00 KiB | 3.00 MiB/s, done.
Total 21 (delta 8), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (8/8), completed with 2 local objects.
To https://github.com/tektutor/openshift-3june-2024.git
 1828abb..e2968c4 main -> main
jegan@tektutor.org ~ / openshift-3june-2024 > cd Day3/configs-and-secrets
jegan@tektutor.org ~ / openshift-3june-2024/Day3/configs-and-secrets > cd wordpress
jegan@tektutor.org ~ / openshift-3june-2024/Day3/configs-and-secrets/wordpress > ls
delete-all.sh mariadb-deploy.yaml mariadb-pv.yaml wordpress-cm.yaml wordpress-pvc.yaml wordpress-route.yaml wordpress-svc.yaml
deploy.sh mariadb-pvc.yaml mariadb-svc.yaml wordpress-deploy.yaml wordpress-pv.yaml wordpress-secret.yaml
jegan@tektutor.org ~ / openshift-3june-2024/Day3/configs-and-secrets/wordpress > ./delete-all.sh
\Deleting wordpress ...
route.route.openshift.io "wordpress" deleted
service "wordpress" deleted
deployment.apps "wordpress" deleted
persistentvolumeclaim "wordpress-pvc-jegan" deleted
persistentvolume "wordpress-pv-jegan" deleted
\Deleting mariadb ...
service "mariadb" deleted
deployment.apps "mariadb" deleted
persistentvolumeclaim "mariadb-pvc-jegan" deleted
persistentvolume "mariadb-pv-jegan" deleted
configmap "wordpress-cm" deleted
secret "wordpress-secret" deleted
jegan@tektutor.org ~ / openshift-3june-2024/Day3/configs-and-secrets/wordpress > oc get po,pv,pvc,svc,route
No resources found
jegan@tektutor.org ~ / openshift-3june-2024/Day3/configs-and-secrets/wordpress >
```

Info - Helm Overview

- Helm is a package manager that can be used to package your kubernetes/openshift cloud native applications
- Just like package managers like apt(apt-get), yum, rpm, dnf, npm, pip are used to install,uninstall, update/upgrade softwares, we can use Helm package manager to install/uninstall/upgrade applications into Kubernetes/Openshift
- Helm is also intergrated with Openshift
- Helm packaged applications are called Charts
- Helm chart is a tar.gz compressed that follows a specific folder structure within the compressed file

Lab - Creating a custom helm chart for our wordpress application deployment

```
cd ~/openshift-3june-2024
git pull
cd Day3/helm

helm version
helm create wordpress
tree wordpress

cd wordpress/templates
rm -rf *
cd ../..
cp manifest-scripts/*.yml wordpress/templates
cp values.yaml wordpress
tree wordpress
```

Let's create a wordpress helm chart package

```
cd ~/openshift-3june-2024
cd Day3/helm
ls
helm package wordpress
ls
```

Installing helm wordpress chart into openshift

```
cd ~/openshift-3june-2024
cd Day3/helm
ls
helm install wp wordpress-0.1.0.tgz
helm list
```

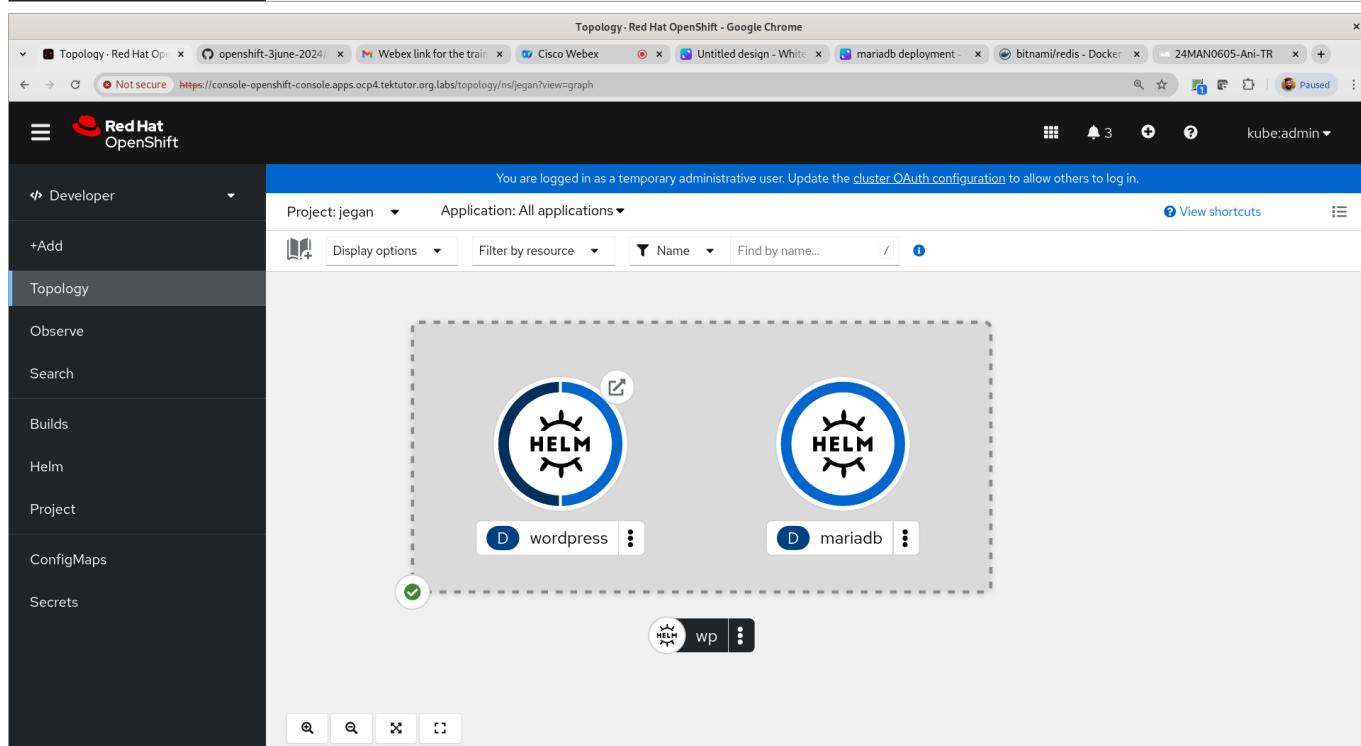
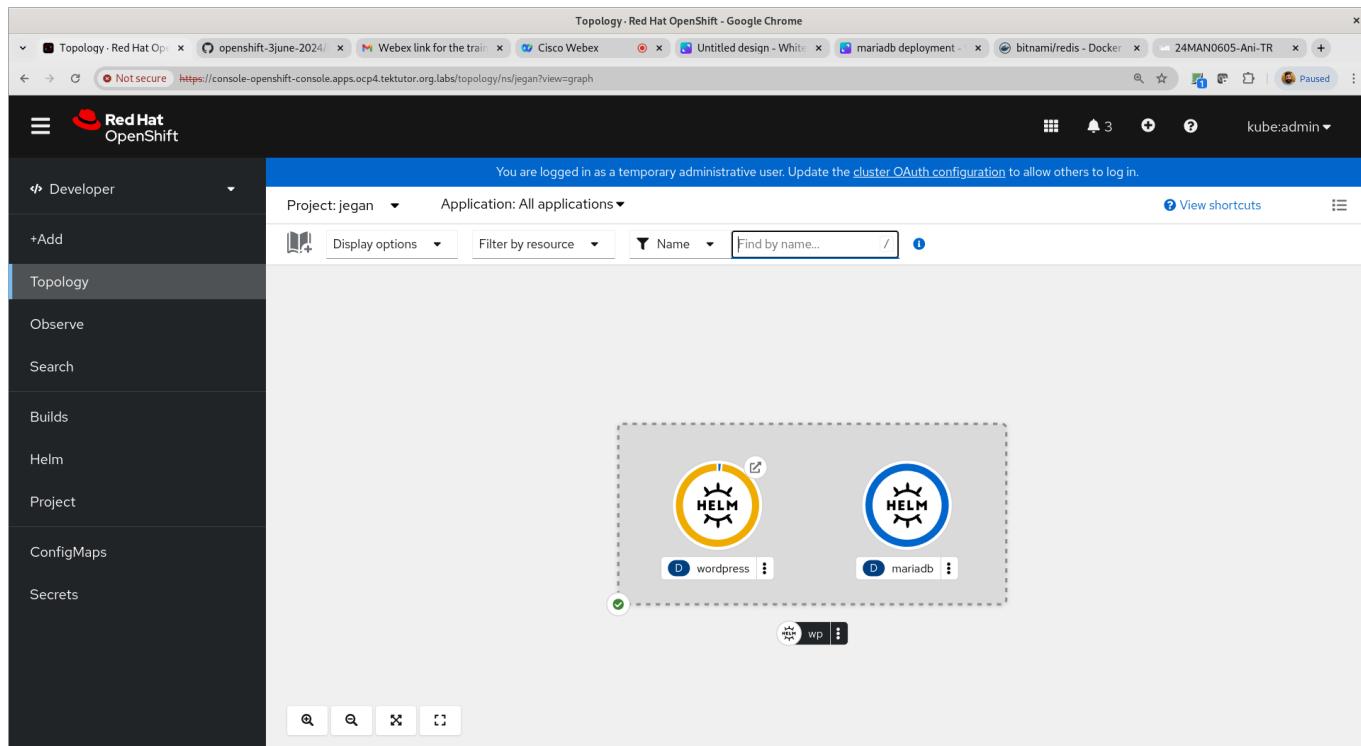
Expected output

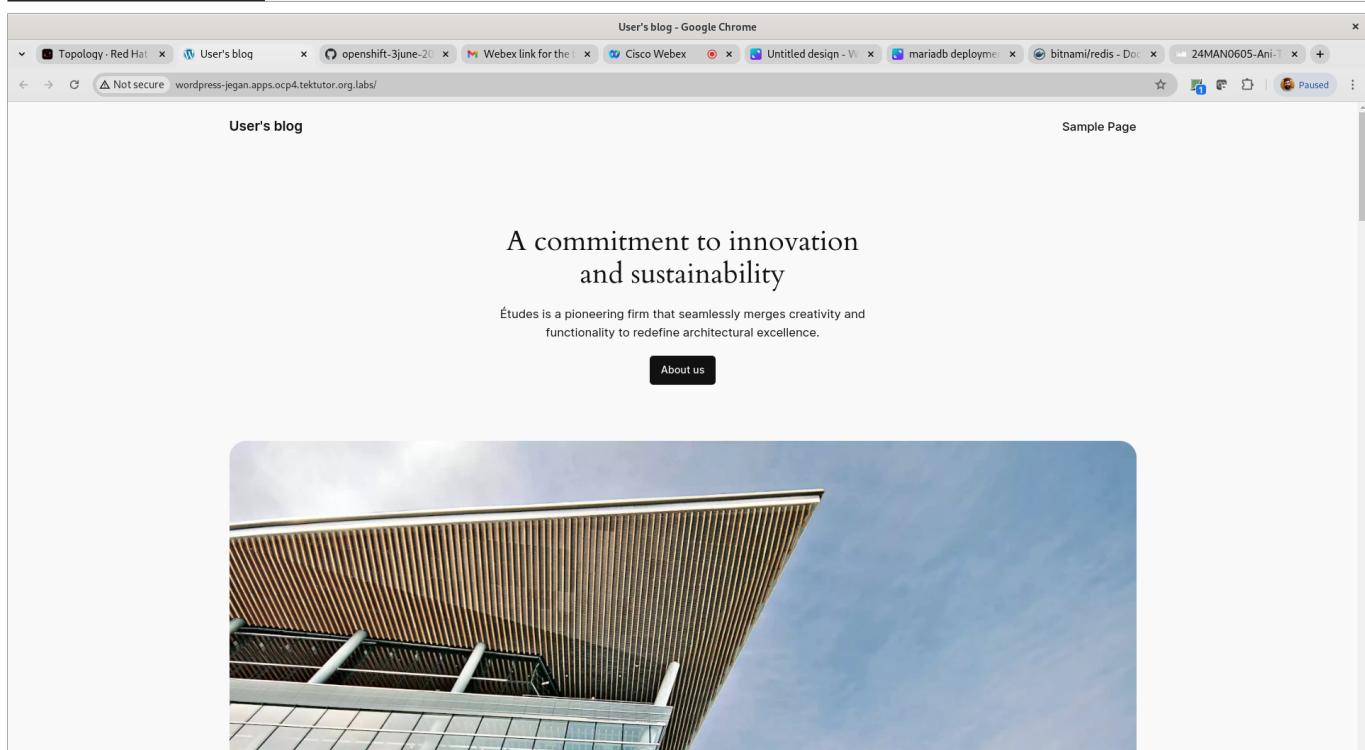
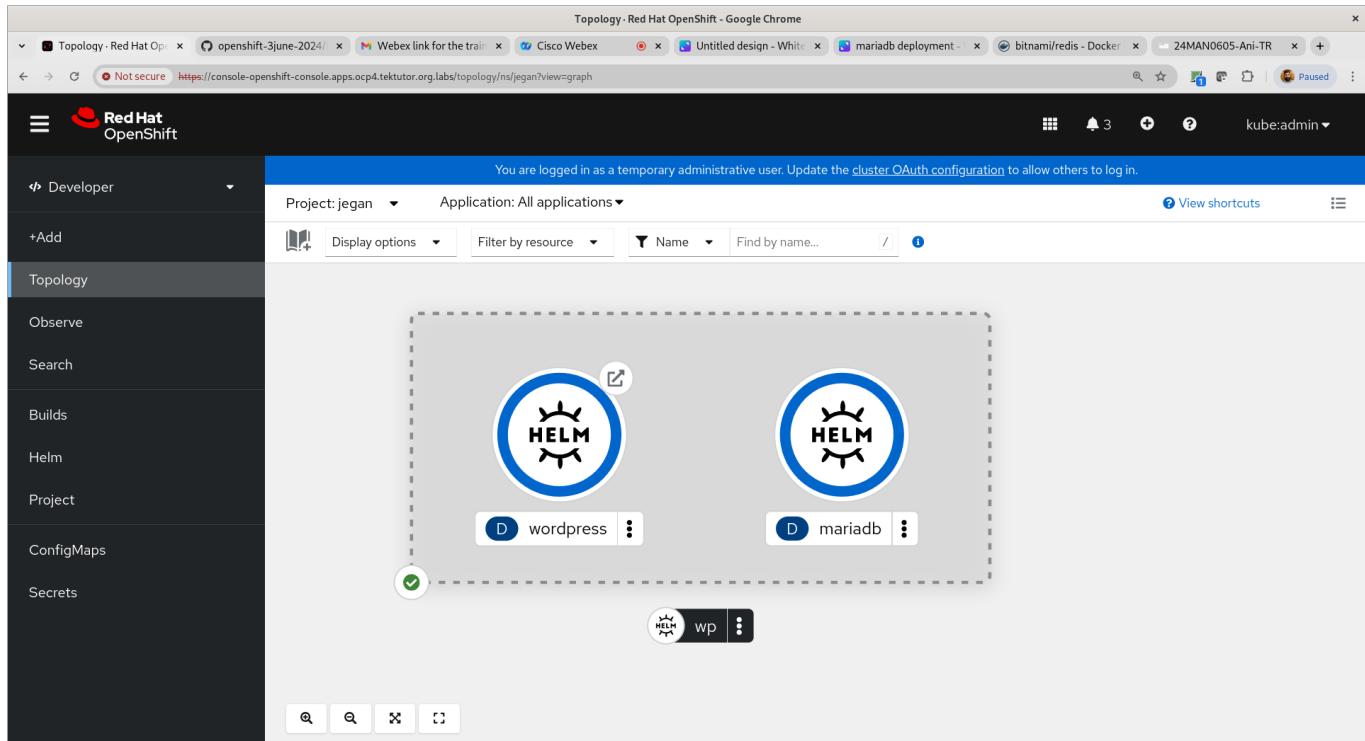
```
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm/manifest-scripts ⌘ main ➤ ls
mariadb-deploy.yml mariadb-svc.yml wordpress-pvc.yml wordpress-secret.yml
mariadb-pvc.yml wordpress-cm.yml wordpress-pv.yml wordpress-svc.yml
mariadb-pv.yml wordpress-deploy.yml wordpress-route.yml
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ cd ..
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ ls
manifest-scripts
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ helm version
WARNING: Kubernetes configuration file is group-readable. This is insecure. Location: /home/jegan/.kube/config
version.BuildInfo{Version:"v3.14.4", GitCommit:"81c902a123462fd4052bc5e9aa9c513c4c8fc142", GitTreeState:"clean", GoVersion:"go1.21.9"}
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ helm create wordpress
WARNING: Kubernetes configuration file is group-readable. This is insecure. Location: /home/jegan/.kube/config
Creating wordpress
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ tree wordpress
wordpress
└── charts
    ├── Chart.yaml
    └── templates
        ├── deployment.yaml
        ├── _helpers.tpl
        ├── hpa.yaml
        ├── ingress.yaml
        ├── NOTES.txt
        ├── serviceaccount.yaml
        ├── service.yaml
        ├── tests
        │   └── test-connection.yaml
        └── values.yaml

3 directories, 10 files
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤
```

```
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ ls
charts Chart.yaml templates values.yaml
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ cd ..
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ tree wordpress
wordpress
└── charts
    ├── Chart.yaml
    └── templates
        ├── mariadb-deploy.yaml
        ├── mariadb-pvc.yaml
        ├── mariadb-pv.yaml
        ├── mariadb-svc.yaml
        ├── wordpress-cm.yaml
        ├── wordpress-deploy.yaml
        ├── wordpress-pvc.yaml
        ├── wordpress-pv.yaml
        ├── wordpress-route.yaml
        ├── wordpress-secret.yaml
        └── wordpress-svc.yaml
        └── values.yaml

2 directories, 13 files
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ cat wordpress/values.yaml
mariadb_pv_size: "100Mi"
wordpress_pv_size: "100Mi"
pv_label: 'jegan'
nfs_ip: 192.168.1.108
wordpress_nfs_path: /var/nfs/jegan/wordpress
mariadb_nfs_path: /var/nfs/jegan/mariadb
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤
```





```
jegan@tektutor.org
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm/wordpress ⌘ main ➤ cd ..
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ ls
manifest-scripts wordpress wordpress-0.1.0.tgz
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ helm list
WARNING: Kubernetes configuration file is group-readable. This is insecure. Location: /home/jegan/.kube/config
NAME      NAMESPACE      REVISION      UPDATED             STATUS      CHART      APP VERSI
ON
wp        jegan          1            2024-06-05 16:28:53.090085043 +0530 IST deployed    wordpress-0.1.0 1.16.0

jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤ helm uninstall wp
WARNING: Kubernetes configuration file is group-readable. This is insecure. Location: /home/jegan/.kube/config
release "wp" uninstalled
jegan@tektutor.org ~-/openshift-3june-2024/Day3/helm ⌘ main ➤
```

Info - DaemonSet Overview

- In case, we need one Pod deployed in every node we can choose to deploy the application as a DaemonSet
- The DaemonSet controller, check the number of nodes available in the openshift cluster accordingly it will create so many Pods and deploy them one Pod per node
- In case new nodes join the openshift cluster, the DaemonSet controller automatically add one Pod on that new node as well
- On the similar line, in case when nodes are removed from the openshift cluster, the Pods on those nodes are removed automatically
- We can't manually scale up/down a DaemonSet
- Examples
 - One kube-proxy Pod runs in every node which is a DaemonSet
 - default-dns Pod runs in every node, which is a DaemonSet

Lab - Deploying nginx as a daemonset

```
cd ~/openshift-3june-2024
git pull
cd Day3/daemonset
oc apply -f nginx-daemonset.yml
oc get pod -o wide
```

Expected output

```
apiVersion: apps/v1
kind: DaemonSet
metadata:
  labels:
    app: nginx
  name: nginx
spec:
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - image: bitnami/nginx:latest
          name: nginx
jegan@tektutor.org ~-/openshift-3june-2024/Day3/daemonset ⌘ main ➔ oc apply -f nginx-daemonset.yml
daemonset.apps/nginx created
jegan@tektutor.org ~-/openshift-3june-2024/Day3/daemonset ⌘ main ➔ oc get daemonsets
NAME   DESIRED  CURRENT  READY   UP-TO-DATE  AVAILABLE  NODE SELECTOR   AGE
nginx  5         5         5       5          5          <none>      6m
jegan@tektutor.org ~-/openshift-3june-2024/Day3/daemonset ⌘ main ➔ oc get daemonset
NAME   DESIRED  CURRENT  READY   UP-TO-DATE  AVAILABLE  NODE SELECTOR   AGE
nginx  5         5         5       5          5          <none>      6m3s
jegan@tektutor.org ~-/openshift-3june-2024/Day3/daemonset ⌘ main ➔ oc get ds
NAME   DESIRED  CURRENT  READY   UP-TO-DATE  AVAILABLE  NODE SELECTOR   AGE
nginx  5         5         5       5          5          <none>      6m7s
jegan@tektutor.org ~-/openshift-3june-2024/Day3/daemonset ⌘ main ➔ oc get po -o wide
NAME     READY   STATUS    RESTARTS   AGE     IP           NOMINATED NODE   READINESS GATES
nginx-2zwcw  1/1    Running   0          6m11s  10.129.0.18  master-1.ocp4.tektutor.org.labs  <none>        <none>
nginx-77j9r  1/1    Running   0          6m11s  10.130.0.7   master-2.ocp4.tektutor.org.labs  <none>        <none>
nginx-cmn2f  1/1    Running   0          6m11s  10.128.0.10  master-3.ocp4.tektutor.org.labs  <none>        <none>
nginx-p7d7c  1/1    Running   0          6m11s  10.131.0.11  worker-2.ocp4.tektutor.org.labs  <none>        <none>
nginx-x5nh2  1/1    Running   0          6m11s  10.128.2.17  worker-1.ocp4.tektutor.org.labs  <none>        <none>
jegan@tektutor.org ~-/openshift-3june-2024/Day3/daemonset ⌘ main
```

DaemonSets - Red Hat OpenShift - Google Chrome

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

Project: jegan

DaemonSets

Name Search by name... /

Name	Status	Labels	Pod selector
DS nginx	5 of 5 pods	app=nginx	app=nginx

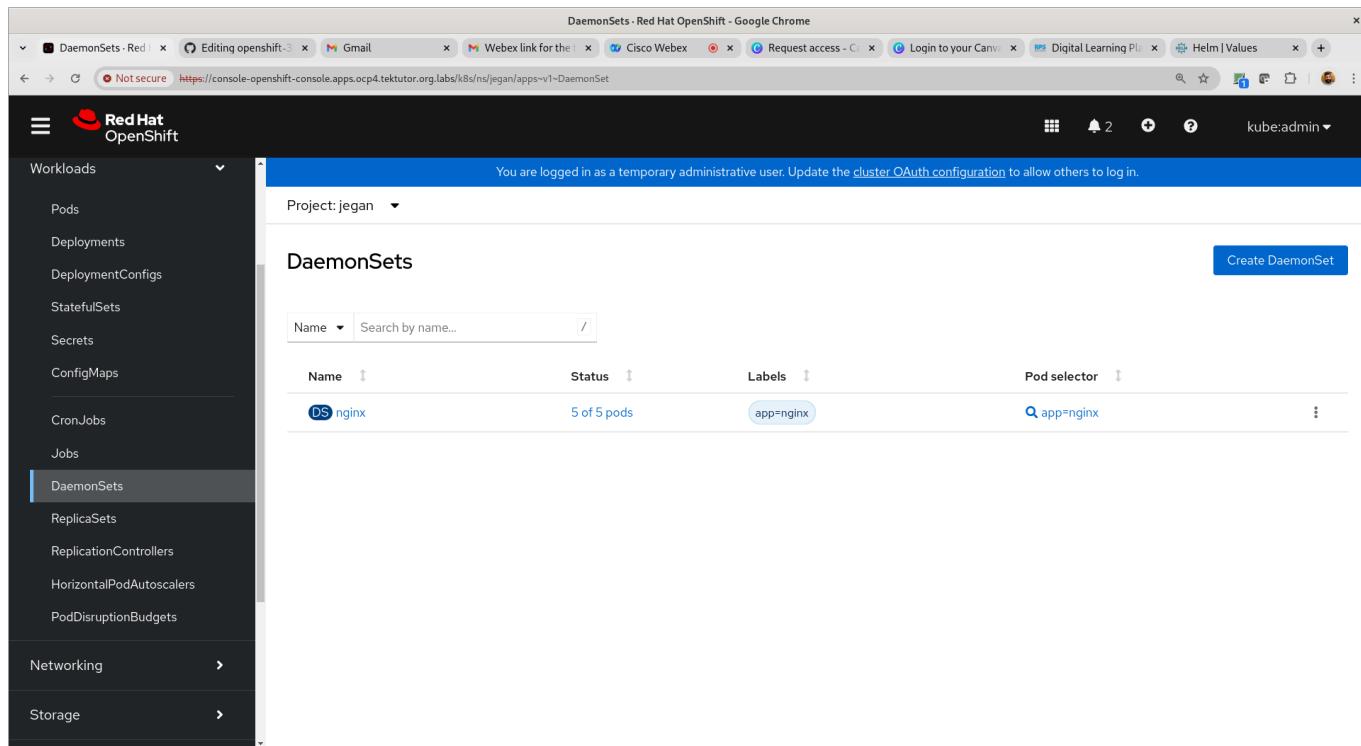
Create DaemonSet

Workloads

- Pods
- Deployments
- DeploymentConfigs
- StatefulSets
- Secrets
- ConfigMaps
- CronJobs
- Jobs
- DaemonSets**
- ReplicaSets
- ReplicationControllers
- HorizontalPodAutoscalers
- PodDisruptionBudgets

Networking

Storage



nginx - DaemonSet - Details - Red Hat OpenShift - Google Chrome

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

Project: jegan

DaemonSets > DaemonSet details

DS nginx

Actions

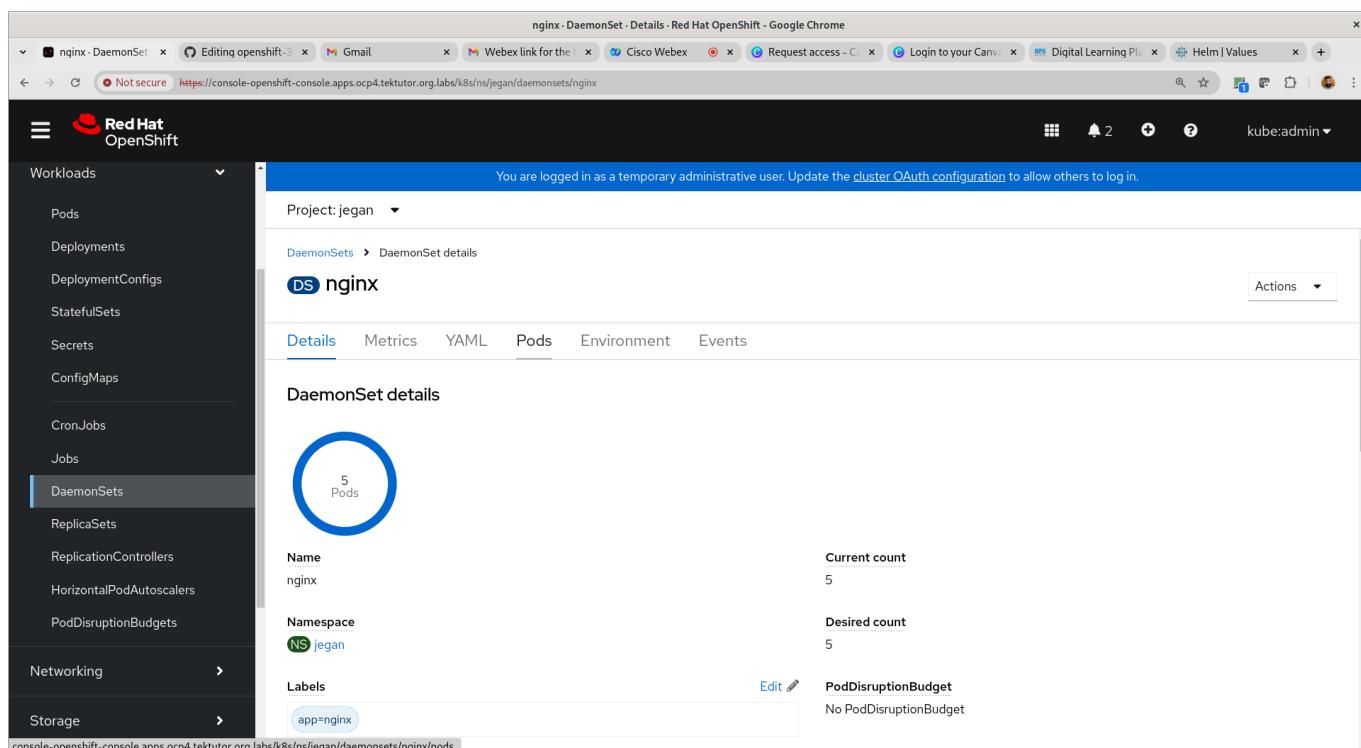
Details Metrics YAML Pods Environment Events

DaemonSet details

5 pods

Name	nginx	Current count	5
Namespace	jegan	Desired count	5
Labels	app=nginx	Edit	PodDisruptionBudget
No PodDisruptionBudget			

console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/daemonsets/nginx/pods



The screenshot shows the Red Hat OpenShift web interface. On the left, a sidebar titled 'Workloads' lists various resources: Pods, Deployments, DeploymentConfigs, StatefulSets, Secrets, ConfigMaps, CronJobs, Jobs, DaemonSets (which is selected), ReplicaSets, ReplicationControllers, HorizontalPodAutoscalers, and PodDisruptionBudgets. Below these are sections for Networking and Storage. The main content area is titled 'nginx' and shows the 'Pods' tab selected. It displays a table of five pods, all labeled 'Running' and created on June 6, 2024, at 10:27. The columns include Name, Status, Ready, Restarts, Node, Memory, CPU, and Created.

Name	Status	Ready	Restarts	Node	Memory	CPU	Created
nginx-2zwcw	Running	1/1	0	master-1.ocp4.tektutor.org.labs	7.3 MiB	-	6 Jun 2024, 10:27
nginx-77j9r	Running	1/1	0	master-2.ocp4.tektutor.org.labs	7.2 MiB	-	6 Jun 2024, 10:27
nginx-cmn2f	Running	1/1	0	master-3.ocp4.tektutor.org.labs	7.3 MiB	-	6 Jun 2024, 10:27
nginx-p7d7c	Running	1/1	0	worker-2.ocp4.tektutor.org.labs	7.3 MiB	-	6 Jun 2024, 10:27
nginx-x5nh2	Running	1/1	0	worker-1.ocp4.tektutor.org.labs	7.3 MiB	-	6 Jun 2024, 10:27

Lab - Creating a Job to do an onetime activity

For details, you may refer the official documentation

```
https://docs.openshift.com/container-platform/4.15/rest\_api/workloads\_apis/job-batch-v1.html
```

```
cd ~/openshift-3june-2024
git pull
cd Day3/job
ls
oc apply -f job.yml
oc get jobs
oc get po -w
oc logs hello-job-8jzjp
```

Expected output

```
jegan@tektutor.org ~ /openshift-3june-2024/Day3/job [j main] ls
job.yml
jegan@tektutor.org ~ /openshift-3june-2024/Day3/job [j main] oc apply -f job.yml
job.batch/hello-job created
jegan@tektutor.org ~ /openshift-3june-2024/Day3/job [j main] oc get jobs
NAME      COMPLETIONS   DURATION   AGE
hello-job  0/1          3s         3s
jegan@tektutor.org ~ /openshift-3june-2024/Day3/job [j main] oc get po -w
NAME    READY  STATUS   RESTARTS   AGE
hello-job-8jzjp  1/1    Running   0          7s
hello-job-8jzjp  0/1    Completed  0          23s
hello-job-8jzjp  0/1    Completed  0          24s
chello-job-8jzjp 0/1    Completed  0          25s
hello-job-8jzjp  0/1    Completed  0          25s
^C
x jegan@tektutor.org ~ /openshift-3june-2024/Day3/job [j main] oc logs hello-job-8jzjp
Hello Job Started
jegan@tektutor.org ~ /openshift-3june-2024/Day3/job [j main]
```

Jobs - Red Hat OpenShift - Google Chrome

Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/batch-v1-Job

Administrator Project: jegan

Jobs Create Job

Name Search by name... /

Name	Labels	Completions	Type
hello-job	batch.kubernetes...=8f08cea9-7db0-41eb... batch.kubernetes.io/job-name=hello-job controller...=8f08cea9-7db0-41eb-968e-3c... job-name=hello-job	1 of 1	Non-parallel

hello-job - Job - Details - Red Hat OpenShift - Google Chrome

Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/jobs/hello-job

Red Hat OpenShift

Administrator

Home

Operators

Workloads

Pods

Deployments

DeploymentConfigs

StatefulSets

Secrets

ConfigMaps

CronJobs

Jobs

DaemonSets

ReplicaSets

ReplicationControllers

Project: jegan

Jobs > Job details

J hello-job Complete

Actions

Details YAML Pods Events

Job details

Name: hello-job

Namespace: NS jegan

Labels:

- batch.kubernetes.io/controller-uid=8f08cea9-7db0-41eb-968e-3c80f742a2b5
- batch.kubernetes.io/job-name=hello-job
- controller-uid=8f08cea9-7db0-41eb-968e-3c80f742a2b5 job-name=hello-job

Pod selector: Q batch.kubernetes.io/controller-uid=8f08cea9-7db0-41eb-968e-3c80f742a2b5

Job status

Status: Complete

Start time: 6 Jun 2024, 12:05

Completion time: 6 Jun 2024, 12:06

Succeeded pods: 1

Active pods: 0

This screenshot shows the 'Job details' page for a 'hello-job' in the 'jegan' project. The job is listed as 'Complete'. It has one succeeded pod, which was created at 12:05 on June 6, 2024. The pod's name is 'hello-job-8jzp' and it is running on a node labeled 'worker-2.ocp4.tektutor.org.labs'.

hello-job - Job - Pods - Red Hat OpenShift - Google Chrome

Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/jobs/hello-job/pods

Red Hat OpenShift

Administrator

Home

Operators

Workloads

Pods

Deployments

DeploymentConfigs

StatefulSets

Secrets

ConfigMaps

CronJobs

Jobs

DaemonSets

ReplicaSets

ReplicationControllers

Project: jegan

Jobs > Job details

J hello-job Complete

Actions

Details YAML Pods Events

Filter: Name Search by name... /

Name	Status	Ready	Restarts	Node	Memory	CPU	Created
hello-job-8jzp	Completed	0/1	0	N worker-2.ocp4.tektutor.org.labs	-	-	6 Jun 2024, 12:05

This screenshot shows the 'Pods' tab for the 'hello-job' job. It lists a single pod named 'hello-job-8jzp' which is in a 'Completed' state. The pod was created at 12:05 on June 6, 2024, and is currently running on a node labeled 'worker-2.ocp4.tektutor.org.labs'.

The screenshot shows the Red Hat OpenShift web console. The URL is <https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/pods/hello-job-8jzjp>. The user is logged in as 'kube:admin'. The left sidebar shows the 'Workloads' menu with 'Pods' selected. The main content area displays the 'Pod details' for 'hello-job-8jzjp'. The pod is listed as 'Completed'. The 'Logs' tab is selected, showing the log output: '1 line' and 'Hello Job Started'. Other tabs include 'Details', 'Metrics', 'YAML', 'Environment', 'Logs', 'Events', and 'Terminal'.

Lab - Creating a recurring job using cronjob that be scheuled

```
cd ~/openshift-3june-2024
git pull
cd Day3/cronjob
ls
oc apply -f cronjob.yml
oc get cronjobs
oc get po -w
oc logs cron-job-28627603-wbmfb
```

Expected output

```
jegan@tektutor.org ~/openshift-3june-2024/Day3/cronjob $ main ls
cronjob.yml
jegan@tektutor.org ~/openshift-3june-2024/Day3/cronjob $ main oc apply -f cronjob.yml
cronjob.batch/cron-job created
jegan@tektutor.org ~/openshift-3june-2024/Day3/cronjob $ main oc get cronjobs
NAME          SCHEDULE      SUSPEND   ACTIVE   LAST SCHEDULE   AGE
cron-job      * * * * *   False        0       <none>    5s
jegan@tektutor.org ~/openshift-3june-2024/Day3/cronjob $ main oc get po -w
NAME          READY   STATUS    RESTARTS   AGE
hello-job-8jzjp 0/1     Completed  0          5m59s
cron-job-28627602-4fpwg 0/1     Pending    0          0s
cron-job-28627602-4fpwg 0/1     Pending    0          0s
cron-job-28627602-4fpwg 0/1     Pending    0          0s
cron-job-28627602-4fpwg 0/1     ContainerCreating 0          0s
cron-job-28627602-4fpwg 0/1     ContainerCreating 0          0s
cron-job-28627602-4fpwg 0/1     Completed   0          3s
cron-job-28627602-4fpwg 0/1     Completed   0          4s
cron-job-28627602-4fpwg 0/1     Completed   0          5s
cron-job-28627602-4fpwg 0/1     Completed   0          5s
cron-job-28627603-wbmfb 0/1     Pending    0          0s
cron-job-28627603-wbmfb 0/1     Pending    0          0s
cron-job-28627603-wbmfb 0/1     Pending    0          0s
cron-job-28627603-wbmfb 0/1     ContainerCreating 0          0s
cron-job-28627603-wbmfb 0/1     ContainerCreating 0          0s
cron-job-28627603-wbmfb 0/1     Completed   0          3s
^C%
x jegan@tektutor.org ~/openshift-3june-2024/Day3/cronjob $ main oc logs cron-job-28627603-wbmfb
Hello
jegan@tektutor.org ~/openshift-3june-2024/Day3/cronjob $
```

Name	Schedule	Suspend	Concurrency policy	Starting deadline seconds
cron-job	* * * * *	False	Allow	-

cron-job - CronJob - Details - Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/cronjobs/cron-job kube:admin

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

Project: jegan

CronJobs > CronJob details

cron-job

Actions

Details YAML Pods Jobs Events

CronJob details

Name	cron-job	Desired completions	-
Namespace	jegan	Parallelism	-
Labels	No labels	Active deadline seconds	Not configured
Annotations	1 annotation	PodDisruptionBudget	No PodDisruptionBudget
Schedule	*****		

Job details

--	--

cron-job - CronJob - Jobs - Red Hat OpenShift - Google Chrome
Not secure https://console-openshift-console.apps.ocp4.tektutor.org.labs/k8s/ns/jegan/cronjobs/cron-job/jobs kube:admin

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

Project: jegan

CronJobs > CronJob details

cron-job

Actions

Details YAML Pods **Jobs** Events

Name Search by name...

Name	Labels	Completions	Type
cron-job-28627602	batch.kubernetes...=9fd41cdf-elcb-4c37-b... batch.kubernetes.io/job...=cron-job-28627... controlle...=9fd41cdf-elcb-4c37-b3e8-980... job-name=cron-job-28627602	1 of 1	Non-parallel
cron-job-28627603	batch.kubernetes...=c6ef1cb2-7cc7-4d50-8... batch.kubernetes.io/job...=cron-job-28627... controlle...=c6ef1cb2-7cc7-4d50-88c5-4ac... job-name=cron-job-28627603	1 of 1	Non-parallel
cron-job-28627604	batch.kubernetes...=a27972c1-0cbc-433a-... batch.kubernetes.io/job...=cron-job-28627... controlle...=a27972c1-0cbc-433a-980... job-name=cron-job-28627604	1 of 1	Non-parallel

Red Hat OpenShift - CronJob - Pods - Red Hat OpenShift - Google Chrome

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

Project: jegan

CronJobs > CronJob details

cron-job

Actions

Details YAML Pods Jobs Events

Filter Name Search by name... /

Name	Status	Ready	Restarts	Owner	Memory	CPU	Created
cron-job-28627602-4fpwg	Completed	0/1	0	cron-job-28627602	-	-	6 Jun 2024, 12:12
cron-job-28627603-wbmbf	Completed	0/1	0	cron-job-28627603	-	-	6 Jun 2024, 12:13
cron-job-28627604-hs2tv	Completed	0/1	0	cron-job-28627604	-	-	6 Jun 2024, 12:14

Red Hat OpenShift - Pod - Details - Red Hat OpenShift - Google Chrome

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

Project: jegan

Pods > Pod details

cron-job-28627602-4fpwg

Completed

Actions

Details Metrics YAML Environment Logs Events Terminal

Pod details

Name cron-job-28627602-4fpwg **Status** Completed

Namespace NS jegan **Restart policy** Restart on failure

Labels Edit

- batch.kubernetes.io/controller-uid=9fd41cdf-e1cb-4c37-b3e8-980e46724e2c
- batch.kubernetes.io/job-name=cron-job-28627602
- controller-uid=9fd41cdf-e1cb-4c37-b3e8-980e46724e2c job-name=cron-job-28627602

Active deadline seconds Not configured

Pod IP 10.131.0.32

Host IP 192.168.122.81

Node selector No selector

The screenshot shows the Red Hat OpenShift web interface. On the left, there's a sidebar with navigation links like 'Administrator', 'Home', 'Operators', 'Workloads' (with 'Pods' selected), 'Deployments', 'DeploymentConfigs', 'StatefulSets', 'Secrets', 'ConfigMaps', 'CronJobs', 'Jobs', 'DaemonSets', 'ReplicaSets', and 'ReplicationControllers'. The main content area shows a pod named 'cron-job-28627602-4fpxg' with a status of 'Completed'. Below the pod name are tabs for 'Details', 'Metrics', 'YAML', 'Environment', 'Logs' (which is selected), 'Events', and 'Terminal'. Under the 'Logs' tab, it says 'Log stream ended.' and shows a single line of log output: '1 line' followed by 'Hello'. There are also buttons for 'Search', 'Show full log', 'Wrap lines', 'Raw', 'Download', and 'Expand'.

Lab - Deploying stateful application using StatefulSet

For more details, you may refer my medium blog article here

```
https://medium.com/tektutor/deploying-stateful-applications-in-kubernetes-8ffd46920b55
```

```
cd ~/openshift-3june-2023
git pull
cd Day3/statefulset

oc apply -f mongodb-pv.yml
oc apply -f mongodb-pvc.yml
oc apply -f mongodb-statefulset.yml
```

Expected output statefulset

Info - S2I (Source to Image)

- S2I is a new feature added in OpenShift
- S2I is not supported in Kubernetes
- In case of S2I, we can provide a GitHub, BitBucket or any version control url for openshift to clone/download the source code
- Once the source code is cloned
- In case, our GitHub repo also has a Dockerfile or a Containerfile
- atleast 3 strategies are supported, source strategy, docker strategy and pipeline strategy

- in case of source strategy, we just need to provide our application code without (Dockerfile, devfile.yaml, deploy.yaml)
- in case of source strategy, we need to mention the container image that will have all the tools required to build our application
- in case of docker strategy, we need to provide a Dockerfile or Containerfile as part of our GitHub repo along with our application code

Lab - Deploying a spring-boot hello microservice using S2I docker strategy

```
oc new-app https://github.com/tektutor/spring-ms.git --strategy=docker
```

Expected output

The screenshot shows three terminal windows side-by-side, all connected to the same user account 'jegan@tektutor.org'. The first window shows the command 'oc get deploy' which returns 'No resources found in jegan namespace.'. The second window shows the command 'oc new-app https://github.com/tektutor/spring-ms.git --strategy=docker'. The third window shows the output of this command, detailing the creation of various resources: an image stream 'openjdk-11' (4 weeks old), a Docker build for 'spring-ms', a build configuration 'spring-ms', a deployment 'spring-ms', and a service 'spring-ms'. It also provides instructions to track the build progress with 'oc logs -f buildconfig/spring-ms' and to expose the service with 'oc expose service/spring-ms'. Finally, it shows the cloning of the GitHub repository and the commit details.

```
jegan@tektutor.org > ~/openshift-3june-2024/Day4 [main] oc get deploy
No resources found in jegan namespace.

jegan@tektutor.org > ~/openshift-3june-2024/Day4 [main] oc new-app https://github.com/tektutor/spring-ms.git --strategy=docker
--> Found container image 41ecfe9 (4 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 Docker build using source code from https://github.com/tektutor/spring-ms.git will be created
  * The resulting image will be pushed to image stream tag "spring-ms: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 "spring-ms" created
buildconfig.build.openshift.io "spring-ms" created
deployment.apps "spring-ms" created
service "spring-ms" created
--> Success
Build scheduled, use 'oc logs -f buildconfig/spring-ms' 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/spring-ms'
Run 'oc status' to view your app.

jegan@tektutor.org > ~/openshift-3june-2024/Day4 [main] oc expose service/spring-ms
route/spring-ms exposed
jegan@tektutor.org > ~/openshift-3june-2024/Day4 [main] oc logs -f bc/spring-ms
Cloning "https://github.com/tektutor/spring-ms.git" ...
  Commit: 82552fb8a8eb3a7cc7e8165b8878dc5e47e50db3 (Renamed deploy.yml to deploy.yaml)
  Author: Jeganathan Swaminathan <mail2jegan@gmail.com>
  Date:  Wed Feb 15 15:11:17 2023 +0530
```

```
jegan@tektutor.org          jegan@tektutor.org          jegan@tektutor.org
Replaced Dockerfile FROM image registry.access.redhat.com/ubi8/openjdk-11
time="2024-06-06T09:49:58Z" 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"
I0606 09:49:58.264658      1 defaults.go:112] Defaulting to storage driver "overlay" with options [mountopt=metacopy=on].
Caching blobs under "/var/cache/blobs".
Pulling image docker.io/maven:3.6.3-jdk-11 ...
Trying to pull docker.io/library/maven:3.6.3-jdk-11...
Getting image source signatures
Copying blob sha256:6c215442f70bd949a6f2e8092549943905e2d4f9c87a4f532d7740ae8647d33a
Copying blob sha256:004f1eed87df3f75f5e2a1a649fa7edd7f713d1300532fd0909bb39cd48437d7
Copying blob sha256:48c2faf66abec3dce9f54d6722ff592fce6dd4fb58a0d0b72282936c6598a3b3
Copying blob sha256:5d6f1e8117dbb1c6a57603cb4f321a861a08105a8lbcc6b01b0ec2b78c8523a5
Copying blob sha256:d7eb6c022a4e6128219b32a8e07c8c22c89624ff440ebac1506121794bc15ccc
Copying blob sha256:234b70d0479d7f16d7ee8d04e4ffdacc57d7f14313fa59fd332f18b2e9418743
Copying blob sha256:355e8215390faee903502a9fddfc65cd823f1606f053376ba2575adce66974a1
Copying blob sha256:cfc5eb43522f68d7e2347e19ad70dadcf1594d25b792ede0464c2936ff902c4c6
Copying blob sha256:4feee0489a65b64056f81358639bfe85fd87776630830fd02ce8c15e34928bf9c
Copying blob sha256:413646e6fa5d7bcd9722d3e400fc080a77deb505baed79afa5fedae23583af25
Copying config sha256:e23b595c92ada5c9f20a27d547ed980a445f644eb1cbde7cfb27478fa38c4691
Writing manifest to image destination

Pulling image registry.access.redhat.com/ubi8/openjdk-11@sha256:3f8b96e45b83c6170641f387331b49d690f85fa92f625057aa2ab7f2bfd41671 ...
Trying to pull registry.access.redhat.com/ubi8/openjdk-11@sha256:3f8b96e45b83c6170641f387331b49d690f85fa92f625057aa2ab7f2bfd41671...
Getting image source signatures
Copying blob sha256:50973ec5afdbaf48c719a37a132e9a827da1ad121015a22a9420e05800137a28
Copying blob sha256:ca19c1d8b6a56d82b4d9cc9ee30899ce07641f8ba17831ffd074240384f32cb0
Copying config sha256:41ecfe9aa068500e58d86438b8a33611d16688a4dd388f5de8c43f4f728ee77c
Writing manifest to image destination
Adding transient rw bind mount for /run/secrets/rhsm
[1/2] STEP 1/3: FROM docker.io/maven:3.6.3-jdk-11 AS stage1
[1/2] STEP 2/3: COPY . .
--> ead7801f6870
[1/2] STEP 3/3: RUN mvn clean package
[INFO] Scanning for projects...
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-boot-starter-parent/2.1.2/spring-boot-sta
jegan@tektutor.org          jegan@tektutor.org          jegan@tektutor.org
[INFO] Finished at: 2024-06-06T09:51:05Z
[INFO] -----
--> 6a230acaf02
[2/2] STEP 1/6: FROM registry.access.redhat.com/ubi8/openjdk-11@sha256:3f8b96e45b83c6170641f387331b49d690f85fa92f625057aa2ab7f2bfd41671
[2/2] STEP 2/6: COPY --from=stage1 target/*.jar app.jar
--> 976984f14174
[2/2] STEP 3/6: EXPOSE 8080
--> 5f900b2851d6b
[2/2] STEP 4/6: ENTRYPOINT ["java","-jar","app.jar"]
--> 27276d90a9df
[2/2] STEP 5/6: ENV "OPENSHIFT_BUILD_NAME"="spring-ms-1" "OPENSHIFT_BUILD_NAMESPACE"="jegan" "OPENSHIFT_BUILD_SOURCE"="https://github.com/tektutor/spring-ms.git" "OPENSHIFT_BUILD_COMMIT"="82552fb8a8eb3a7cc7e8165b8878dc5e47e50db3"
--> fd1a096c3cef
[2/2] STEP 6/6: LABEL "io.openshift.build.commit.author"="Jeganathan Swaminathan <mail2jegan@gmail.com>" "io.openshift.build.commit.date"="Wed Feb 15 15:11:17 2023 +0530" "io.openshift.build.commit.id"="82552fb8a8eb3a7cc7e8165b8878dc5e47e50db3" "io.openshift.build.commit.message"="Renamed deploy.yml to deploy.yaml" "io.openshift.build.commit.ref"="master" "io.openshift.build.name"="spring-ms-1" "io.openshift.build.namespace"="jegan" "io.openshift.build.source-location"="https://github.com/tektutor/spring-ms.git"
[2/2] COMMIT temp.builder.openshift.io/jegan/spring-ms-1:80d68eaa
--> 7e58da3179c9
Successfully tagged temp.builder.openshift.io/jegan/spring-ms-1:80d68eaa
7e58da3179c998d7ca0808ad6955015c1fcc55a32e88ba33e5d787dc05b13d52

Pushing image image-registry.openshift-image-registry.svc:5000/jegan/spring-ms:latest ...
Getting image source signatures
Copying blob sha256:dc9782e8f7ce3d93ca455acd39dde7555c60f0e005020c67615ee60fd0502c6
Copying blob sha256:50973ec5afdbaf48c719a37a132e9a827da1ad121015a22a9420e05800137a28
Copying blob sha256:ca19c1d8b6a56d82b4d9cc9ee30899ce07641f8ba17831ffd074240384f32cb0
Copying config sha256:7e58da3179c998d7ca0808ad6955015c1fcc55a32e88ba33e5d787dc05b13d52
Writing manifest to image destination
Successfully pushed image-registry.openshift-image-registry.svc:5000/jegan/spring-ms@sha256:bc467993d2b935aff4a3379df71cbbb11fb5057bce9f
0b5a01c1ab01aiddff1e
Push successful
jegan@tektutor.org > ~/openshift-3june-2024/Day4 ➤ main ➤ ls
CustomDockerImage hello README.md
jegan@tektutor.org > ~/openshift-3june-2024/Day4 ➤ main ➤

```

Topology - Red Hat OpenShift - Google Chrome

Not secure https://console.openshift-console.apps.ocp4.tektutor.org.labs/topology/ns/jegan?view=graph

Bookmarks Science Crafts Optical illusion Home Schooling Design Patterns Datastructure... Linux POSIX Threads CPPUnit Microservices Maven Microservices... GoogleTest All Bookmarks

kube:admin

Red Hat OpenShift

Developer

+Add

Topology

Observe

Search

Builds

Helm

Project

ConfigMaps

Secrets

Display options Filter by resource Name Find by name... View shortcuts

spring-ms

The screenshot shows the Red Hat OpenShift Topology interface. On the left, a sidebar lists various navigation options: Developer, +Add, Topology (which is selected and highlighted in blue), Observe, Search, Builds, Helm, Project, ConfigMaps, and Secrets. The main content area displays a single pod named "spring-ms" within the "jegan" project. The pod icon is a blue circle with a white square containing a red circular arrow. Below the icon, there's a green checkmark and a small "D" icon. The URL in the browser bar is https://console.openshift-console.apps.ocp4.tektutor.org.labs/topology/ns/jegan?view=graph.

spring-ms-jegan.apps.ocp4.tektutor.org.labs - Google Chrome

Not secure spring-ms-jegan.apps.ocp4.tektutor.org.labs/

Bookmarks Science Crafts Optical illusion Home Schooling Design Patterns Datastructure... Linux POSIX Threads CPPUnit Microservices Maven Microservices... GoogleTest All Bookmarks

Hello Microservice !

The screenshot shows a web browser window with the URL https://spring-ms-jegan.apps.ocp4.tektutor.org.labs/. The page content is a simple white page with the text "Hello Microservice !" centered in black font. The browser's address bar shows the full URL, and the status bar indicates it is an "Not secure" connection.