

Members

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Starting minikube

```
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ minikube start
minikube v1.30.1 on Ubuntu 22.04
🌟 Using the docker driver based on existing profile
👉 Starting control plane node minikube in cluster minikube
🔄 Pulling base image ...
🔄 Restarting existing docker container for "minikube" ...
🔄 Preparing Kubernetes v1.26.3 on Docker 23.0.2 ...
🔗 Configuring bridge CNI (Container Networking Interface) ...
🔍 Verifying Kubernetes components...
   ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟 Enabled addons: storage-provisioner, default-storageclass
👉 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

Using minikube start, one node Kubernetes cluster will be initialized with all its components.

Kubectl apply

```
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ ls
mongo-configmap.yaml  mongodb-deployment.yaml  mongodb-service.yaml  mongo-express-deployment.yaml  mongo-express-service.yaml  mongo-secret.yaml
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply mongo-configmap.yaml
error: Unexpected args: [mongo-configmap.yaml]
See 'kubectl apply -h' for help and examples
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl -f apply mongo-configmap.yaml
Error: flags cannot be placed before plugin name: -f
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-configmap.yaml
configmap/mongodb-configmap unchanged
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongodb-deployment.yaml
deployment.apps/mongo-deployment unchanged
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongodb-service.yaml
service/mongo-service unchanged
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-express-deployment.yaml
deployment.apps/mongo-express unchanged
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-express-service.yaml
service/mongo-express-service unchanged
huzefa@huzefa-ThinkPad-T470-W10D6:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl apply -f mongo-secret.yaml
secret/mongodb-secret unchanged
```

All the configuration files will now be deployed or updated in Kubernetes cluster

Kubectl describe

```
huzefa@huzefa-ThinkPad-T470-W100G:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl get deployment
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
mongo-deployment 1/1     1            1           68m
mongo-express  1/1     1            1           67m
huzefa@huzefa-ThinkPad-T470-W100G:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl describe deployment mongo-deployment
Name:          mongo-deployment
Namespace:     default
CreationTimestamp: Sun, 14 May 2023 07:34:12 +0000
Labels:        app=mongodb
Annotations:    deployment.kubernetes.io/revision: 1
Selector:      app=mongodb
Replicas:      1 desired | 1 updated | 1 total | 1 available | 0 unavailable
StrategyType:  RollingUpdate
MinReadySeconds: 0
RollingUpdateStrategy: 25% max unavailable, 25% max surge
Pod Template:
  Labels:  app=mongodb
  Containers:
    mongodb:
      Image:      mongo
      Port:       27017/TCP
      Host Port:  0/TCP
      Environment:
        MONGO_INITDB_DATABASE:      admin
        MONGO_INITDB_ROOT_USERNAME: <set to the key 'mongo-root-username' in secret 'mongodb-secret'> Optional: false
        MONGO_INITDB_ROOT_PASSWORD: <set to the key 'mongo-root-password' in secret 'mongodb-secret'> Optional: false
      Mounts:
        Volumes:
          <none>
  Conditions:
    Type           Status  Reason
    ----           -
    Progressing    True    NewReplicaSetAvailable
    Available      True    MinimumReplicasAvailable
    OldReplicaSets: <none>
    NewReplicaSet:  mongo-deployment-85bbdc6549 (1/1 replicas created)
  Events:
    Type     Reason          Age   From          Message
    ----     -
    Normal   ScalingReplicaSet   68m   deployment-controller   Scaled up replica set mongo-deployment-85bbdc6549 to 1
huzefa@huzefa-ThinkPad-T470-W100G:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
mongo-deployment-85bbdc6549-whs6q  1/1     Running   2 (52m ago)  68m
mongo-express-5bcd46fcff-l95vc     1/1     Running   4 (52m ago)  67m
```

This will give all the detailed information of deployment, service, pod ... you want to describe. By detailed information here we mean status, volumes, and much more shown above

Kubectl logs

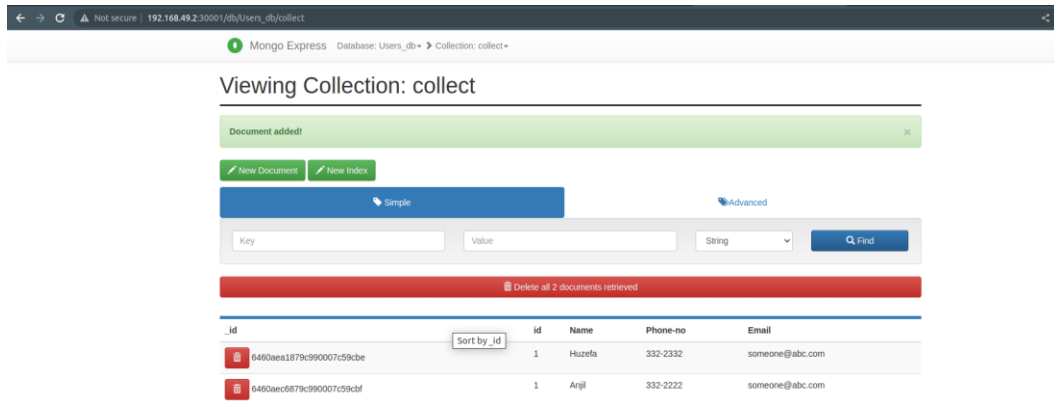
```
huzefa@huzefa-ThinkPad-T470-W100G:~/Desktop/data_engineering_bootcamp_2303/tasks/4_microservices_development/day_3_kubernetes/hands-on$ kubectl logs mongo-express-5bcd46fcff-l95vc mongo-express
Welcome to mongo-express

(node:7) [MONGODB DRIVER] Warning: Current Server Discovery and Monitoring engine is deprecated, and will be removed in a future version. To use the new Server Discover and Monitoring engine, pass option { useUnifiedTopology: true } to the MongoClient constructor.
Mongo Express server listening at http://0.0.0.0:8081
Server is open to allow connections from anyone (0.0.0.0)
basicAuth credentials are "admin:pass", it is recommended you change this in your config.js!
```

This will give us logs of the specific container within the specific pod.

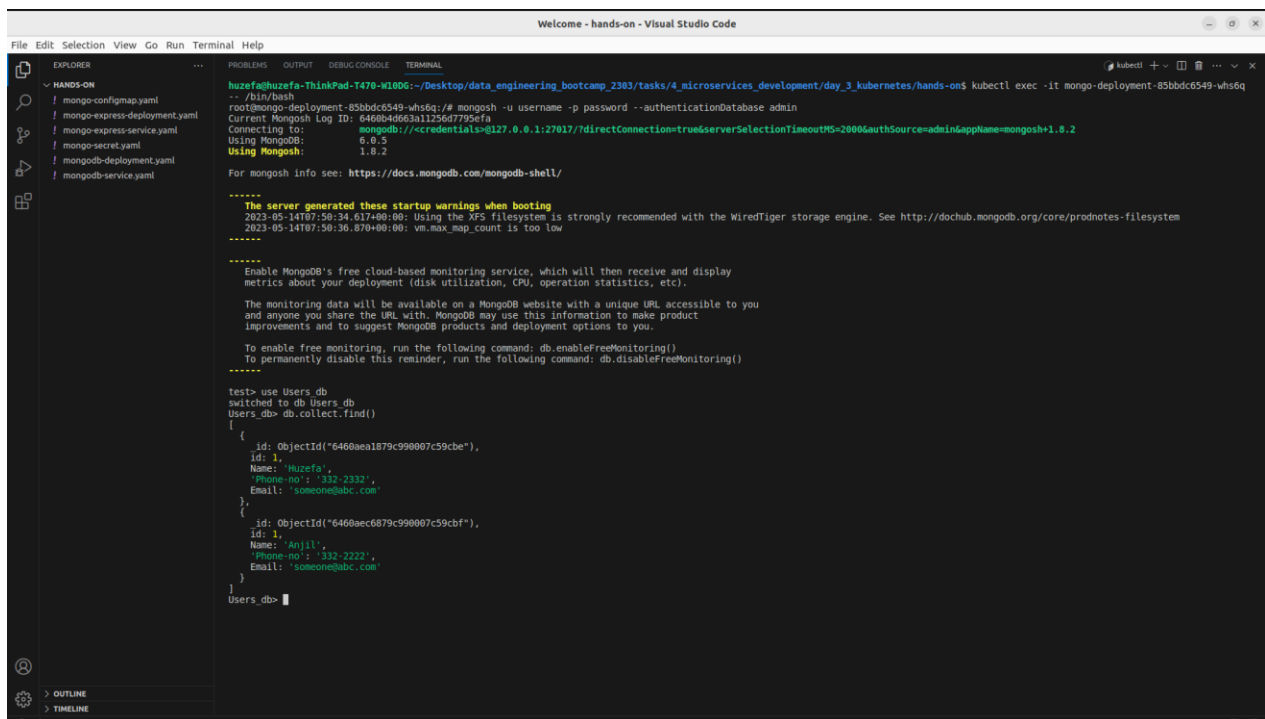
By logs here can be error messages, updates, status and more...

Adding Documents from mongo express UI



Here database is created users_db with collection name collect and with documents added show above

Showing created documents using mongosh cli



Following are some commands that were performed to show the created documents

1. `kubectl exec -it mongo-deployment-85bbdc6549-whs6q -- /bin/bash`: this command will take us inside the specified running container in the bash shell.

Now we are in our container in bash shell. To interact with mongo db we will use mongosh cli.

2. `mongosh -u username -p password --authenticationDatabase admin`: with mongosh command we are specifying the authentication username and password which was set in the deployment.yaml environment variables which is directing to our secret.yaml file. Specifying the database admin.

Now we are in Mongosh shell

3. `use Users_db`: command to switch from admin to User_db (the db we created with our mongo express UI).
4. `db.collection.find()`: will retrieve all the documents we created as shown above