

Project Development Phase
Delivery of Sprint-4

Date	19 November 2022
Team ID	PNT2022TMID24001
Project Name	Inventory Management System For Retailer

Deploying it on our Kubernetes services:

Step 1:

Open command prompt in the location where the project file is in.

Step 2:

Login to docker, ibmcloud and ibmcloud cr by using [docker login], [ibmcloud login] and [ibmcloud cr login] commands.

Step 3:

Build the image to docker hub.

Step 4:

Tag the docker image with our IBM container register namespaces.

Step 5:

Push to the namespaces of IBM container registry.

Step 6:

View the pushed image on IBM container registry.

Step 5:

Launch Kubernetes service and connect via CLI

Step 5:

Apply the yaml files using command prompt.

Step 5:

View the public IP and port number.

Step 5:

Go to the Public IP with the respected port number.

Output:

Login to the docker, ibmcloud & ibmcloud cr in Command Prompt:

```
Windows PowerShell

Email> mdyaseen.246@gmail.com

Password>
Authenticating...
OK

Targeted account Mohamed Yaseen's Account (b16c6751380c4cf5b9c374e8dd38ae18)
Targeted resource group Default
Targeted region eu-de

API endpoint: https://cloud.ibm.com
Region: eu-de
User: mdyaseen.246@gmail.com
Account: Mohamed Yaseen's Account (b16c6751380c4cf5b9c374e8dd38ae18)
Resource group: Default
CF API endpoint:
Org:
Space:
PS C:\Users\Yaseen\Desktop\Final Code> ibmcloud cr login
Logging 'docker' in to 'jp.icr.io'...
Logged in to 'jp.icr.io'.

OK
PS C:\Users\Yaseen\Desktop\Final Code> docker login
Authenticating with existing credentials...
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/
PS C:\Users\Yaseen\Desktop\Final Code> |
```

Building, Tagging and Pushing the Image to Container Registry:

```
Windows PowerShell

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Yaseen\Desktop\Final Code> docker login
Authenticating with existing credentials...
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/
PS C:\Users\Yaseen\Desktop\Final Code> docker build -t yaseen-project .
[+] Building 78.2s (12/12) FINISHED
=> [internal] load build definition from Dockerfile 0.1s
=> => transferring dockerfile: 288B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/python:3.10.6 2.9s
=> [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/6] FROM docker.io/library/python:3.10.6@sha256:745efd7b7e4aac9a8422bd8c62d8bc35a693e8979a240d29677cb03e6aa 0.0s
=> [internal] load build context 0.3s
=> => transferring context: 293.40kB 0.2s
=> CACHED [2/6] RUN apt-get update 0.0s
=> CACHED [3/6] RUN mkdir /app 0.0s
=> CACHED [4/6] WORKDIR /app 0.0s
=> [5/6] COPY . /app 1.0s
=> [6/6] RUN pip install -r requirements.txt 72.8s
=> exporting to image 0.9s
=> => exporting layers 0.9s
=> => writing image sha256:d3c7f8c2db08e4ef89eeab61cc3b946ac152e11036b5075e24835fc828a157b6 0.0s
=> => naming to docker.io/library/yaseen-project 0.0s
PS C:\Users\Yaseen\Desktop\Final Code> docker tag yaseen-project jp.icr.io/ns-ibm-project/yaseen-project
```

```
Windows PowerShell
PS C:\Users\Yaseen\Desktop\Final Code> docker push jp.icr.io/ns-ibm-project/yaseen-project
Using default tag: latest
The push refers to repository [jp.icr.io/ns-ibm-project/yaseen-project]
7392f00cc04c: Pushed
2184e185e727: Pushed
5f70bf18a086: Layer already exists
ad02e4ab118b: Layer already exists
8488b33b6249: Layer already exists
bfc1deb8136e: Layer already exists
1f123186824c: Layer already exists
3d6eb1152931: Layer already exists
100796cdf3b1: Layer already exists
54acb5a6fa0b: Layer already exists
8d51c618126f: Layer already exists
9ff6e4d46744: Layer already exists
a89d1d47b5a1: Layer already exists
655ed1b7a428: Layer already exists
latest: digest: sha256:3c076e146cc01276444570c16fac22939f5027ae2e4c8346edeaf27298bec7eb size: 3266
PS C:\Users\Yaseen\Desktop\Final Code> |
```

Viewing the Pushed Image on Container Registry:

IBM Cloud

Container Registry

Quick start

Namespaces 1

Repositories 2

Images 2

Trash 7

Settings

Search resources and products...

Catalog Manage Mohamed Yaseen's Account

Images

Location Tokyo

View by: Digest Search Create

Repository@digest	Tags	Manifest type	Created	Size	Security status
ns-ibm-project/yaseen-project@sha256:3c076e146cc0...	latest	Docker	10 minutes ago	466 MB	26 issues
ns-ibm-project/lbmproject@sha256:2adfe7c4b7a...	1-master-d8603b42-20221122120836	Docker	1 day ago	376 MB	9 issues

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Launch Kubernetes Service and Connect Via CLI:

The screenshot shows the IBM Cloud Kubernetes dashboard for a free cluster named 'mycluster-free'. The cluster is in a 'Normal' state and expires in 29 days. The dashboard provides an overview of the cluster's status, including node status (1 of 1 Normal), add-on status (0 of 0 Normal), master status (Normal), and ingress status (Healthy). It also displays details such as the cluster ID (cdub988f9um7dbgfin50), version (1.24.0_1544), infrastructure (Classic), and zones (Milan 01). The node health section shows 1 total nodes, all in a Normal state. The dashboard includes a sidebar with navigation options like Overview, Worker nodes, Worker pools, and DevOps. A top navigation bar shows the user's account and search functionality.

Clusters / mycluster-free Normal Expires in 29 days Add tags

Expires in 29 days: Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a [standard cluster](#).

Node status
1 of 1
Normal
Details ↓

Add-on status
0 of 0
Normal
Details ↓

Master status
Normal
Docs ↗

Ingress status
Healthy ⓘ
Docs ↗

Details

Cluster ID cdub988f9um7dbgfin50	Version 1.24.0_1544	Infrastructure Classic	Zones Milan 01
Created 11/22/2022, 5:07 PM	Resource group Default	Image security enforcement Enable	

Node health [Worker node details](#)

1 total nodes

Critical 0% Warning 0% Normal 100% Pending 0%

This screenshot shows the same IBM Cloud Kubernetes dashboard as the previous one, but with a 'Connect via CLI' modal window open. The modal provides instructions for connecting to the cluster using the command-line interface. It includes the cluster status (Normal) and a list of steps: 1. Log in to your IBM Cloud account, 2. Set the Kubernetes context to your cluster, and 3. Verify that you can connect to your cluster. The modal also provides the specific commands for each step: 'ibmcloud login -a cloud.ibm.com -r eu-de -g Default', 'ibmcloud ks cluster config --cluster cdub988f9um7dbgfin50', and 'kubectl config current-context'. A tip at the bottom suggests using the 'kubectl config use-context' command to switch between clusters.

Clusters / mycluster-free Normal Expires in 29 days Add tags

Expires in 29 days: Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a [standard cluster](#).

Node status
1 of 1
Normal
Details ↓

Details

Cluster ID cdub988f9um7dbgfin50	Version 1.24.0_1544	Infrastructure Classic	Zones Milan 01
Created 11/22/2022, 5:07 PM	Resource group Default	Image security enforcement Enable	

Node health [Worker node details](#)

1 total nodes

Critical 0% Warning 0% Normal 100% Pending 0%

Connect via CLI
Cluster status: Normal

If this is your first time connecting to an IBM Cloud cluster, see the [full setup directions](#).

- Log in to your IBM Cloud account. Include the --sso option if using a federated ID.
`ibmcloud login -a cloud.ibm.com -r eu-de -g Default`
- Set the Kubernetes context to your cluster for this terminal session. For more information about this command, see the [docs](#).
`ibmcloud ks cluster config --cluster cdub988f9um7dbgfin50`
- Verify that you can connect to your cluster.
`kubectl config current-context`

Now, you can run `kubectl` commands to manage your cluster workloads in IBM Cloud! For a full list of commands, see the [Kubernetes docs](#).

Tip: Plan to use multiple clusters? Repeat these steps for each cluster. Then, you can use the `kubectl config use-context` command to switch your context to a different cluster.

View the Public IP and Port Number:

cloud.ibm.com/kubernetes/clusters/cdub908f0um7dbgf1n50/nodes

IBM Cloud Search resources and products... Catalog Manage Mohamed Yaseen's Account

Clusters / mycluster-free Normal Expires in 29 days Add tags Help Kubernetes dashboard Actions...

Overview Worker nodes Worker pools DevOps New

Pool: Filter... Search Add

Name	Status	Worker pool	Zone	Private IP	Public IP	Version
000000fa	Normal	default	Milan 01	10.144.185.70	159.122.183.25	1.24.8_1545

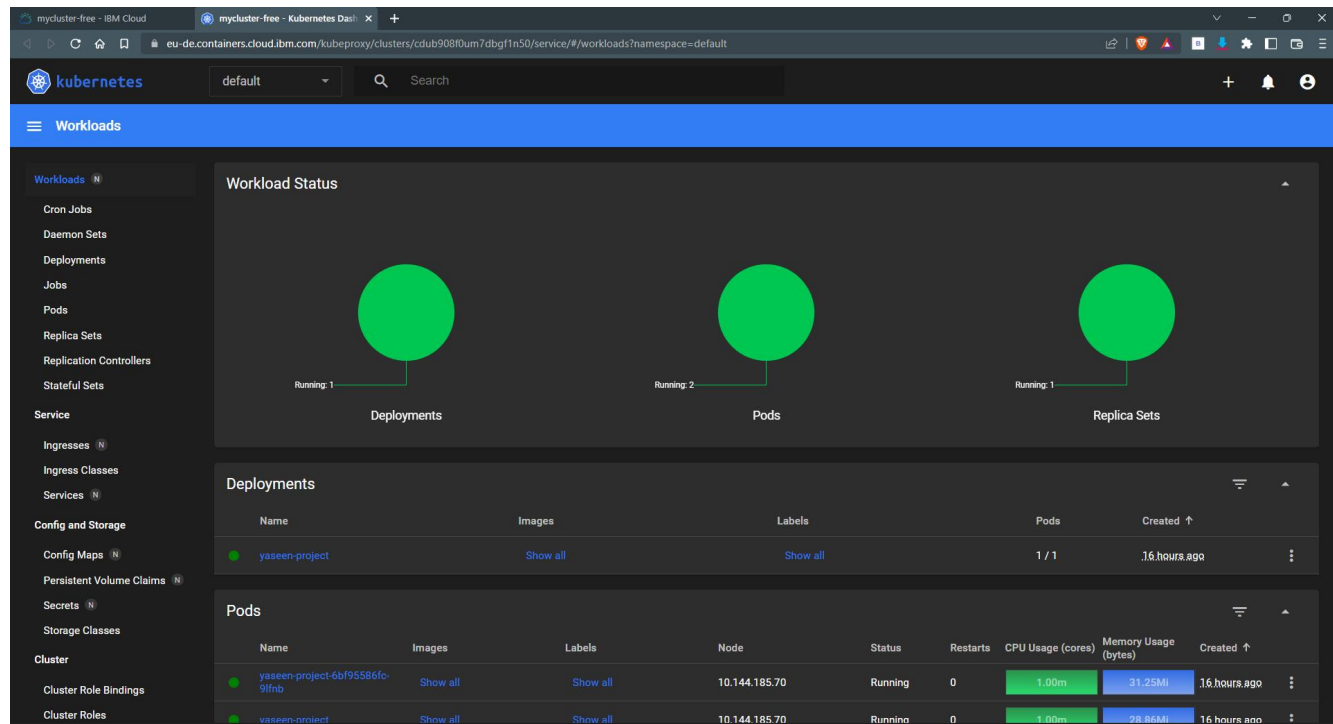
ID kube-cdub908f0um7dbgf1n50-myclusterfr-default-000000fa

Status	Flavor	Private VLAN	Public VLAN
--	Free - 2 vCPUs 4GB RAM	2218181	2218179

Items per page: 25 1-1 of 1 item 1 1 of 1 page

```
Windows PowerShell
PS C:\Users\Yaseen\Desktop\Final Code>
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PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code>
PS C:\Users\Yaseen\Desktop\Final Code> kubectl run yaseen-project --image=jp.icr.io/ns-ibm-project/yaseen-project
pod/yaseen-project created
PS C:\Users\Yaseen\Desktop\Final Code> kubectl apply -f .\deployment.yaml
deployment.apps/yaseen-project created
PS C:\Users\Yaseen\Desktop\Final Code> kubectl apply -f .\service.yaml
service/project-service unchanged
PS C:\Users\Yaseen\Desktop\Final Code> kubectl apply -f .\kubernetes\flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress unchanged
PS C:\Users\Yaseen\Desktop\Final Code> kubectl apply -f .\kubernetes\flask_service.yaml
service/mycluster-free-service unchanged
PS C:\Users\Yaseen\Desktop\Final Code> kubectl apply -f .\kubernetes\ibm_deployment.yaml
deployment.apps/mycluster-free created
PS C:\Users\Yaseen\Desktop\Final Code> kubectl get svc
NAME                                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
flask-app-service                   NodePort    172.21.169.184 <none>         5000:32672/TCP   24h
flask-service                       NodePort    172.21.250.81  <none>         5000:32015/TCP   22h
ibmproject                          NodePort    172.21.91.42   <none>         3000:30960/TCP   26h
kubernetes                         ClusterIP   172.21.0.1     <none>         443/TCP          26h
mycluster-free-service              NodePort    172.21.163.161 <none>         5000:31134/TCP   24h
project-service                     ClusterIP   172.21.55.51   <none>         5000/TCP          7h31m
yaseen-project-service              ClusterIP   172.21.65.168  <none>         5000/TCP          24h
PS C:\Users\Yaseen\Desktop\Final Code> |
```


Kubernetes Dashboard:



Visit the Public IP and Port Number of Project:

The screenshot shows the 'Inventory' website, which is a management tool for retailers. The header includes a 'signin' button. The main content area features the title 'Inventory management for Retailers' and a description: 'Manage orders. Track inventory. Handle GST billing. One inventory management software to run all your inventory operations.' A 'Get started' button is prominently displayed. Below the text is an illustration of a person sitting at a desk with a laptop, surrounded by various charts and graphs. A chat bubble in the bottom right corner contains the text: 'Hi! I'm a virtual assistant. How can I help you today?'.