

Project Development Phase Sprint 4

Project Domain	Cloud Application Development
Project Title	News Tracker Application
Team Id	PNT2022TMID22591

Sprint-4 Deliverables

1.Containerized the application using docker desktop and pushed the image file to dockerhub.

2.Pushed the docker image file to the ibm cloud container registry.

3.Deployed the image file from container registry to the Kubernetes.

Docker playground commands:

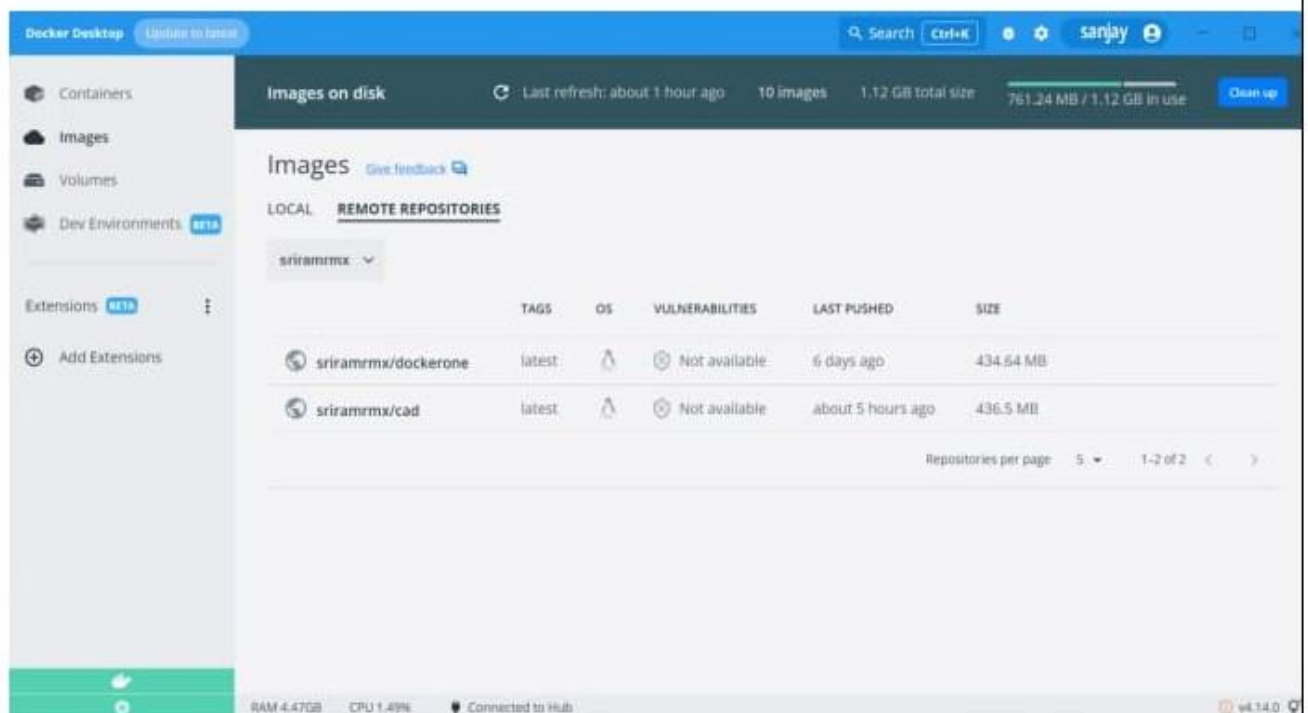
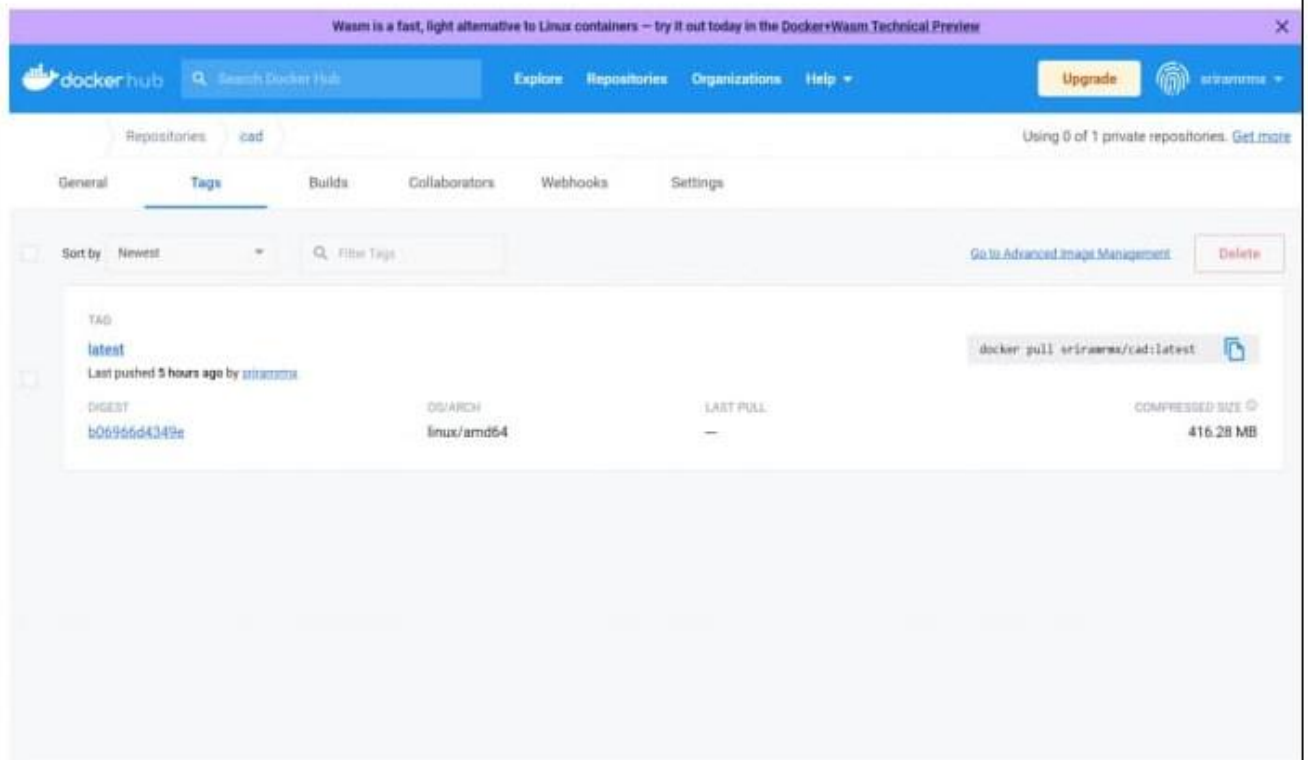
- docker pull sriramrmx/cad
- docker run -p 5000:5000 sriramrmx/cad

Kubernetes deployment:

- IP/Port Number: 159.122.187.10:32251
- Website address: <https://newstracker.ml/>

Snapshots:

Creating Images Using Docker Hub



Uploading image file to ibm cloud container registry and Deploying the image file in ibm cloud container to the ibm Kubernetes cluster

IBM Cloud

Container Registry

Quick start

Namespaces1

Repositories1

Images1

Trash1

Settings

Search resources and products...


CatalogManageSenjay Account



Repositories

LocationDallas

Search

Create

Name	Image count	Namespace	Last updated
 cad us.icr.io/newstracker/cad	1	newstracker	5 hours ago

Digest	Manifest type	Tags	Created	Size	Security status
 b06966d4349e	Docker	latest	5 hours ago	436 MB	 102 issues

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IBM Cloud

Container Registry

Quick start

Namespaces1

Repositories1

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Namespaces


LocationDallas

Viewing filtered namespaces
A filter is applied so that only the namespace newstracker is included in the table.[Show all namespaces](#)

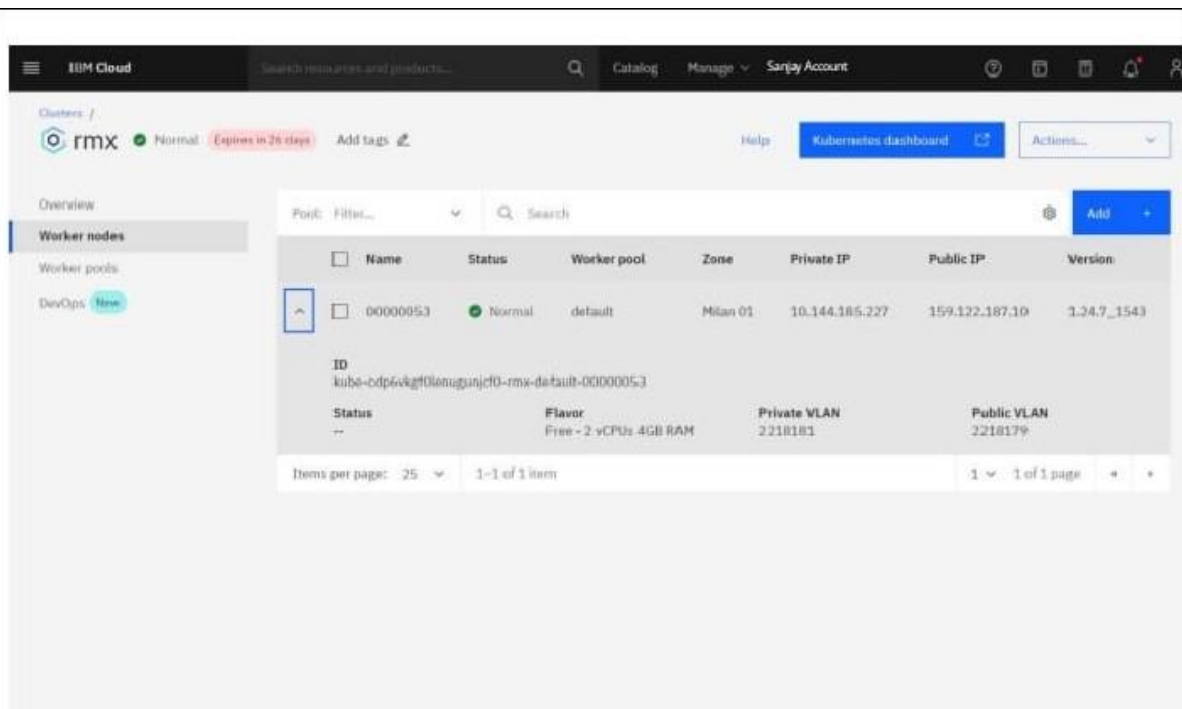
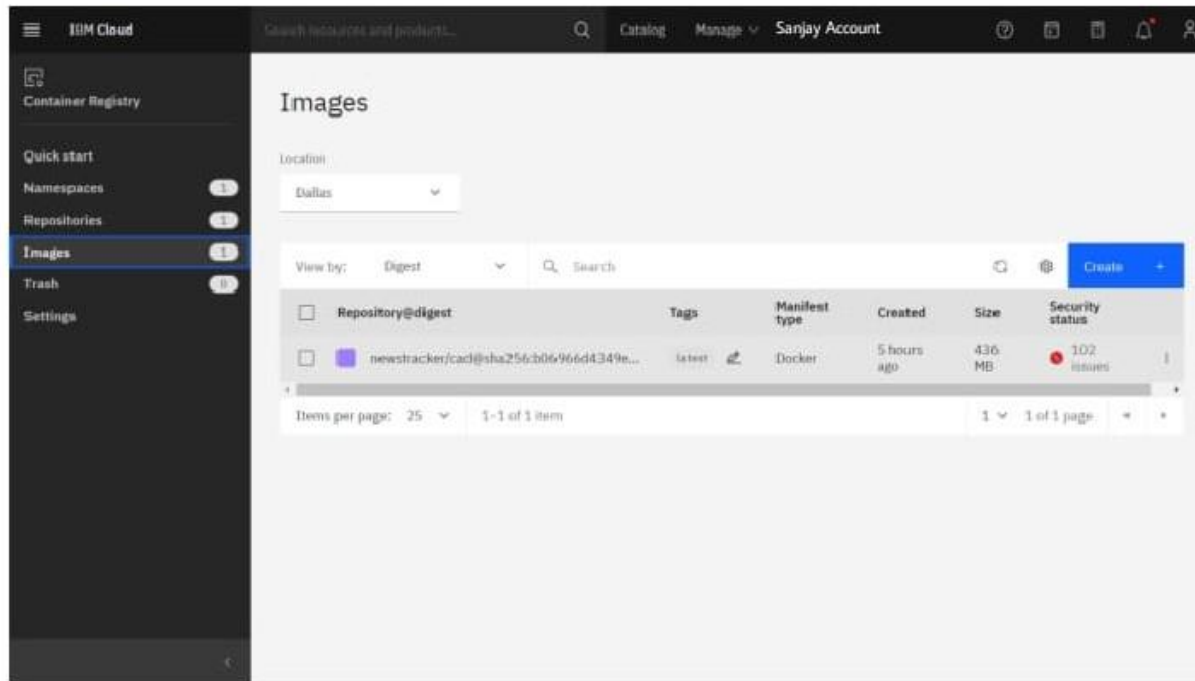
Resource group: Filter...Search

Create

Name	Resource group	Repository count	Image count	Retention policy
 newstracker	Default	1	1	Retain all images

Repository	Image count	Last updated
 us.icr.io/newstracker/cad	1	5 hours ago

Items per page: 251-1 of 1 item11 of 1 page



IBM Cloud

Search resources and products...

Catalog

Manage

Sanjay Account

?

Clusters /

rmx

Normal

Expires in 26 days

Add tags

Help

Kubernetes dashboard

Actions...

Overview

Worker nodes

Worker pools

DevOps New

Expires in 26 days:

Be sure to back up your data, your cluster will be deleted in 26 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

cdp6vkgf0lenugunjc10

Version

1.24.7_1542

Infrastructure

Classic

Zones

Milan 01

Created

11/14/2022, 10:11 PM

Resource group

Default

Image security enforcement

Enable

Node health

Worker node details

IBM Cloud

Search resources and products...

Catalog

Manage

Sanjay Account

?

Clusters /

rmx

Normal

Expires in 26 days

Add tags

Help

Kubernetes dashboard

Actions...

Overview

Worker nodes

Worker pools

DevOps New

Pool: 1 x Filter...

Search

Add

<input type="checkbox"/>	Name	Status	Worker pool	Zone	Private IP	Public IP	Version
<input type="checkbox"/>	00000053	Normal	default	Milan 01	10.144.185.227	159.122.187.10	1.24.7_1543
<div>ID</div> <div>kube-cdp6vkgf0lenugunjc10-rmx-default-00000053</div> <div><div>Status</div><div>Flavor</div><div>Private VLAN</div><div>Public VLAN</div></div> <div>Free - 2 vCPUs 4GB RAM</div> <div>2218181</div> <div>2218179</div>							

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Commands used in command prompt for containerizing and deploying

```
flask-node-deployment      ClusterIP  172.21.227.148  <none>      88/TCP      2d16h
kubernetes                 ClusterIP  172.21.0.1      <none>      443/TCP     3d16h
newstracker               NodePort   172.21.108.222  <none>      5000:32251/TCP 17m

C:\windows\system32>kubectl describe service newstracker
Name:                   newstracker
Namespace:              default
Labels:                 <none>
Annotations:            <none>
Selector:               app=newstracker
Type:                  NodePort
IP Family Policy:       SingleStack
IP Families:            IPv4
IP:                    172.21.108.222
IPs:                   172.21.108.222
Port:                  <unset> 5000/TCP
TargetPort:            5000/TCP
NodePort:              <unset> 32251/TCP
Endpoints:             172.30.159.221:5000
Session Affinity:      None
External Traffic Policy: Cluster
Events:                <none>

C:\windows\system32>
```

```
OK

C:\windows\system32>kubectl get nodes
NAME                                STATUS    ROLES    AGE      VERSION
10.144.185.227                     Ready    <none>   3d16h   v1.24.7+IKS

C:\windows\system32>kubectl get pods
NAME                                READY    STATUS    RESTARTS   AGE
cad-newstracker-deployment         1/1      Running   0           18m
cad-newstracker-deployment-6c9b677bdc-wdtcs  1/1      Running   0           20m
flask-node-deployment-9cdc4bf8-5v4tm  1/1      Running   0           2d16h

C:\windows\system32>kubectl get depolyment
error: the server doesn't have a resource type "depolyment"

C:\windows\system32>kubectl get services
NAME                                TYPE        CLUSTER-IP      EXTERNAL-IP  PORT(S)          AGE
cad-newstracker-deployment         ClusterIP   172.21.91.203   <none>       5000/TCP         20m
dockerone                         NodePort    172.21.131.50   <none>       88:31364/TCP     2d16h
flask-node-deployment              ClusterIP   172.21.227.148  <none>       88/TCP           2d16h
kubernetes                         ClusterIP   172.21.0.1      <none>       443/TCP          3d16h
newstracker                       NodePort    172.21.108.222  <none>       5000:32251/TCP  17m

C:\windows\system32>
```

```
C:\windows\system32>ibmcloud cr login
Logging 'docker' in to 'us.icr.io'...
Logged in to 'us.icr.io'.
```

OK

```
C:\windows\system32>kubect1 get nodes
NAME                STATUS    ROLES    AGE      VERSION
10.144.185.227      Ready    <none>   3d16h    v1.24.7+IKS
```

```
C:\windows\system32>kubect1 get pods
NAME                                READY   STATUS    RESTARTS   AGE
cad-newstracker-deployment          1/1     Running   0           18m
cad-newstracker-deployment-6c9b677bdc-wdtcs  1/1     Running   0           20m
flask-node-deployment-9cdc4bf8-5v4tm  1/1     Running   0           2d16h
```

```
C:\windows\system32>kubect1 get depolyment
error: the server doesn't have a resource type "depolymment"
```

```
C:\windows\system32>_
```

```
C:\windows\system32>ibmcloud cs workers --cluster cdp6vkpf0lenugunjcf0
```

OK

ID	Zone	Version	Public IP	Private IP	Flavor	State	Stat
kube-cdp6vkpf0lenugunjcf0-rmx-default-00000053	us	1.24.7_1543	159.122.187.10	10.144.185.227	free	normal	Read

```
C:\windows\system32>kubect1 get services
NAME                                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
cad-newstracker-deployment          ClusterIP    172.21.91.203 <none>         5000/TCP          23m
dockerone                           NodePort     172.21.131.50 <none>         88:31364/TCP      2d16h
flask-node-deployment               ClusterIP    172.21.227.148 <none>         88/TCP            2d16h
kubernetes                           ClusterIP    172.21.0.1     <none>         443/TCP           3d17h
newstracker                         NodePort     172.21.108.222 <none>         5000:32251/TCP    20m
```

```
C:\windows\system32>kubect1 get pods
NAME                                READY   STATUS    RESTARTS   AGE
cad-newstracker-deployment          1/1     Running   0           22m
cad-newstracker-deployment-6c9b677bdc-wdtcs  1/1     Running   0           24m
flask-node-deployment-9cdc4bf8-5v4tm  1/1     Running   0           2d16h
```

```
C:\windows\system32>
```


Source code

deployment.yaml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: cad-newstracker-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: newstracker
  template:
    metadata:
      labels:
        app: newstracker
    spec:
      containers:
        - name: newstracker
image: us.icr.io/newstracker/cad
imagePullPolicy: Always
ports:
- containerPort: 5000
```

service.yaml

service.yaml:

```
apiVersion: v1
kind: Service
metadata:
  name: cad-newstracker-deployment
spec:
  ports:
    - port: 5000
      targetPort: 5000
  selector:
    app: Newstracker
```

requirements.txt:

```
flask
flask_mail
newsapi-python
ibm_db
```

Docker File:

```
FROM python:3.6
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
RUN python3 -m pip install ibm_db
RUN python3 -m pip install newsapi-python
RUN python3 -m pip install flask_mail
RUN python3 -m pip install flask
EXPOSE 5000
CMD ["python","app.py"]
```