

Project 03

I. Build and Deploy Containers to ECR

1. Store Docker images in ECR

Amazon ECR > Repositories > udacity-p03

udacity-p03

View push commands Edit

Images (1)

Search artifacts

<input type="checkbox"/>	Image tag	Artifact type	Pushed at	Size (MB)	Image URI	Digest	Scan status	Vulnerabilities
<input type="checkbox"/>	latest	Image	November 07, 2023, 15:46:27 (UTC+07)	155.64	Copy URI	sha256:fb69f40f0e4e206...	-	-

2. Run CodeBuild pipeline to deploy Docker image to AWS ECR

Developer Tools > CodeBuild > Build projects > udacity-p03-codebuild-pl

udacity-p03-codebuild-pl

Notify Share Edit Delete build project Start build with overrides Start build

Configuration

Source provider Amazon S3	Primary repository udacity-p03-codebuild/Archive.zip	Artifacts upload location -	Build badge Disabled
Public builds Disabled			

Build history Batch history Build details Build triggers Metrics

Build history

Stop build View artifacts View logs Delete builds Retry build

<input type="checkbox"/>	Build run	Status	Build number	Source version	Submitter	Duration	Completed
<input type="checkbox"/>	udacity-p03-codebuild-pl:4bdc6ef1-7a23-4249-89d6-959ff4806ced	Succeeded	4	udacity-p03-codebuild/Archive.zip	voclabs/user2112747=7f2737f4-9d0b-11ec-a4c4-6bb4dd837079	1 minute 31 seconds	6 hours ago
<input type="checkbox"/>	udacity-p03-codebuild-pl:37f9c904-ae31-4ef4-8da2-0d9bf9c05180	Failed	3	udacity-p03-codebuild/Archive.zip	voclabs/user2112747=7f2737f4-9d0b-11ec-a4c4-6bb4dd837079	1 minute 20 seconds	6 hours ago
<input type="checkbox"/>	udacity-p03-codebuild-pl:e9cbe800-df1a-496a-9d3b-253de807d8a8	Failed	2	udacity-p03-codebuild/Archive.zip	voclabs/user2112747=7f2737f4-9d0b-11ec-a4c4-6bb4dd837079	48 seconds	6 hours ago
<input type="checkbox"/>	udacity-p03-codebuild-pl:d1f6e48e-fddb-4164-b9a3-7a4c1c9af97h	Failed	1	udacity-p03-codebuild/Archive.zip	voclabs/user2112747=7f2737f4-9d0b-11ec-a4c4-6bb4dd837079	56 seconds	6 hours ago

3. CodeBuild pipeline was triggered by Github Commit

Developer Tools > CodeBuild > Build projects > udacity-p03-codebuild-pl

udacity-p03-codebuild-pl

[Notify](#) [Share](#) [Edit](#) [Delete build project](#) [Start build with overrides](#) [Start build](#)

Configuration

Source provider GitHub	Primary repository lengochieu1604/Submit-pr3	Artifacts upload location -	Build badge Disabled
Public builds Disabled			

[Build history](#) [Batch history](#) [Build details](#) [Build triggers](#) [Metrics](#)

Build history

[Refresh](#) [Stop build](#) [View artifacts](#) [View logs](#) [Delete builds](#) [Retry build](#)

< 1 > ⚙

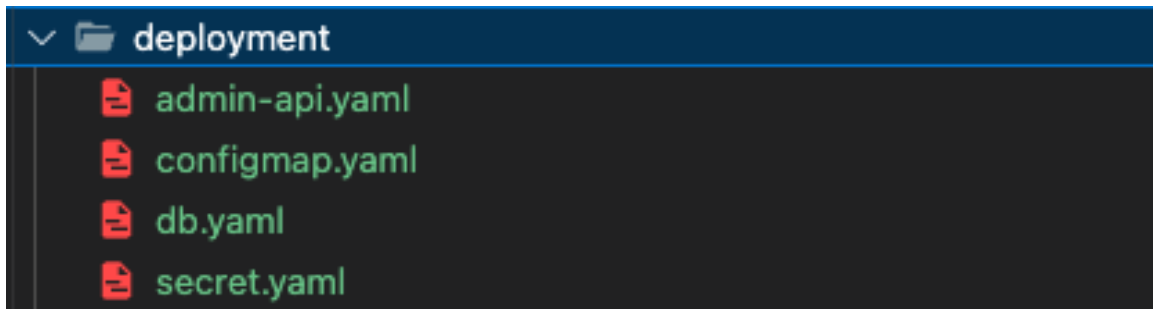
<input type="checkbox"/>	Build run	Status	Build number	Source version	Submitter	Duration	Completed
<input type="checkbox"/>	udacity-p03-codebuild-pl:c23158ce-14a4-4608-8aeb-92f7bfa6541c	✔ Succeeded	7	8c33d5f366996bbe49daba2b38ad4a5963b8206f	GitHub-Hookshot/89a7806	1 minute 26 seconds	1 hour ago

II. Kubernetes Configuration

1. Create functional Kubernetes YAML configuration files

The `deployment/` contains Kubernetes config files that:

- create the service's deployment in Kubernetes.
- create the service's services in Kubernetes.
- share plaintext environment variables in a configmap file
- share sensitive environment variables in a separate secrets file



2. Successfully deploy Kubernetes Service

- A screenshot of `kubectl get svc`

```
> kubectl get svc
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
admin-api	LoadBalancer	10.100.7.93	a24c09d7131104c09a07261b3c2e52bf-39995389.us-east-1.elb.amazonaws.com	5000:31527/TCP	5h54m
app-db	NodePort	10.100.86.229	<none>	5432:32447/TCP	5h54m
kubernetes	ClusterIP	10.100.0.1	<none>	443/TCP	7h17m

- A screenshot of `kubectl describe deployment <SERVICE_NAME>`

```
> kubectl describe deployment admin-api
```

```
Name: admin-api
Namespace: default
CreationTimestamp: Tue, 07 Nov 2023 16:11:17 +0700
Labels: name=admin-api
Annotations: deployment.kubernetes.io/revision: 2
Selector: service=admin-api
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: service=admin-api
  Containers:
    admin-api:
      Image: 058700463501.dkr.ecr.us-east-1.amazonaws.com/udacity-p03
      Port: <none>
      Host Port: <none>
      Environment:
        DB_USERNAME: <set to the key 'DB_USERNAME' of config map 'db-env'> Optional: false
        DB_PASSWORD: <set to the key 'DB_PASSWORD' in secret 'db-secret'> Optional: false
        DB_HOST: app-db
      Mounts: <none>
      Volumes: <none>
  Conditions:
    Type          Status Reason
    ----          -
    Progressing   True  NewReplicaSetAvailable
    Available     True  MinimumReplicasAvailable
  OldReplicaSets: <none>
  NewReplicaSet:  admin-api-75bff4447 (1/1 replicas created)
  Events:         <none>
```

- A screenshot of `kubectl get pods`

```
> kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
admin-api-75bff4447-9tqxg	1/1	Running	0	5h35m
app-db-6748cfc8bd-bn5lw	1/1	Running	0	5h35m

3. Create a Kubernetes Database Service using Helm Chart

- A screenshot of `kubectl describe svc`

`<DATABASE_SERVICE_NAME>` shows `app.kubernetes.io/managed-by=Helm` in the `Labels` section

```
> kubectl describe svc app-db
Name:          app-db-postgresql
Namespace:     default
Labels:        app.kubernetes.io/component=primary
               app.kubernetes.io/instance=app-db
               app.kubernetes.io/managed-by=Helm
               app.kubernetes.io/name=postgresql
               app.kubernetes.io/version=16.0.0
               helm.sh/chart=postgresql-13.2.2
Annotations:   meta.helm.sh/release-name: app-db
               meta.helm.sh/release-namespace: default
Selector:      app.kubernetes.io/component=primary,app.kubernetes.io/instance=app-db,app.kubernetes.io/name=postgresql
Type:          ClusterIP
IP Family Policy: SingleStack
IP Families:   IPv4
IP:            10.100.221.38
IPs:           10.100.221.38
Port:          tcp-postgresql  5432/TCP
TargetPort:    tcp-postgresql/TCP
Endpoints:     <none>
Session Affinity: None
Events:        <none>

Name:          app-db-postgresql-hl
Namespace:     default
Labels:        app.kubernetes.io/component=primary
               app.kubernetes.io/instance=app-db
               app.kubernetes.io/managed-by=Helm
               app.kubernetes.io/name=postgresql
               app.kubernetes.io/version=16.0.0
               helm.sh/chart=postgresql-13.2.2
Annotations:   meta.helm.sh/release-name: app-db
               meta.helm.sh/release-namespace: default
               service.alpha.kubernetes.io/tolerate-unready-endpoints: true
Selector:      app.kubernetes.io/component=primary,app.kubernetes.io/instance=app-db,app.kubernetes.io/name=postgresql
Type:          ClusterIP
IP Family Policy: SingleStack
IP Families:   IPv4
IP:            None
```

III. Logging and Documentation

1. Review CloudWatch logs to confirm that an application is operating normally

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

Actions

Start tailing

Create metric filter

Filter events

Clear

1m

30m

1h

12h

Custom (5m)

Local timezone

Display

Timestamp	Message
No more records within selected time range Retry	
2023-11-08T15:42:26.673+07:00	{"time":"2023-11-08T08:42:26.67376904Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:42:26,673] INFO in app: {},\"kubernetes\":{\"pod_name\":...}
2023-11-08T15:42:56.672+07:00	{"time":"2023-11-08T08:42:56.672009924Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:42:56,671] INFO in app: {},\"kubernetes\":{\"pod_name\":...}
2023-11-08T15:43:26.672+07:00	{"time":"2023-11-08T08:43:26.672686018Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:43:26,671] INFO in app: {'2023-02-13': 2, '2023-02-0...
2023-11-08T15:43:56.672+07:00	{"time":"2023-11-08T08:43:56.672645185Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:43:56,671] INFO in app: {'2023-02-13': 2, '2023-02-0...
2023-11-08T15:44:26.671+07:00	{"time":"2023-11-08T08:44:26.671918764Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:44:26,671] INFO in app: {'2023-02-13': 2, '2023-02-0...
2023-11-08T15:44:56.672+07:00	{"time":"2023-11-08T08:44:56.672194807Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:44:56,671] INFO in app: {'2023-02-13': 2, '2023-02-0...
2023-11-08T15:45:26.673+07:00	{"time":"2023-11-08T08:45:26.673419271Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:45:26,671] INFO in app: {'2023-02-13': 2, '2023-02-0...
2023-11-08T15:45:56.674+07:00	{"time":"2023-11-08T08:45:56.674086759Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:45:56,673] INFO in app: {'2023-02-10': 293, '2023-02-...
2023-11-08T15:46:26.673+07:00	{"time":"2023-11-08T08:46:26.673818759Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:46:26,673] INFO in app: {'2023-02-12': 331, '2023-02-...
2023-11-08T15:46:56.673+07:00	{"time":"2023-11-08T08:46:56.673739055Z","stream":"stderr","_p":"F","log":"[2023-11-08 08:46:56,672] INFO in app: {'2023-02-12': 331, '2023-02-...
No more records within selected time range Auto retrying... Pause	