

# ArgoCD Installation/Configuration

## Install ArgoCD:

```
kubectl create namespace argocd
kubectl apply -n argocd -f https://raw.githubusercontent.com/argoproj/argo-cd/stable/manifests/install.yaml
```

## Create ArgoCD LoadBalancer to access it externally from Web Browser:

```
apiVersion: v1
kind: Service
metadata:
  name: argo-svc
  namespace: argocd
spec:
  selector:
    app.kubernetes.io/name: argocd-server
  type: LoadBalancer
  ports:
    - name: http
      port: 80
      targetPort: 8080
    - name: https
      port: 443
      targetPort: 8083
```

## Load Balancer Service Details:

```
kubectl get svc -n argocd
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
argo-svc	LoadBalancer	172.16.76.176	35.239.199.23	80:32749/TCP,443:30924/TCP	2d1h

## Generate & Deploy ArgoCD application configuration:

```
apiVersion: argoproj.io/v1alpha1
kind: Application
metadata:
  name: myapp-argo-application
  namespace: argocd
spec:
  project: default

  source:
    repoURL: https://github.com/projectdec2021/appointme-admin-api.git
    targetRevision: helm-deployment
    path: helm/argocd
  destination:
    server: https://kubernetes.default.svc
    namespace: appointme-admin

  syncPolicy:
    syncOptions:
      - CreateNamespace=true

  automated:
    selfHeal: true
    prune: true
```

Provide the “Branch Name” to targetRevision & the path of deployment script where they are available in the GitHub repo.

As soon as executing the above, we see the deployment is started by ArgoCD

The screenshot displays the ArgoCD web interface for the application 'myapp-argo-application'. The top navigation bar includes 'APP DETAILS', 'APP DIFF', 'SYNC', 'SYNC STATUS', 'HISTORY AND ROLLBACK', 'DELETE', and 'REFRESH'. The 'SYNC STATUS' section shows 'Synced' with a green checkmark and 'Sync OK' with a green checkmark. The 'CURRENT SYNC STATUS' and 'LAST SYNC RESULT' sections provide details about the sync operation, including the author and comment. The main area shows a tree view of the application's resources, including 'adminapi-lb', 'mongo-lb', 'release-name-admin-api', and 'mongo-dd557899c'. The 'mongo-dd557899c' resource is expanded to show its pods, which are in various states: 'Completed', 'Running', and 'Error'.

The path- **helm/argocd** in GitHub repo has the required deployment Helm templates or/and other required deployment files for the application.

The below is the objects created by ArgoCD from the deployment files for the Application & MongoDB.

NAME	READY	STATUS	RESTARTS	AGE
pod/mongo-dd557899c-lnnv6	1/1	Running	0	3h42m
pod/release-name-admin-api-6796cb484f-xg72v	1/1	Running	0	3h42m

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/adminapi-lb	LoadBalancer	172.16.65.151	34.135.121.180	30050:30269/TCP	7h4m
service/mongo-lb	LoadBalancer	172.16.77.128	35.238.192.50	27017:31050/TCP	6h31m

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/mongo	1/1	1	1	6h31m
deployment.apps/release-name-admin-api	1/1	1	1	6h31m

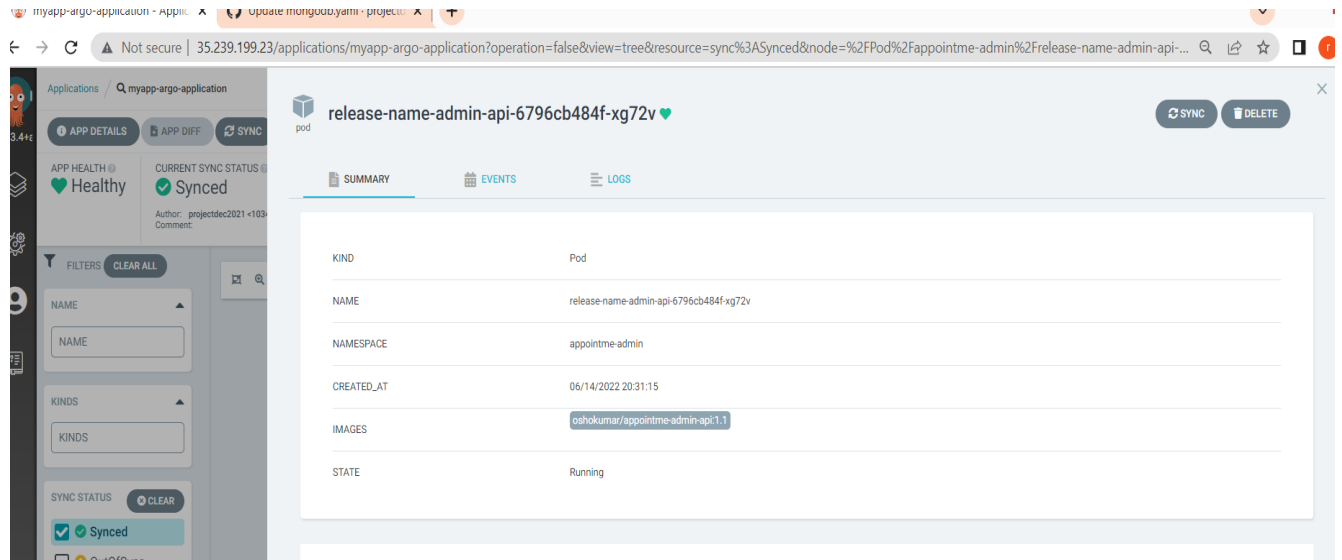
NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/mongo-dd557899c	1	1	1	6h31m
replicaset.apps/release-name-admin-api-6796cb484f	1	1	1	6h31m

Check the Deployment is successful:



## Rollout a New Release via ArgoCD:

The existing App Version: oshokumar/appointme-admin-api:1.1



## The new change done to the code for the testing purpose:

Added the below route to '~src/routes/appointment/appointment.js'

```
router.get('/', async (req, res) => {  
  res.send('App Version: appointme-admin-api:1.2')  
})
```

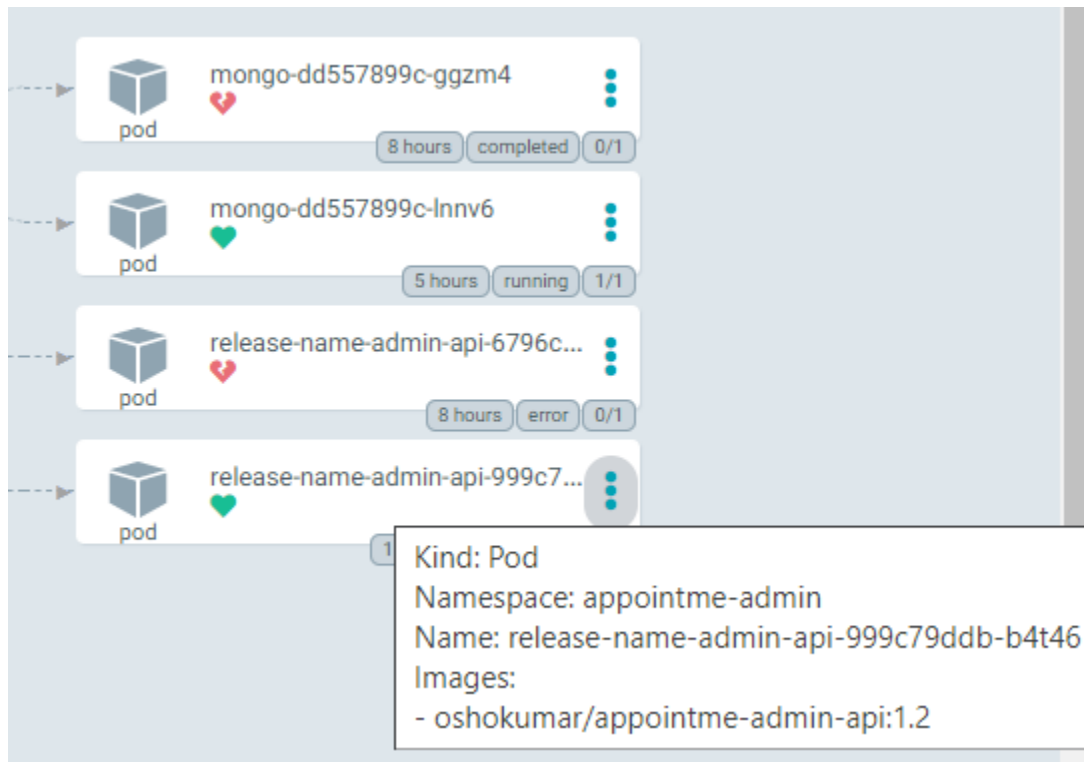
After building, pushing image/release to DockerHub, update the version from 1.1 => 1.2 & commit the deployment manifest file in GitHub:

```
31 template:
32   metadata:
33     labels:
34       app.kubernetes.io/name: admin-api
35       app.kubernetes.io/instance: release-name
36   spec:
37     serviceAccountName: release-name-admin-api
38     securityContext:
39       {}
40   containers:
41     - name: admin-api
42       securityContext:
43         {}
44       image: "oshokumar/appointme-admin-api:1.2"
45       imagePullPolicy: Always
46       ports:
47         - name: http
48           containerPort: 5050
49           protocol: TCP
50   resources:
51     {}
52 ---
```

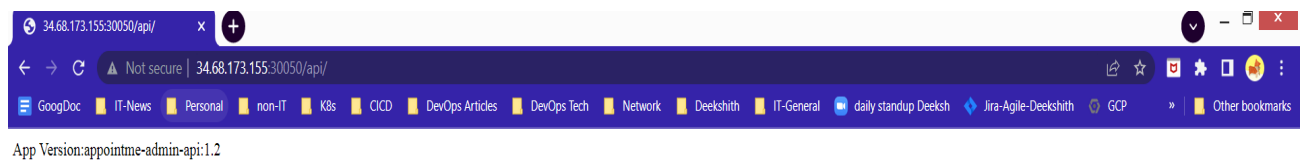
A new revision of the Deployment has been created as below,

The screenshot shows the Argo CD application details page for 'myapp-argo-application'. The application is in a 'Healthy' state and is 'Synced'. The page displays a tree view of the application's components, including 'adminapi-lb', 'mongo-lb', 'release-name-admin-api', and 'mongo-d557899c-ggz4'. The 'release-name-admin-api' deployment is highlighted, showing a new revision 'Revision:Rev2' has been created. The interface includes filters, sync status, and health status sections.

The new version of the Pod is active now:



Upon checking the new application change:



Check the existing Pods in the namespace:

NAME	READY	STATUS	RESTARTS	AGE
mongo-dd557899c-ggzm4	0/1	Completed	0	7h37m

```
mongo-dd557899c-lnnv6      1/1      Running      0          4h48m
release-name-admin-api-6796cb484f-l4lhw  0/1      Error        0          7h37m
release-name-admin-api-999c79ddb-b4t46   1/1      Running      0          21m
```

===

### Check ArgoCD's Selfheal is working:

For this purpose, let us delete an existing service from the cluster and see what happens.

```
$ kubectl get svc
NAME                TYPE                CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
adminapi-lb         LoadBalancer        172.16.65.151   34.135.121.180   30050:30269/TCP  7h23m
mongo-lb            LoadBalancer        172.16.77.128   35.238.192.50    27017:31050/TCP  6h51m

$ kubectl delete svc adminapi-lb
service "adminapi-lb" deleted

$ kubectl get svc
NAME                TYPE                CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
adminapi-lb         LoadBalancer        172.16.79.11    34.68.173.155    30050:32456/TCP  53s
mongo-lb            LoadBalancer        172.16.77.128   35.238.192.50    27017:31050/TCP  6h52m
```

**The service is getting created back automatically by ArgoCD per the manifest files stored in the Repository.**

myapp-argo-application - Appli: x Update mongodbyaml - project: x

Not secure | 35.239.199.23/applications/myapp-argo-application?operation=false&view=tree&resource=sync%3ASynced&node=%2FService%2Fappointme-admin%2Fadminapi-lb%2F&ta...

Applications / myapp-argo-application

adminapi-lb

APP HEALTH Healthy Synced

Author: projectdec2021-1109  
Comment:

FILTERS CLEAR ALL

NAME

KINDS

SYNC STATUS CLEAR

Synced

OutOfSync

HEALTH STATUS

Healthy

Progressing

Degraded

Suspended

Missing

Unknown

SUMMARY EVENTS

REASON	MESSAGE	COUNT	FIRST OCCURRED	LAST OCCURRED
EnsuredLoadBalancer	Ensured load balancer	1	1m ago Today at 12:34 AM	1m ago Today at 12:34 AM
EnsuringLoadBalancer	Ensuring load balancer	1	1m ago Today at 12:34 AM	1m ago Today at 12:34 AM

