

K8s + ArgoCD 연동

■ ArgoCD 설치

| argocd cli 설치 (Windows 기준, Powershell 사용)

```
$version = (Invoke-RestMethod https://api.github.com/repos/argoproj/argo-cd/releases/latest).tag_name
$url = "https://github.com/argoproj/argo-cd/releases/download/" + $version + "/argocd-windows-amd64.exe"
$output = "argocd.exe"
Invoke-WebRequest -Uri $url -OutFile $output
```

| argocd cli 설치 (MacOS 기준, homebrew 사용)

```
$ brew install argocd
```

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■ ArgoCD 설치

| CMD에서 argocd 설치 확인

| admin 로그인 암호 확인 (방법1)

```
$ argocd admin initial-password -n argocd
```

| admin 로그인 암호 확인 (방법2, Windows)

```
$ kubectl get secret argocd-initial-admin-secret -n argocd -o jsonpath="{.data.password}" →  
encode.b64로 저장
```

```
$ certutil -decode encode.b64 decode.txt
```

| admin 로그인 암호 확인 (방법3, MacOS)

```
$ kubectl get secret argocd-initial-admin-secret -n argocd -o jsonpath="{.data.password}" |  
base64 -d
```

Docker를 활용한 자동화 빌드 시스템 구축

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■ ArgoCD Login

The screenshot shows a web browser window with the URL `https://127.0.0.1:31430/login?return_url=https%3A%2F%2F127.0.0.1%3A31430%2Fapplications`. The login page features the text "Let's get stuff deployed!" and a red octopus mascot. A red box highlights the login form with the following fields:

- Username: admin
- Password: [masked]

Below the login form, the ArgoCD dashboard is visible. It includes a sidebar with icons for Applications, Clusters, Settings, and Profile. The main area displays "No applications yet" and a "CREATE APPLICATION" button. The top navigation bar contains buttons for "+ NEW APP", "SYNC APPS", "REFRESH APPS", and a search bar.

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■ ArgoCD Login

| argocd login --insecure **192.168.0.41:30764** ← NodePort

■ ArgoCD Token 생성

| argocd account generate-token --account admin

Error) account 'admin' does not have apiKey capability 발생 시

- \$ kubectl edit cm argocd-cm -n argocd → 아래 항목 추가

data:

accounts.admin: apiKey

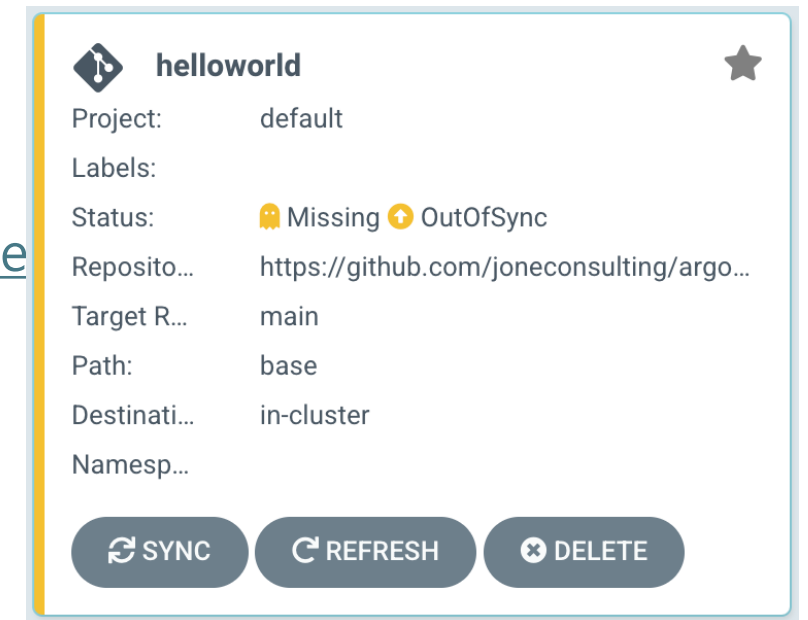
| curl 명령어로 applications 확인

```
$ curl -k -L -H "Authorization: Bearer eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJhcmdvY2QiLCJ..." ₩  
https://192.168.0.41:30674/api/v1/applications
```

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■ ArgoCD New Project

- | Application Name: helloworld
- | Project: default
- | Cluster: in-cluster (<https://Kubernetes.default.svc>)
- | Namespace: default
- | Repo URL: <https://github.com/joneconsulting/argocd-sample>
- | Target revision: main
- | Path: base
- | Retry options: Retry disabled



■ Sample → <https://github.com/joneconsulting/argocd-sample>

- | base/deployment.yml
- | base/service.yml

K8s + ArgoCD 연동

- K8s에서 docker-registry에 대한 인증 정보 등록

```
$ kubectl create secret docker-registry regcred ₩  
--docker-server=192.168.0.41 ₩  
--docker-username=user1 ₩  
--docker-password=Harbor12345 ₩  
--docker-email=
```

- | MacOS) kubectl get secret regcred --output=yaml
- | MacOS) kubectl get secret regcred --output="jsonpath={.data.₩.dockerconfigjson}" | base64 --decode
{"auths":{"127.0.0.1":{"username":"user1","password":"Harbor12345","auth":"dXNlcjE6SGFyYm9yMTIzNDU="}}}
- | Windows) certutil -decode dockerregistry.encode dockerregistry.txt 등으로 내용 확인 가능

K8s + ArgoCD 연동

- deployment.yml 파일에 imagePullSecrets 항목 추가

```
spec:
  containers:
  - name: hello-kubernetes
    image: 192.168.0.41/devops/cicd-web-project:10
    imagePullPolicy: IfNotPresent
    ports:
    - name: http
      containerPort: 8080
    imagePullSecrets:
    - name: regcred
```

- ArgoCD sync

| deployment.yml 변경 사항을 git에 PUSH 후 Sync 실행

```
$ curl -k -L -H "Authorization: Bearer
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpc3MiOiJhcmdvY2QiLCJ... " \
-X POST https://192.168.0.41:30674/api/v1/applications/hello-web/sync
```

Docker를 활용한 자동화 빌드 시스템 구축

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■ ArgoCD sync

APP HEALTH Healthy

CURRENT SYNC STATUS

OutOfSync

From **main** (7b6a59b)

Author: edowon0623@gmail.com <Dwlee\$09> - changed

LAST SYNC RESULT

Sync OK

To **e89d94c**

Succeeded 3 minutes ago (Wed Jun 12 2024 23:40:28 GMT+0900)

Author: edowon0623@gmail.com <Dwlee\$09> - changed the image tag to testv1.2

FILTERS

NAME
NAME

KINDS
KINDS

SYNC STATUS
☐ Synced
☐ OutOfSync

100%

hello-web 31 minutes

hello-svc an hour

hello-deploy 17 minutes rev:2

hello-svc an hour

hello-svc-x2qlv an hour

hello-deploy-5758bb94c8 17 minutes rev:1

hello-deploy-697d544569 3 minutes rev:2

hello-deploy-697d544569-zjb7d 3 minutes running 1/1

K8s + Kustomize 연동

- Kustomize → Manifest 파일 변경 자동 감지

| <https://kubernetes.io/ko/docs/tasks/manage-kubernetes-objects/kustomization/>

| appcd-demo 폴더 구성

```
./base
  deployment.yml
  kustomization.yml
  service.yml
./kustomize1
  application.properties
  kustomization.yml
./kustomize2
  deployment.yml
  kustomization.yml
./kustomize3
  kustomization.yml
```

K8s + Kustomize 연동

- Kustomize 설정 확인

| kubectl kustomize ./kustomize1 (or ./kustomize2 or ./kustomize3)

```
▶ kubectl kustomize ./kustomize1
apiVersion: v1
data:
  application.properties: F00=Bar
kind: ConfigMap
metadata:
  name: example-configmap-1-tcgd99d22m
```

- Kustomize 적용

| kubectl apply -k ./kustomize1 (or ./kustomize2 or ./kustomize3)

K8s + Kustomize 연동

- Kustomize CLI 설치
 - | 설치 → <https://github.com/kubernetes-sigs/kustomize/releases>
 - | Windows) choco install kustomize
 - | MacOS) brew install kustomize
- Kustomize 사용
 - | 이미지 태그 적용

```
$ cd ./kustomize3  
$ kustomize edit set image 192.168.0.41/devops/cicd-web-project:newest  
$ kubectl apply -k .
```