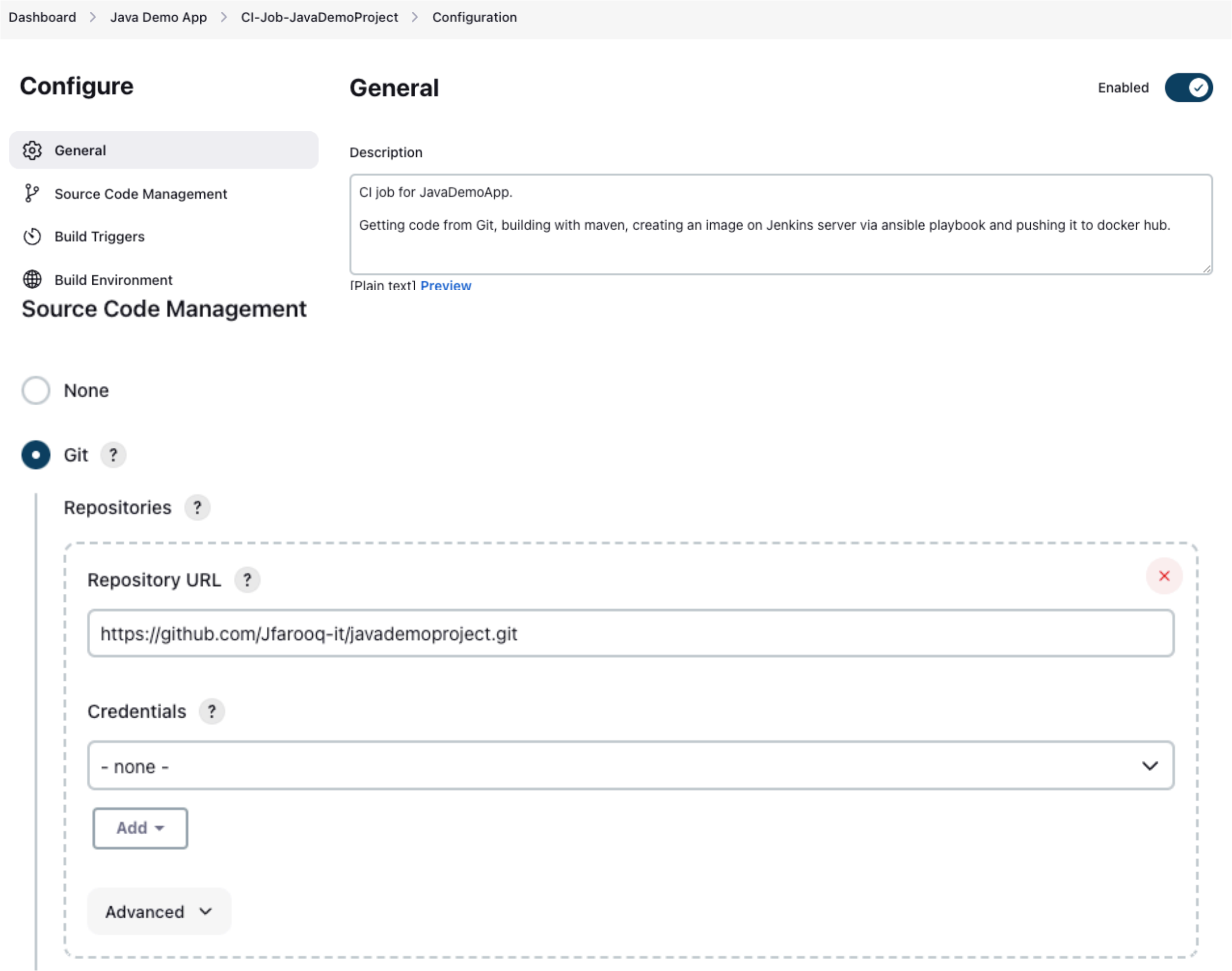
Setting up a CI Job on Jenkins:



Dashboard > Java Demo App > CI-Job-JavaDemoProject > Configuration

Configure

General

Enabled

Description

CI job for JavaDemoApp.

Getting code from Git, building with maven, creating an image on Jenkins server via ansible playbook and pushing it to docker hub.

Source Code Management

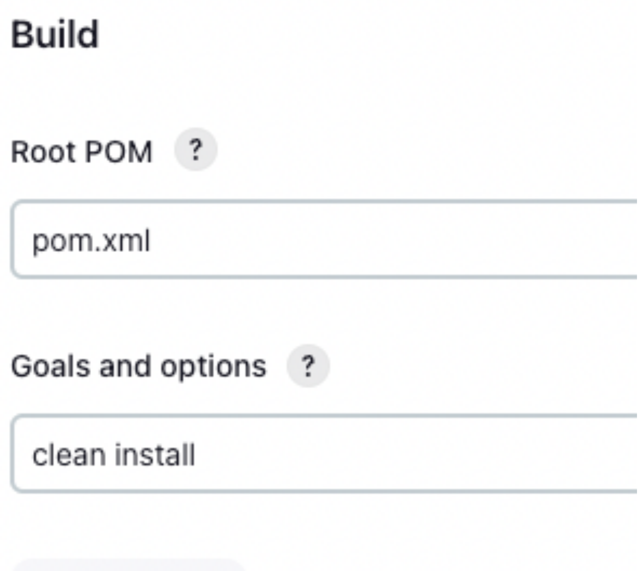
○ None

● Git

Repositories

Repository URL: https://github.com/Jfarooq-it/javademoproject.git

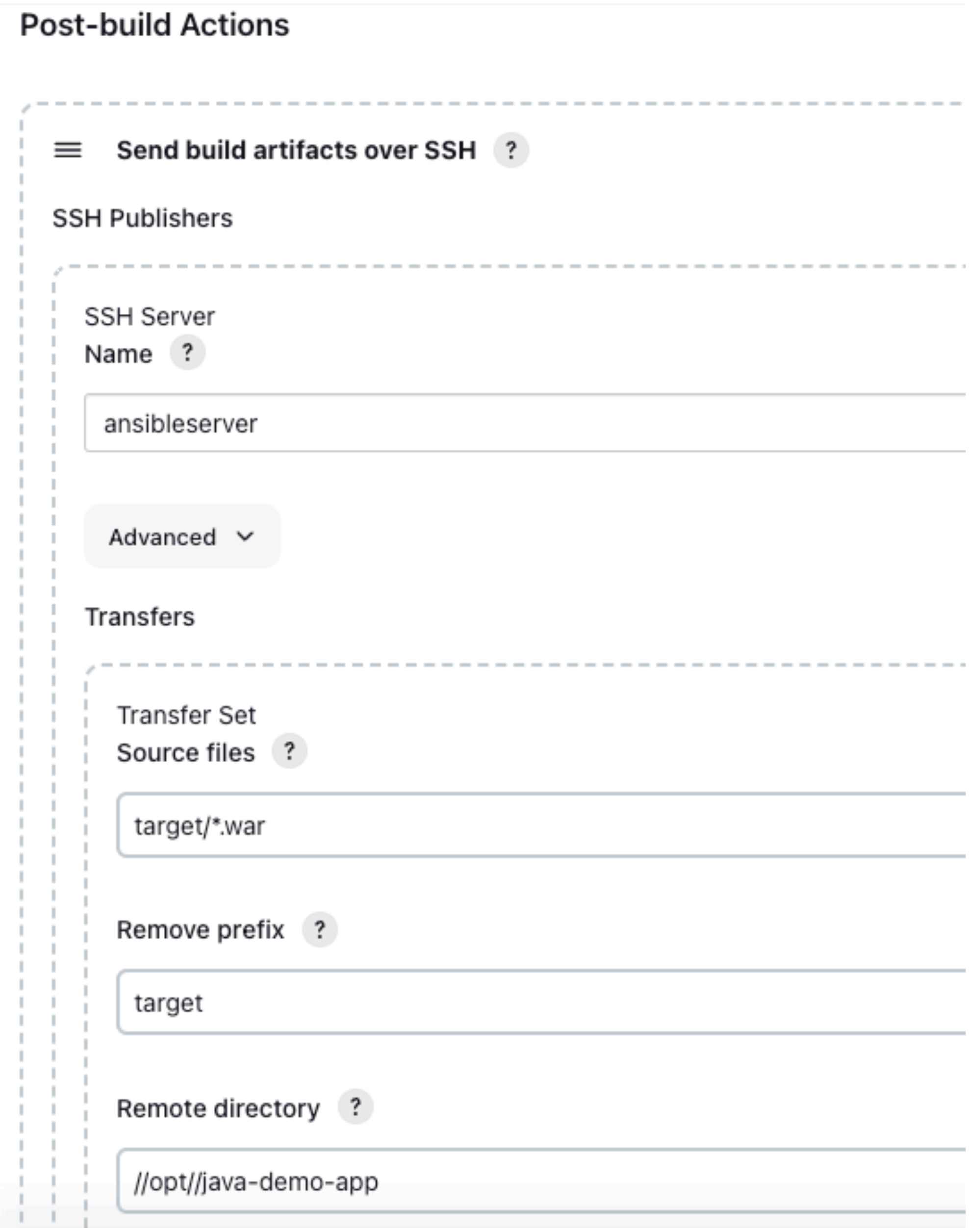
Credentials: - none -



Build

Root POM: pom.xml

Goals and options: clean install



Post-build Actions

Send build artifacts over SSH

SSH Publishers

SSH Server
Name: ansibleserver

Advanced

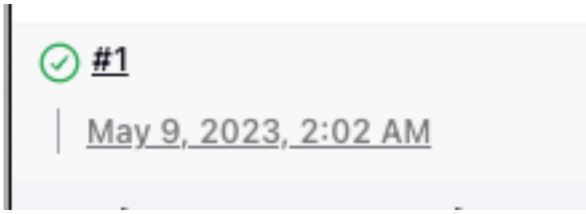
Transfers

Transfer Set
Source files: target/*.war

Remove prefix: target

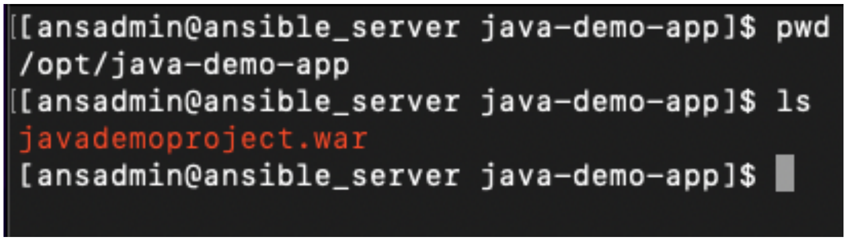
Remote directory: //opt//java-demo-app

Job ran successfully and was able to copy the artifacts to ansible server.



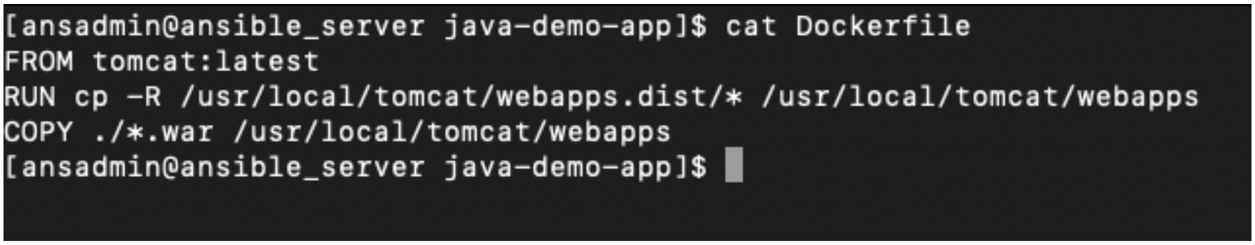
#1

May 9, 2023, 2:02 AM



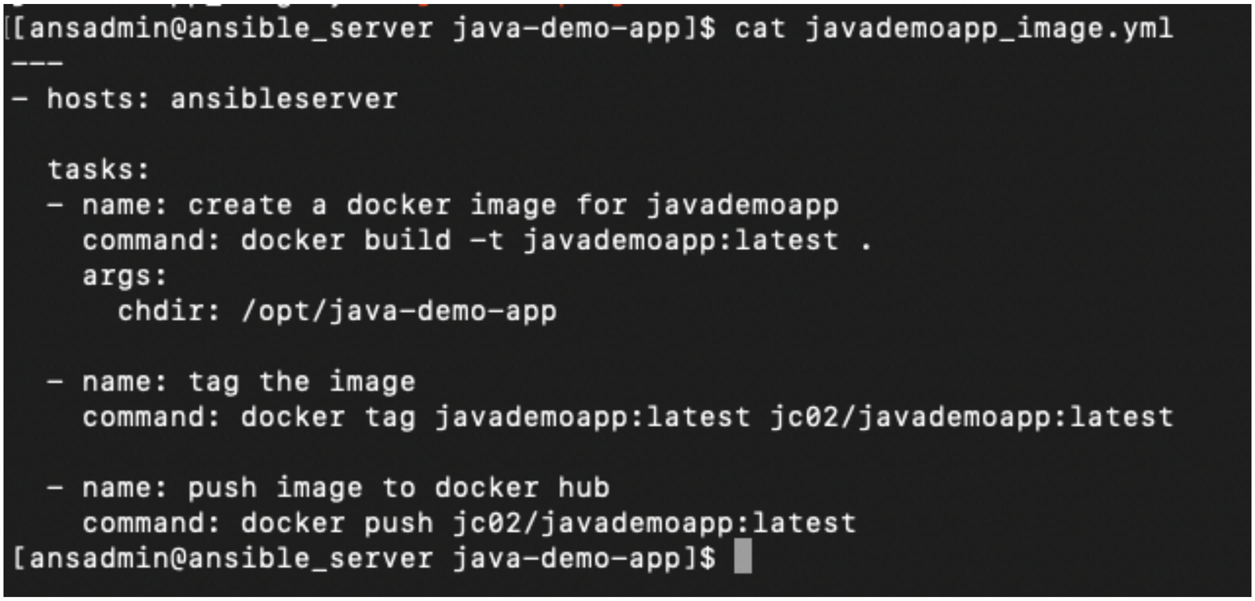
```
[[ansadmin@ansible_server java-demo-app]$ pwd
/opt/java-demo-app
[[ansadmin@ansible_server java-demo-app]$ ls
javademoproject.war
[ansadmin@ansible_server java-demo-app]$ 
```

Creating a Dockerfile to get the latest tomcat image:



```
[ansadmin@ansible_server java-demo-app]$ cat Dockerfile
FROM tomcat:latest
RUN cp -R /usr/local/tomcat/webapps.dist/* /usr/local/tomcat/webapps
COPY ./*.war /usr/local/tomcat/webapps
[ansadmin@ansible_server java-demo-app]$ 
```

Creating an ansible playbook to create an image on ansible server:



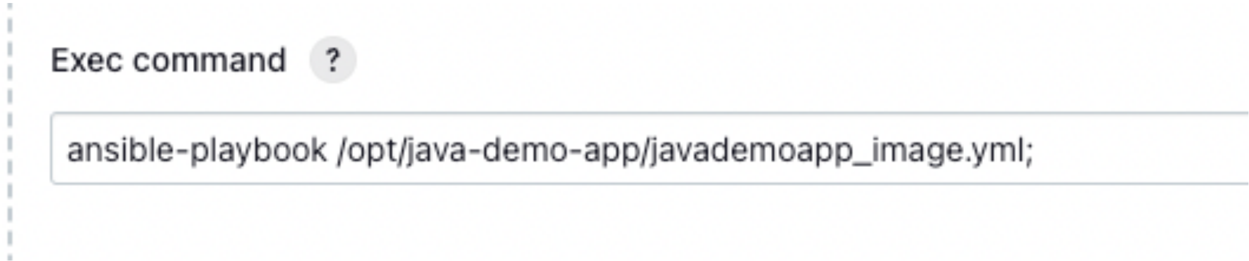
```
[[ansadmin@ansible_server java-demo-app]$ cat javademoapp_image.yml
---
- hosts: ansibleserver

  tasks:
  - name: create a docker image for javademoapp
    command: docker build -t javademoapp:latest .
    args:
      chdir: /opt/java-demo-app

  - name: tag the image
    command: docker tag javademoapp:latest jc02/javademoapp:latest

  - name: push image to docker hub
    command: docker push jc02/javademoapp:latest
[ansadmin@ansible_server java-demo-app]$ 
```

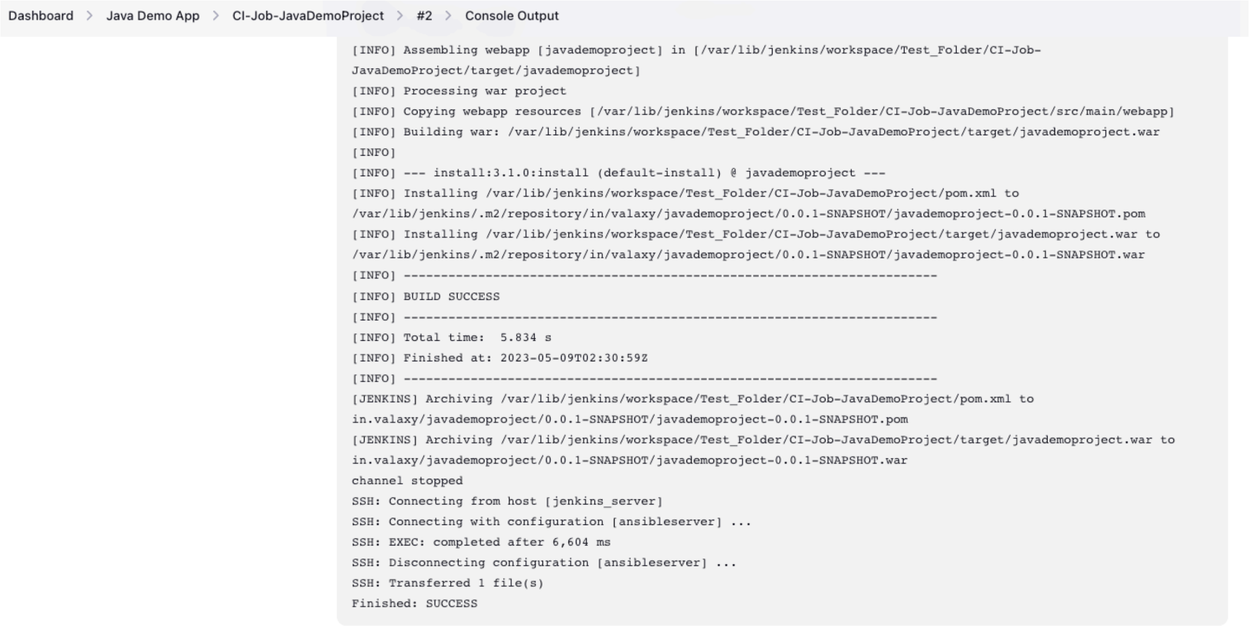
Updating the Jenkins Job to include the ansible command:



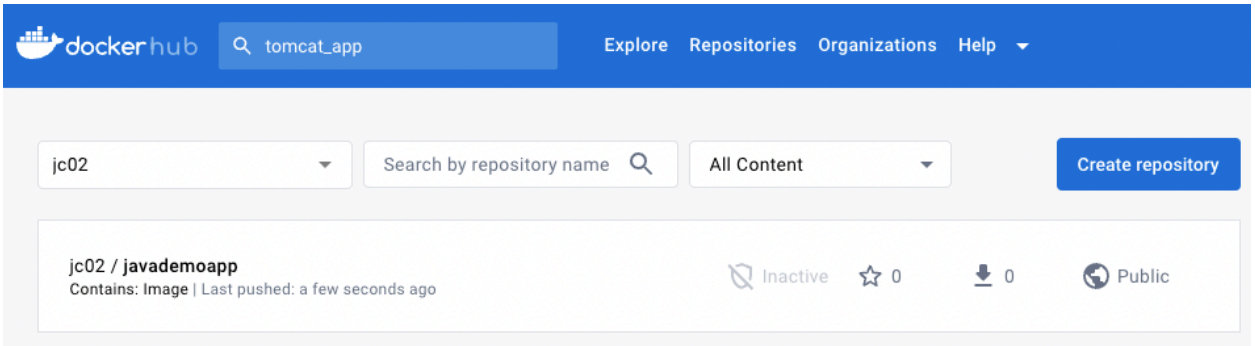
Exec command ?

```
ansible-playbook /opt/java-demo-app/javademoapp_image.yml;
```

Jenkins job ran successfully:


Dashboard > Java Demo App > CI-Job-JavaDemoProject > #2 > Console Output

```
[INFO] Assembling webapp [javademoproject] in [/var/lib/jenkins/workspace/Test_Folder/CI-Job-
JavaDemoProject/target/javademoproject]
[INFO] Processing war project
[INFO] Copying webapp resources [/var/lib/jenkins/workspace/Test_Folder/CI-Job-JavaDemoProject/src/main/webapp]
[INFO] Building war: /var/lib/jenkins/workspace/Test_Folder/CI-Job-JavaDemoProject/target/javademoproject.war
[INFO]
[INFO] --- install:3.1.0:install (default-install) @ javademoproject ---
[INFO] Installing /var/lib/jenkins/workspace/Test_Folder/CI-Job-JavaDemoProject/pom.xml to
/var/lib/jenkins/.m2/repository/in/valaxy/javademoproject/0.0.1-SNAPSHOT/javademoproject-0.0.1-SNAPSHOT.pom
[INFO] Installing /var/lib/jenkins/workspace/Test_Folder/CI-Job-JavaDemoProject/target/javademoproject.war to
/var/lib/jenkins/.m2/repository/in/valaxy/javademoproject/0.0.1-SNAPSHOT/javademoproject-0.0.1-SNAPSHOT.war
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  5.834 s
[INFO] Finished at: 2023-05-09T02:30:59Z
[INFO] ------------------------------------------------------------------------
[JENKINS] Archiving /var/lib/jenkins/workspace/Test_Folder/CI-Job-JavaDemoProject/pom.xml to
in.valaxy/javademoproject/0.0.1-SNAPSHOT/javademoproject-0.0.1-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/Test_Folder/CI-Job-JavaDemoProject/target/javademoproject.war to
in.valaxy/javademoproject/0.0.1-SNAPSHOT/javademoproject-0.0.1-SNAPSHOT.war
channel stopped
SSH: Connecting from host [jenkins_server]
SSH: Connecting with configuration [ansibleserver] ...
SSH: EXEC: completed after 6,604 ms
SSH: Disconnecting configuration [ansibleserver] ...
SSH: Transferred 1 file(s)
Finished: SUCCESS
```

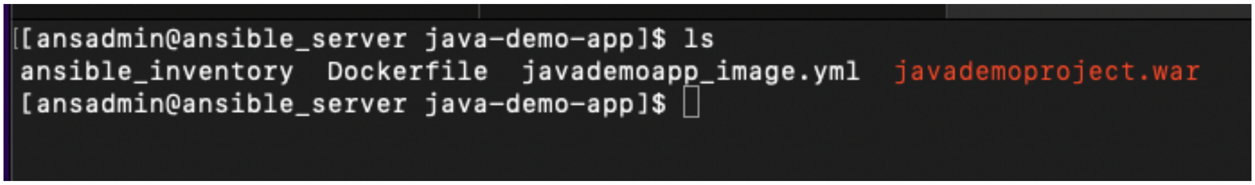


jc02 / **javademoapp**

Contains: Image | Last pushed: a few seconds ago

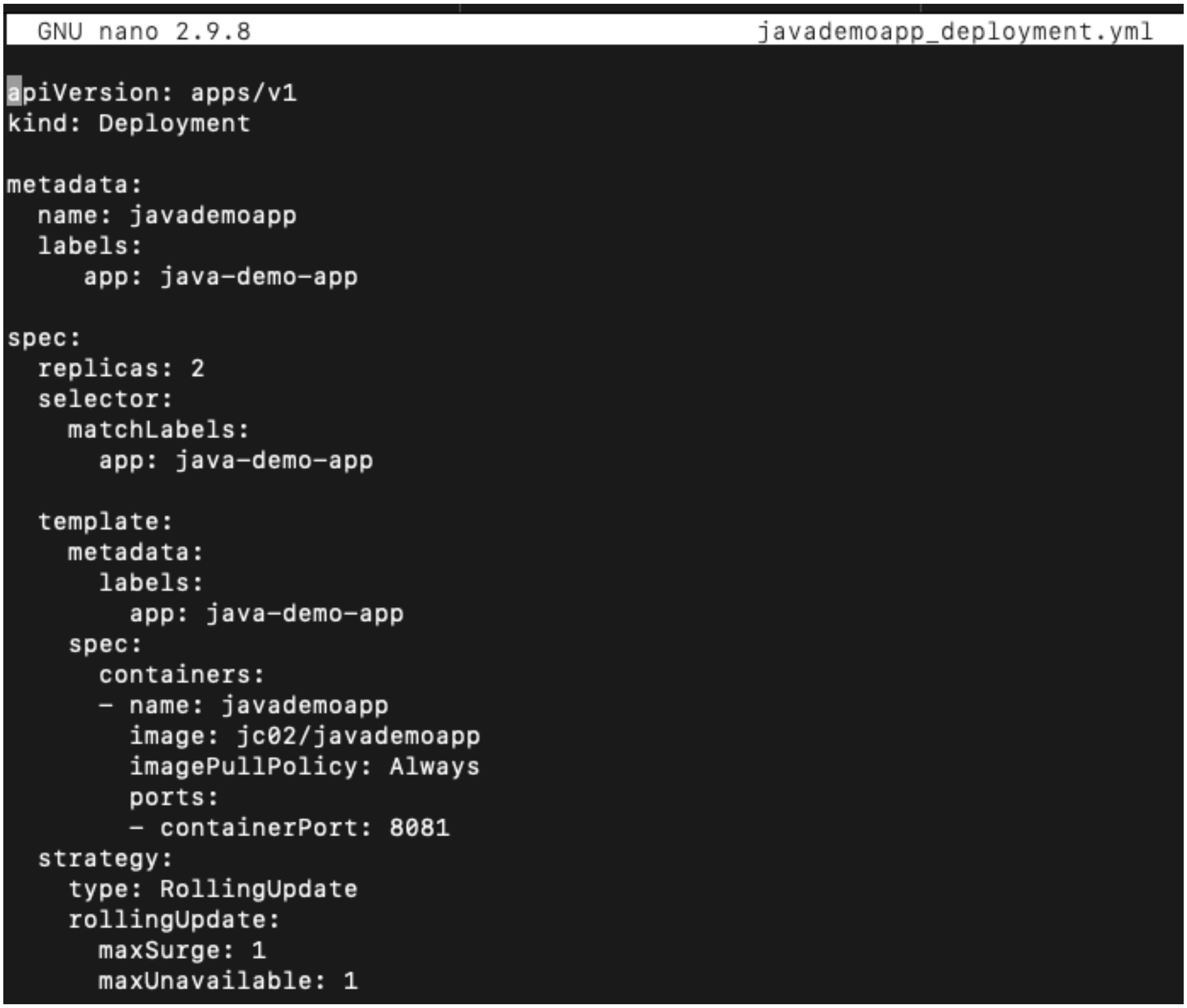
Setting up a CD Jenkins Job:

Creating an ansible inventory file to include the Kubernetes Bootstrap EC2 IP and ansible server IP address:



```
[ansadmin@ansible_server java-demo-app]$ ls
ansible_inventory  Dockerfile  javademoapp_image.yml  javademoproject.war
[ansadmin@ansible_server java-demo-app]$ 
```

Creating a deployment and service file on Kubernetes Bootstrap EC2 Instance:



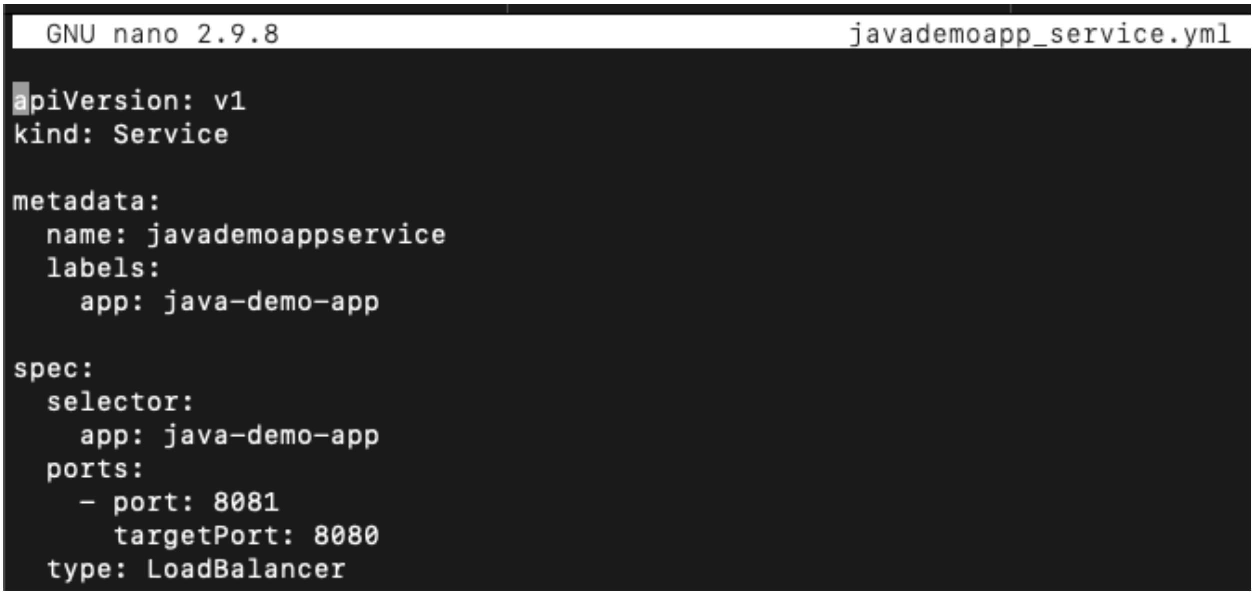
```
  GNU nano 2.9.8                                    javademoapp_deployment.yml

apiVersion: apps/v1
kind: Deployment

metadata:
  name: javademoapp
  labels:
     app: java-demo-app

spec:
  replicas: 2
  selector:
    matchLabels:
      app: java-demo-app

  template:
    metadata:
      labels:
        app: java-demo-app
    spec:
      containers:
      - name: javademoapp
        image: jc02/javademoapp
        imagePullPolicy: Always
        ports:
        - containerPort: 8081
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxSurge: 1
      maxUnavailable: 1
```

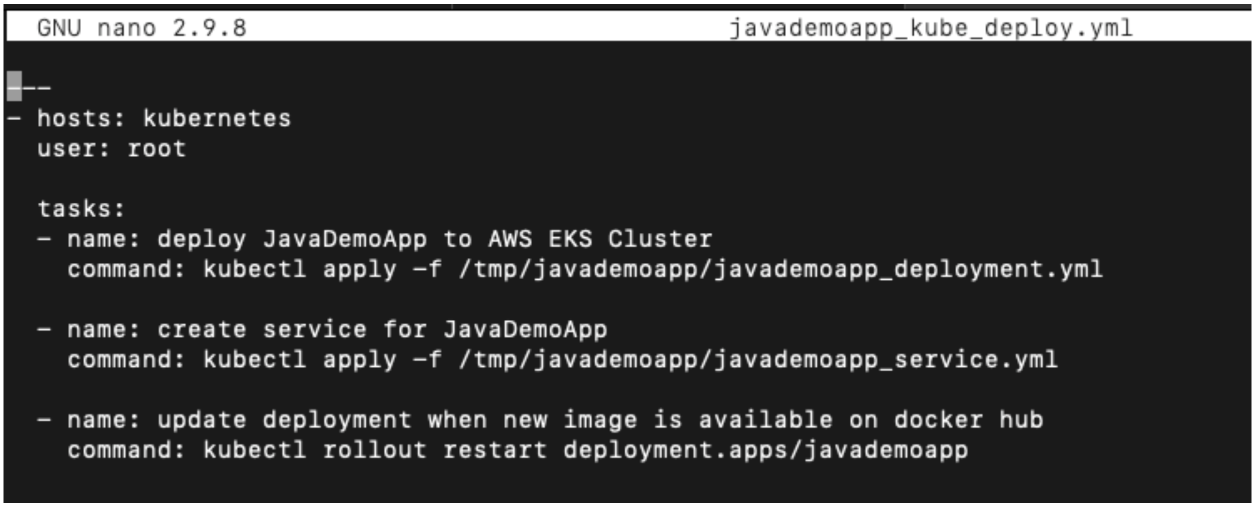


```yaml
apiVersion: v1
kind: Service

metadata:
  name: javademoappservice
  labels:
    app: java-demo-app

spec:
  selector:
    app: java-demo-app
  ports:
    - port: 8081
      targetPort: 8080
  type: LoadBalancer
```

Now, creating a file to deploy the JavaDemoApp on AWS EKS Cluster:



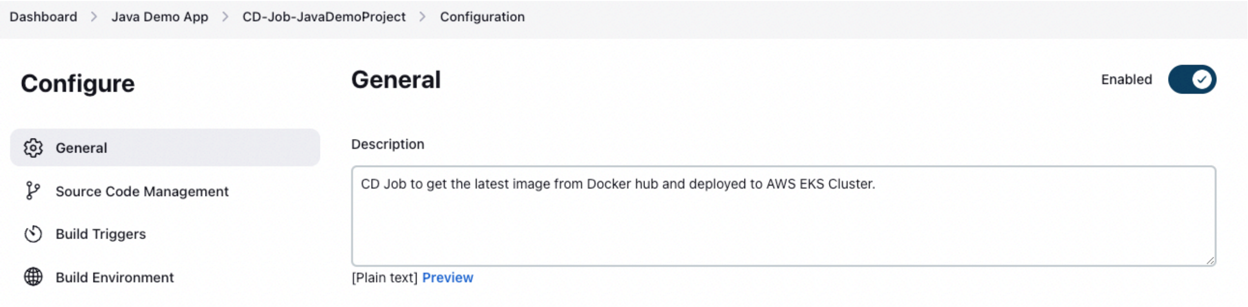
```yaml
---
- hosts: kubernetes
  user: root

  tasks:
  - name: deploy JavaDemoApp to AWS EKS Cluster
    command: kubectl apply -f /tmp/javademoapp/javademoapp_deployment.yml

  - name: create service for JavaDemoApp
    command: kubectl apply -f /tmp/javademoapp/javademoapp_service.yml

  - name: update deployment when new image is available on docker hub
    command: kubectl rollout restart deployment.apps/javademoapp
```

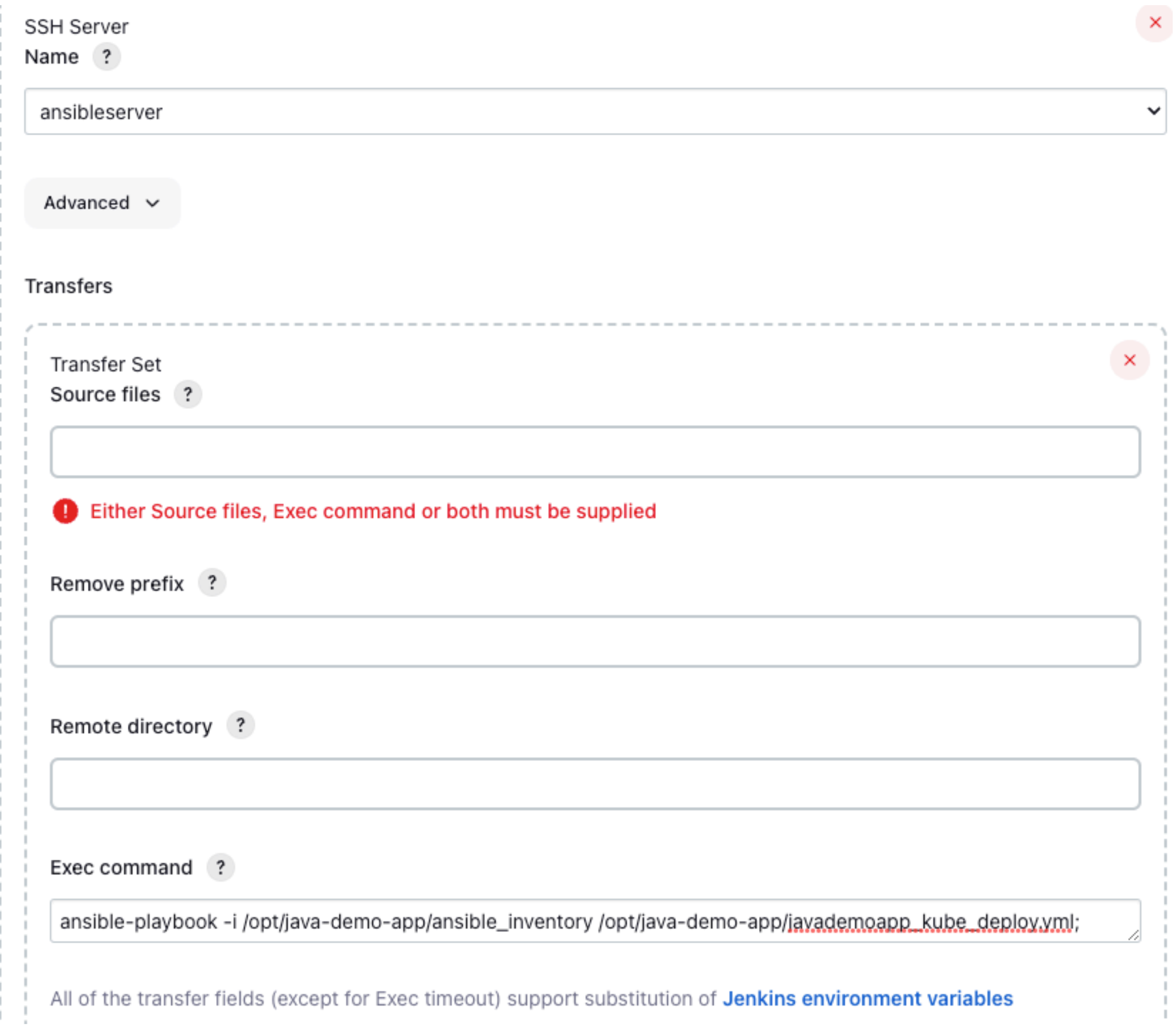
Creating a new CD job:



Enabled ✓

Description

CD Job to get the latest image from Docker hub and deployed to AWS EKS Cluster.



SSH Server
Name ?

ansibleserver

Advanced

Transfers

Transfer Set
Source files ?

Either Source files, Exec command or both must be supplied

Remove prefix ?

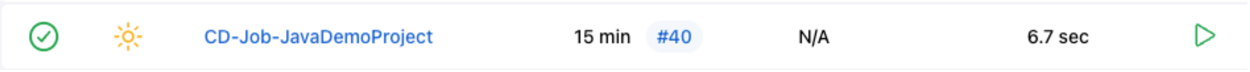
Remote directory ?

Exec command ?

```
ansible-playbook -i /opt/java-demo-app/ansible_inventory /opt/java-demo-app/javademoapp_kube_deploy.yml;
```

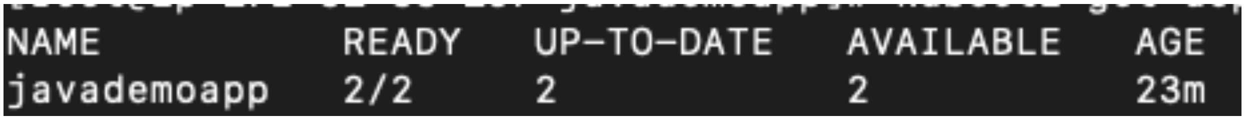
All of the transfer fields (except for Exec timeout) support substitution of **Jenkins environment variables**

Job ran successfully:



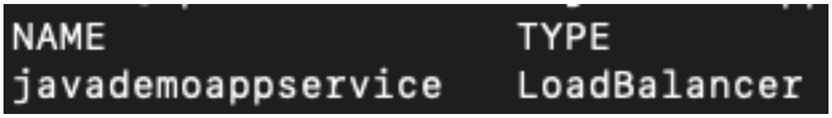
✓	☀	CD-Job-JavaDemoProject	15 min #40	N/A	6.7 sec	▷

Pods are running as expected:



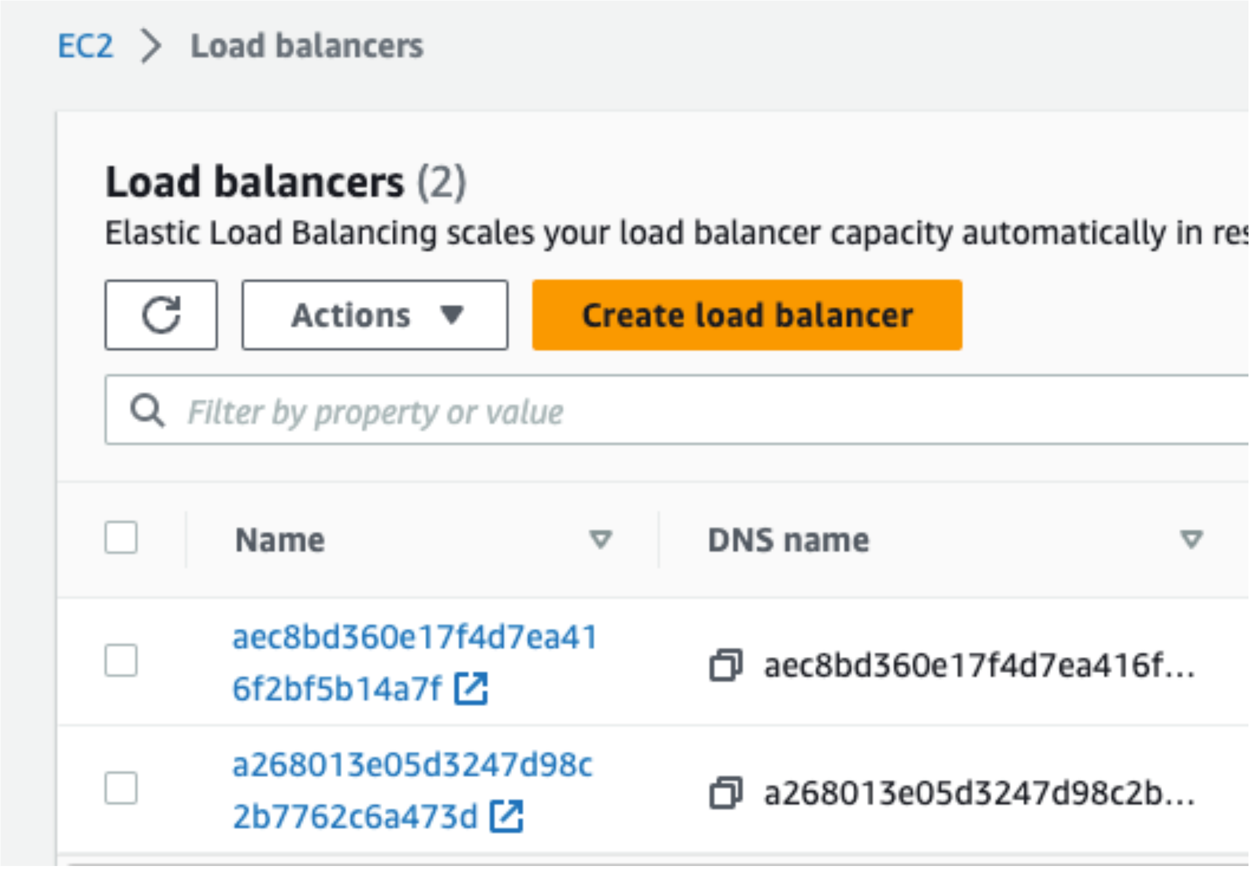
```
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
javademoapp   2/2     2            2           23m
```

Service is running as well:



```
NAME                   TYPE
javademoappservice     LoadBalancer
```

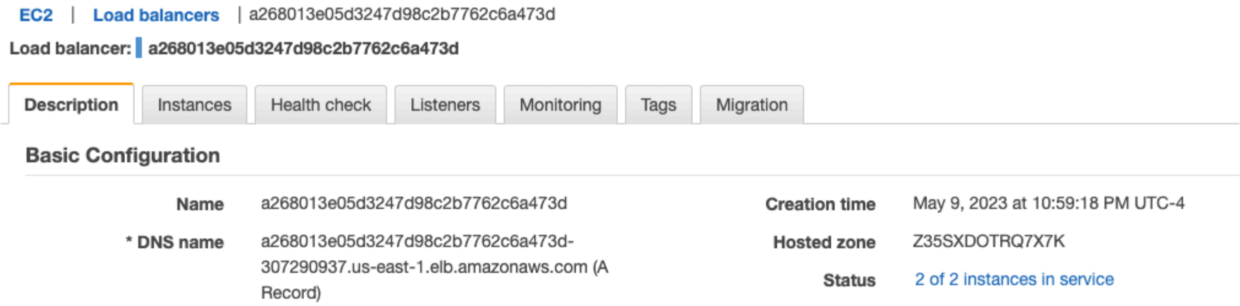
AWS Loadbalancer:



Load balancers (2)

Elastic Load Balancing scales your load balancer capacity automatically in res

□	Name	DNS name
□	aec8bd360e17f4d7ea416f2bf5b14a7f	aec8bd360e17f4d7ea416f...
□	a268013e05d3247d98c2b7762c6a473d	a268013e05d3247d98c2b...

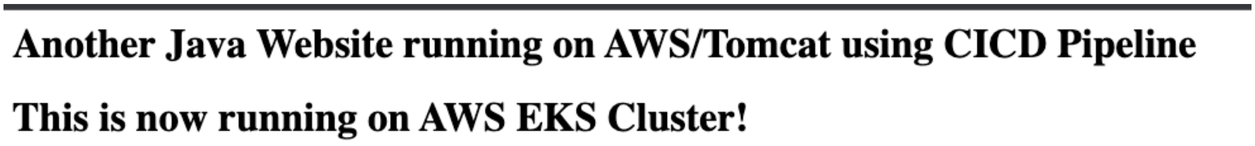


Load balancer: a268013e05d3247d98c2b7762c6a473d

Basic Configuration

Name	a268013e05d3247d98c2b7762c6a473d	**Creation time**	May 9, 2023 at 10:59:18 PM UTC-4
*** DNS name**	a268013e05d3247d98c2b7762c6a473d-307290937.us-east-1.elb.amazonaws.com (A Record)	**Hosted zone**	Z35SXDOTRQ7X7K
		Status	2 of 2 instances in service

JavaDemoApp URL:
http://a268013e05d3247d98c2b7762c6a473d-307290937.us-east-1.elb.amazonaws.com:8081/javademoproject/



Another Java Website running on AWS/Tomcat using CICD Pipeline

This is now running on AWS EKS Cluster!