Coaching on DevOps and Cloud Computing

Hands on DevOps Coaching provided on AWS and Azure Cloud platforms. please contact at devops.coaching@gmail.com for more info. You can also directly reach out to Coach AK at +1(469) 733-5248

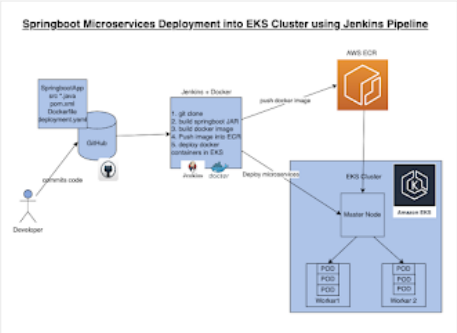
Tuesday, January 11, 2022

Deploy Springboot Microservices App into Amazon EKS Cluster using Jenkins Pipeline and Kubectl CLI Plug-in | Containerize Springboot App and Deploy into EKS Cluster using Jenkins Pipeline

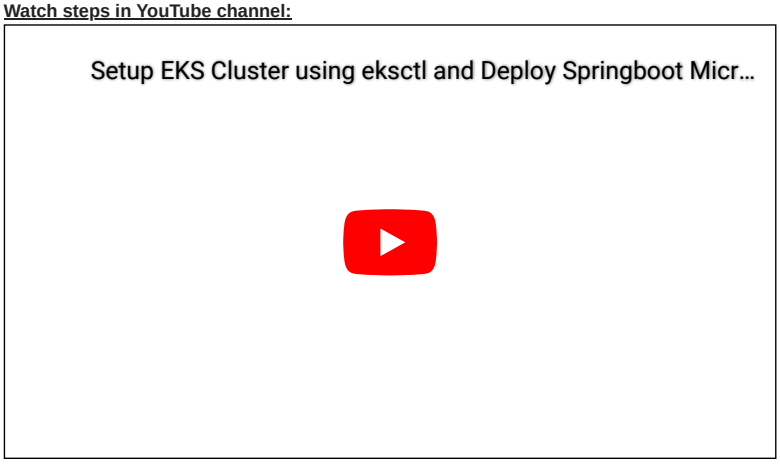
We will learn how to automate springboot microservices builds using Jenkins pipeline and Deploy into AWS EKS Cluster with help of Kubernetes CLI plug-in.

We will use Springboot Microservices based Java application. I have already created a repo with source code + Dockerfile. The repo also have Jenkinsfile for automating the following:

- Automating builds using Jenkins
- Automating Docker image creation
- Automating Docker image upload into AWS ECR
- Automating Docker Containers Deployments to Kubernetes Cluster



Watch steps in YouTube channel:



Same Code for this video is here:
Make sure you fork my repo https://github.com/akannan1087/springboot-app

Pre-requistes:
1. Amazon EKS Cluster is setup and running. Click here to learn how to create Amazon EKS cluster.
2. Create ECR repo in AWS
3. Jenkins Master is up and running
4. Docker installed on Jenkins instance

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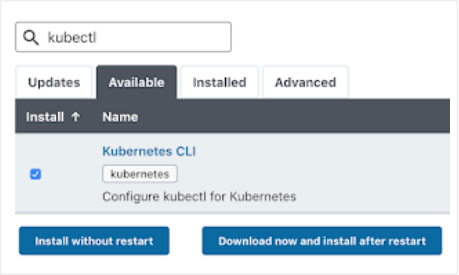
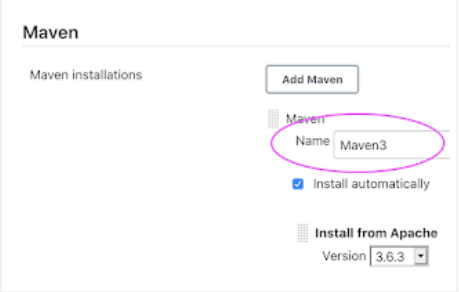
5. Docker, Docker pipeline and Kubernetes CLI plug-ins are installed in Jenkins



6. Install kubectl on your instance

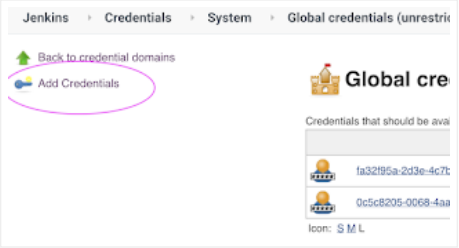
Step # 1 - Create Maven3 variable under Global tool configuration in Jenkins

Make sure you create Maven3 variable under Global tool configuration.

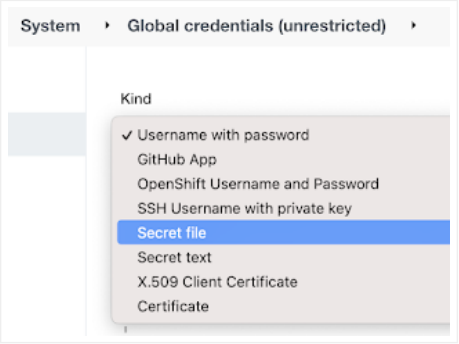


Step #2 - Create Credentials for connecting to Kubernetes Cluster using kubeconfig

Click on Add Credentials, use Kubernetes configuration from drop down.



use secret file from drop down.



execute the below command to login as jenkins user.

sudo su - jenkins

you should see the nodes running in EKS cluster.

kubectl get nodes

Execute the below command to get kubeconfig info, copy the entire content of the file:

cat /var/lib/jenkins/.kube/config

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Please Watch the video first before you get started: 1. Create an account in https://aws.amazon.com . Set that as basic free tier account...

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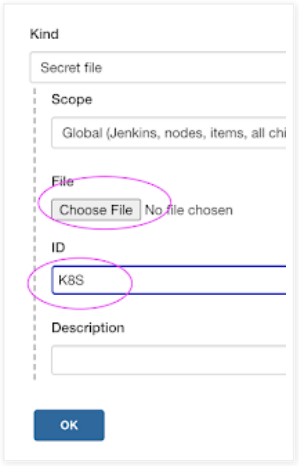
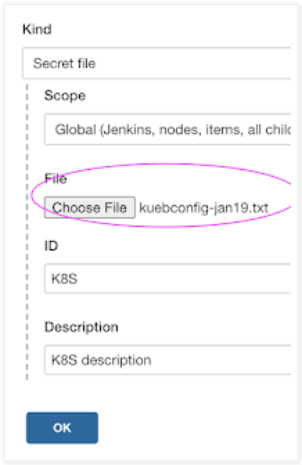
Open your text editor or notepad, copy and paste the entire content and save in a file.
We will upload this file.



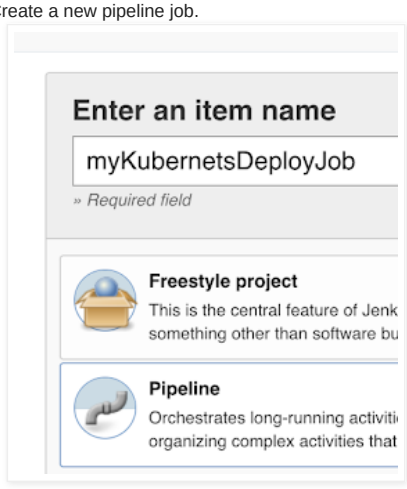
Enter ID as K8S and choose File and upload the file and save.



Enter ID as K8S and choose enter directly and paste the above file content and save.

Step # 3 - Create a pipeline in Jenkins

Create a new pipeline job.



Step # 4 - Copy the pipeline code from below

Make sure you change red highlighted values below as per your settings:

Your docker user id should be updated.
your registry credentials ID from Jenkins from step # 1 should be copied

```
pipeline {
  tools {
      maven 'Maven3'
  }
  agent any
  environment {
      registry = "account_id.dkr.ecr.us-east-2.amazonaws.com/my-docker-repo"
  }

  stages {
     stage('Cloning Git') {
        steps {
            checkout([$class: 'GitSCM', branches: [[name: '*/main']],
doGenerateSubmoduleConfigurations: false, extensions: [], submoduleCfg: [],
userRemoteConfigs: [[credentialsId: '', url: 'https://github.com/akannan1087/springboot-app']]])
        }
      }
    stage ('Build') {
       steps {
         sh 'mvn clean install'
        }
    }
  // Building Docker images
  stage('Building image') {
    steps{
      script {
        dockerImage = docker.build registry
      }
    }
  }

  // Uploading Docker images into AWS ECR
  stage('Pushing to ECR') {
   steps{
      script {
            sh 'aws ecr get-login-password --region us-east-2 | docker login --username AWS --
password-stdin account_id.dkr.ecr.us-east-2.amazonaws.com'
            sh 'docker push account_id.dkr.ecr.us-east-2.amazonaws.com/my-docker-repo:latest'
       }
      }
    }

     stage('K8S Deploy') {
      steps{
         script {
            withKubeConfig([credentialsId: 'K8S', serverUrl: '']) {
            sh ('kubectl apply -f  eks-deploy-k8s.yaml')
            }
         }
      }
     }
  }
}
```

Step # 5 - Build the pipeline

Once you create the pipeline and changes values per your configuration, click on Build now:

Step # 6 - Verify deployments to K8S

kubectl get pods

kubectl get deployments

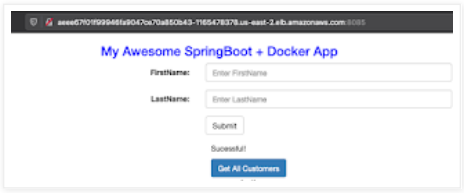
kubectl get services

If you see any errors after deploying the pods, you can check the pod logs.
kubectl logs <pod_name>

Steps # 7 - Access SpringBoot App in K8S cluster

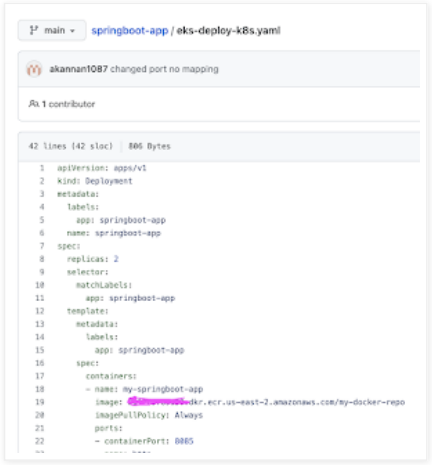
Once build is successful, go to browser and enter master or worker node public ip address along with port number mentioned above
http://loadbalancer_ip_address

You should see page like below:



Note:

Make sure you fork my repo https://github.com/akannan1087/springboot-app
and make changes in eks-deploy-k8s.yaml to pull Docker image from your AWS ECR repo.



at January 11, 2022

Labels: Docker, EKS, Jenkins, Kubernetes, Pipelines

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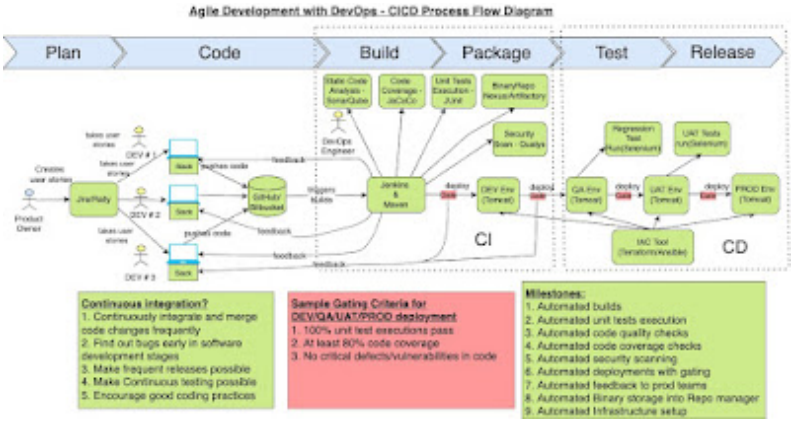

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