Bootcamp-Project 5

ENTERPRISE JAVA CI/CD WITH JENKINS, GITOPS, AND KUBERNETES OBSERVABILITY

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Introduction

In the modern software development landscape, speed, quality, and reliability are essential for delivering value to users. The "**Enterprise Java CI/CD with Jenkins, GitOps, and Kubernetes Observability**" project exemplifies a robust and scalable DevOps pipeline for a Java microservice. This end-to-end solution streamlines the software development lifecycle from code commit to production deployment while ensuring high code quality, automated delivery, and real-time system observability. By integrating leading tools such as **Jenkins, SonarQube, Argo CD, Prometheus, and Grafana**, the project adopts industry best practices in **Continuous Integration (CI), Continuous Deployment (CD), GitOps, and Kubernetes-native observability**.

Project Objectives

The key objectives of this project are:

1. **Automate the entire CI/CD pipeline** to ensure rapid, repeatable, and reliable deployments.
2. **Incorporate static code analysis** using SonarQube to enforce coding standards and improve maintainability.
3. **Build and containerize the Java application** using Docker to enable consistent deployment environments.
4. **Adopt GitOps practices** using Argo CD for declarative, version-controlled, and traceable deployments on Kubernetes.
5. **Enable observability and proactive monitoring** with Prometheus and Grafana for better system reliability and performance insights.

Expected Outcome

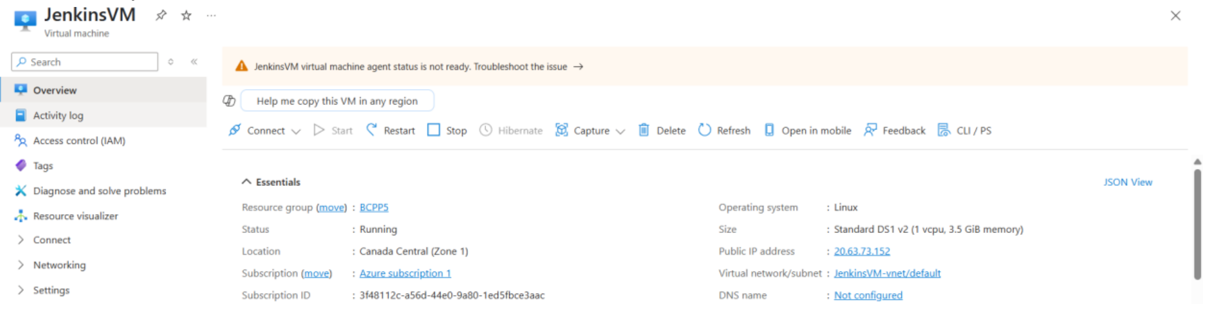
By the end of this project, the following outcomes are expected:

- A fully automated CI/CD pipeline using Jenkins, triggered by code commits and executing build, test, analysis, containerization, and deployment stages.
- Quality gates enforced through SonarQube to ensure code quality and maintainability before deployment.
- A production-ready Docker image of the Java application stored in a centralized container registry.
- A GitOps-managed deployment process via Argo CD, ensuring that the application state in the Kubernetes cluster matches the desired state defined in Git.
- A real-time observability stack using Prometheus and Grafana, with dashboards and alerts for key performance metrics such as response time, memory usage, and error rates.
- Improved deployment traceability, reduced manual effort, and faster feedback cycles for developers and operations teams.

Pre-requisite:

1. Java application code available in GitHub repository:
   https://github.com/merranbo1989/BCP-P5.git
   ***Project Folder:** java-maven-sonar-argocd-helm-k8s*

2. Create an Ubuntu Virtual Machine to install Jenkins, SonarQube, Maven, and Docker dependencies.



JenkinsVM
Virtual machine

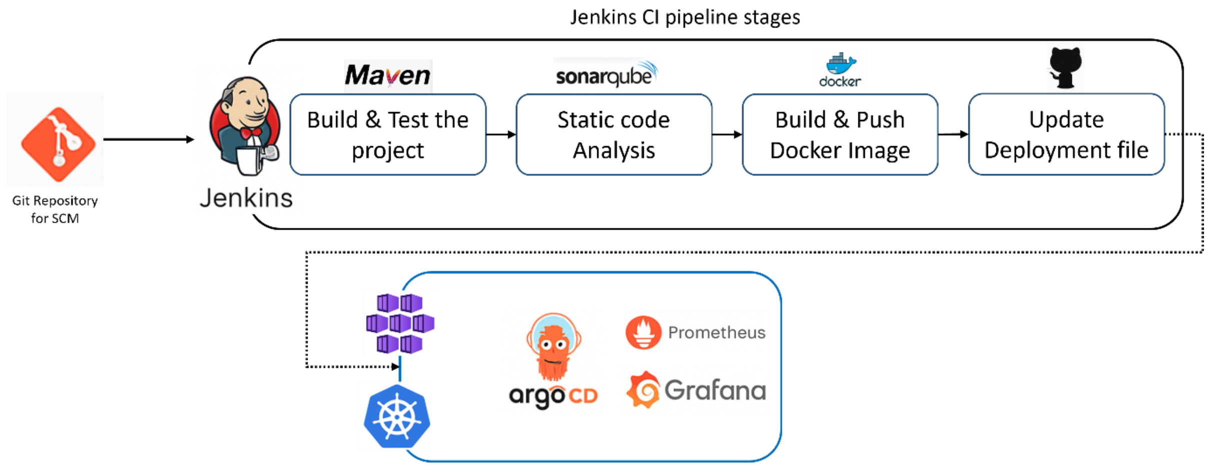
JenkinsVM virtual machine agent status is not ready. Troubleshoot the issue →

Help me copy this VM in any region

Essentials

Resource group (move)	: BCPP5
Status	: Running
Location	: Canada Central (Zone 1)
Subscription (move)	: Azure subscription 1
Subscription ID	: 3f48112c-a56d-44e0-9a80-1ed5fbce3aac
Operating system	: Linux
Size	: Standard DS1 v2 (1 vcpu, 3.5 GiB memory)
Public IP address	: 20.63.73.152
Virtual network/subnet	: JenkinsVM-vnet/default
DNS name	: Not configured

Architecture Diagram



Solution Steps

1. Project Setup

1.1. Installation of Jenkins, SonarQube, Maven, and Docker

Use the following command to install the Jenkins in the VM created in pre-requisite

a. Sudo apt update && sudo apt upgrade -y
b. sudo apt install openjdk-21-jdk -y
c. sudo apt install git -y
d. sudo apt install maven -y
e. **Jenkins Installation:**

```
sudo wget -O /etc/apt/keyrings/jenkins-keyring.asc \
https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
echo "deb [signed-by=/etc/apt/keyrings/jenkins-keyring.asc]" \
https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
/etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install jenkins -y
```

f. **Docker Installation:**

```
sudo apt install docker.io -y
sudo systemctl enable docker
sudo systemctl start docker
sudo usermod -aG docker $USER
sudo usermod -aG docker jenkins
```

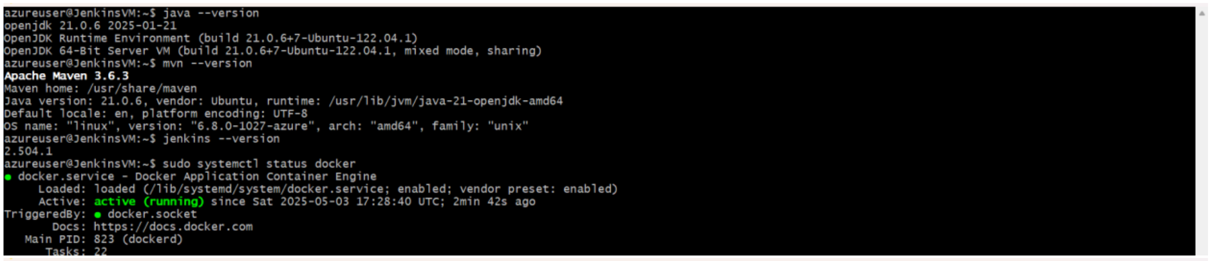
g. Sudo systemctl restart docker
h. Sudo reboot
i. **<u>Login to VM:</u>**

```
ssh -i "key.pem" azureuser@<public-ip>
```

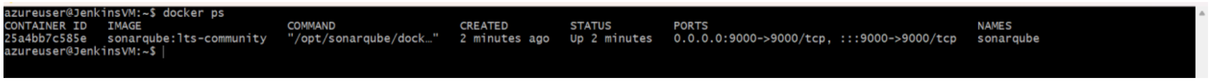
j. <u>SonarQube Installation:</u>

```
docker volume create --name sonarqube_data
docker volume create --name sonarqube_logs
docker volume create --name sonarqube_extensions

docker run -d --name sonarqube \
  -p 9000:9000 \
  -v sonarqube_data:/opt/sonarqube/data \
  -v sonarqube_extensions:/opt/sonarqube/extensions \
  -v sonarqube_logs:/opt/sonarqube/logs \
  sonarqube:lts-community
```



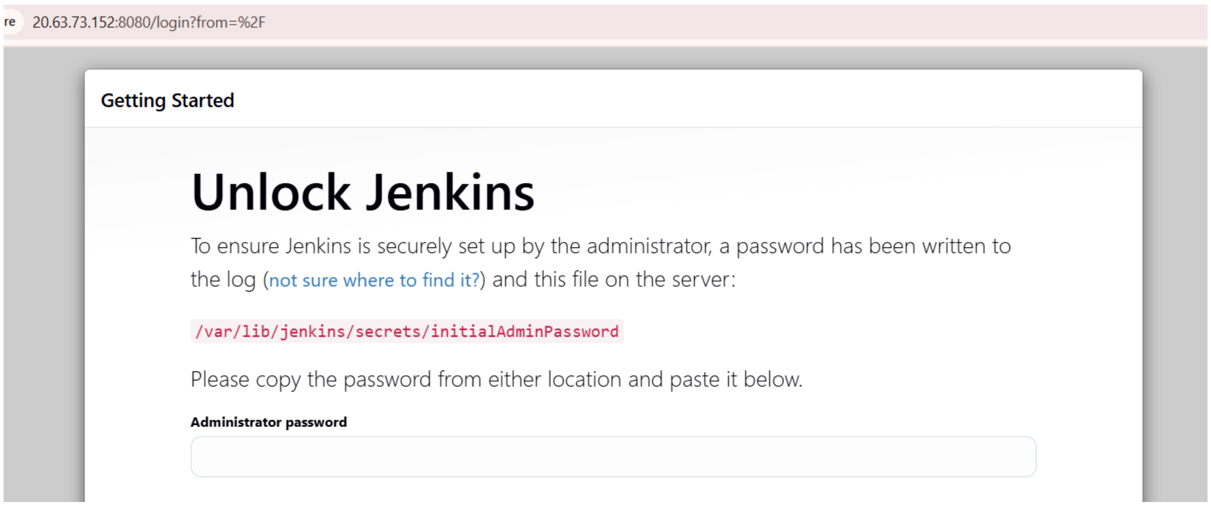
```
azureuser@JenkinsVM:~$ java --version
openjdk 21.0.6 2025-01-21
OpenJDK Runtime Environment (build 21.0.6+7-Ubuntu-122.04.1)
OpenJDK 64-Bit Server VM (build 21.0.6+7-Ubuntu-122.04.1, mixed mode, sharing)
azureuser@JenkinsVM:~$ mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 21.0.6, vendor: Ubuntu, runtime: /usr/lib/jvm/java-21-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "6.8.0-1027-azure", arch: "amd64", family: "unix"
azureuser@JenkinsVM:~$ jenkins --version
2.504.1
azureuser@JenkinsVM:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2025-05-03 17:28:40 UTC; 2min 42s ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 823 (dockerd)
      Tasks: 22
```



```
azureuser@JenkinsVM:~$ docker ps
CONTAINER ID   IMAGE                     COMMAND                  CREATED         STATUS         PORTS                                       NAMES
25a4bb7c585e   sonarqube:lts-community   "/opt/sonarqube/dock…"   2 minutes ago   Up 2 minutes   0.0.0.0:9000->9000/tcp, :::9000->9000/tcp   sonarqube
azureuser@JenkinsVM:~$ |
```

1.2.Configure Jenkins

a. Configure the Jenkins for the first time by launching the Jenkins URL: http://<public-ip>:8080



20.63.73.152:8080/login?from=%2F

Getting Started

Unlock Jenkins

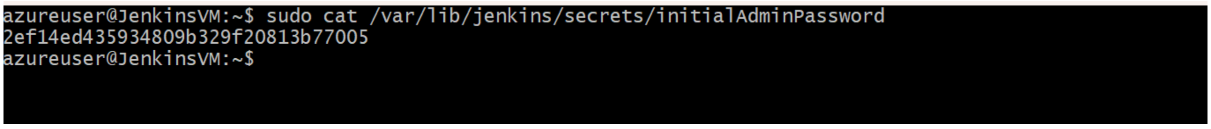
To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

`/var/lib/jenkins/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

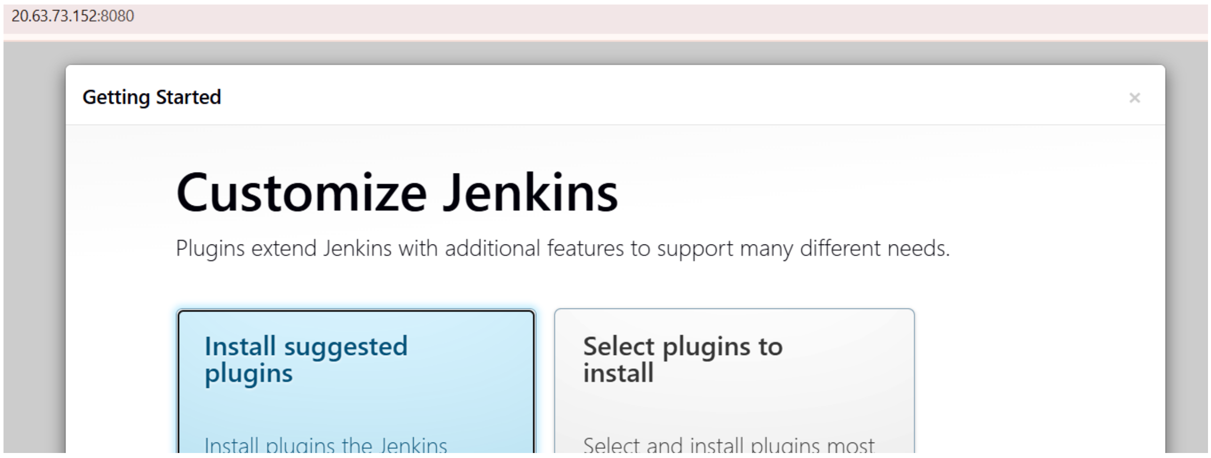
Administrator password

b. Use the below command to retrieve the password for Jenkins
   Command: sudo cat /var/lib/jenkins/secrets/initialAdminPassword
   Password: 2ef14ed435934809b329f20813b77005



```
azureuser@JenkinsVM:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
2ef14ed435934809b329f20813b77005
azureuser@JenkinsVM:~$
```

c. Create a new user with new password and install the required plugins



20.63.73.152:8080

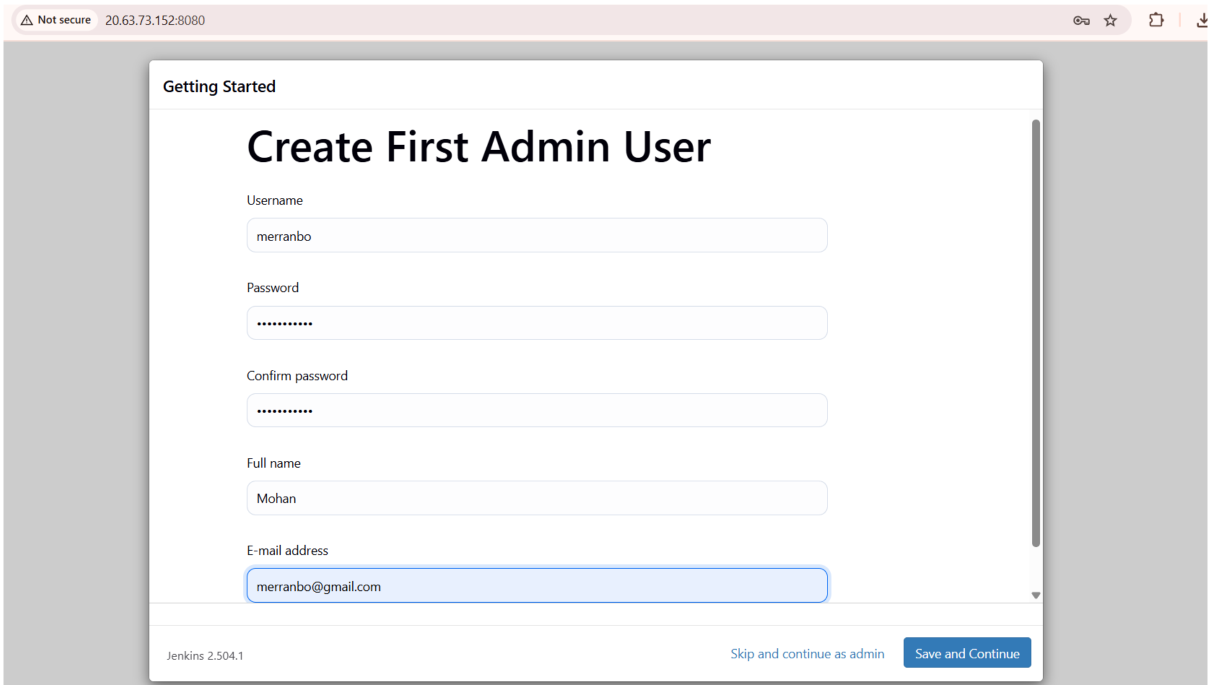
Getting Started

Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

Install suggested plugins
Install plugins the Jenkins
Select plugins to install
Select and install plugins most

d. Verify the Jenkins dashboard page is displayed



Not secure 20.63.73.152:8080

Getting Started

Create First Admin User

Username: merranbo

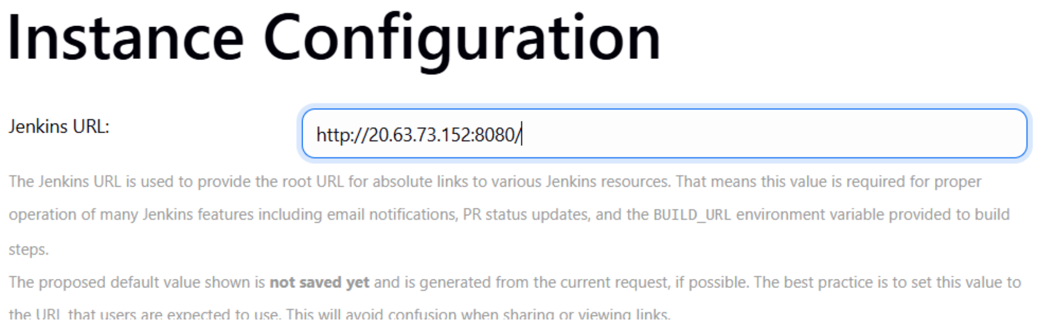
Password: ••••••••••

Confirm password: ••••••••••

Full name: Mohan

E-mail address: merranbo@gmail.com

Jenkins 2.504.1

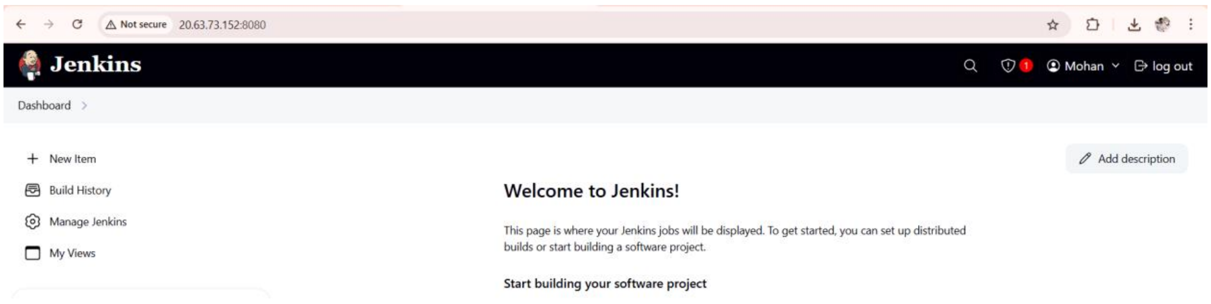


Instance Configuration

Jenkins URL: http://20.63.73.152:8080/

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.



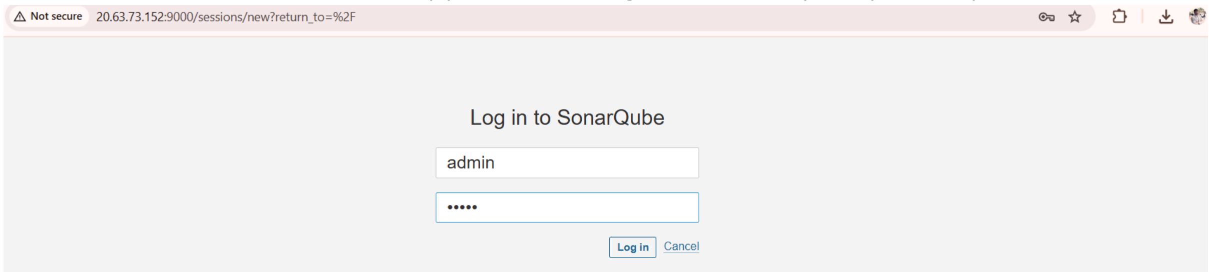
Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

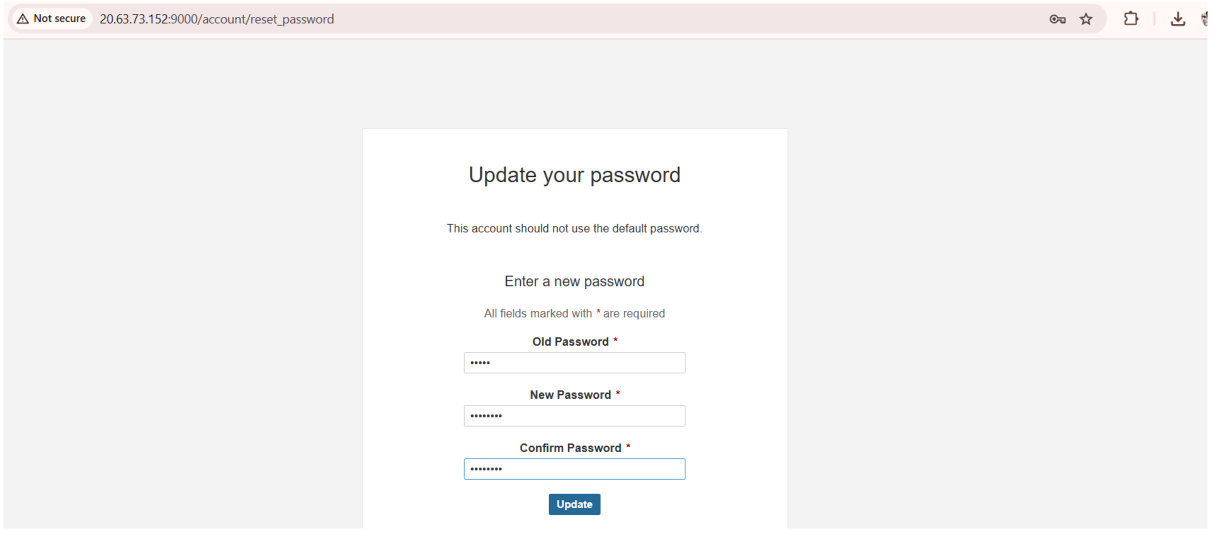
Start building your software project

1.3.Configure SonarQube

- Launch the SonarQube application using the URL: http://<public-ip>:9000



- Give the initial username and password as below:
  Username: admin
  Password: admin
- When prompted provide a new password and proceed.



This account should not use the default password.

Enter a new password

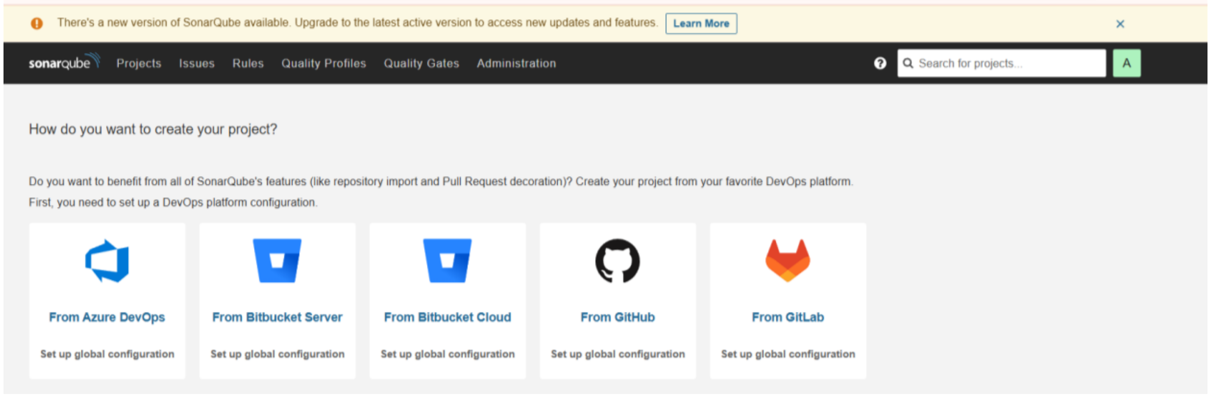
All fields marked with * are required

Old Password * •••••

New Password * ••••••••

Confirm Password * ••••••••

- Verify the dashboard page is displayed for sonarqube.



There's a new version of SonarQube available. Upgrade to the latest active version to access new updates and features. Learn More

How do you want to create your project?

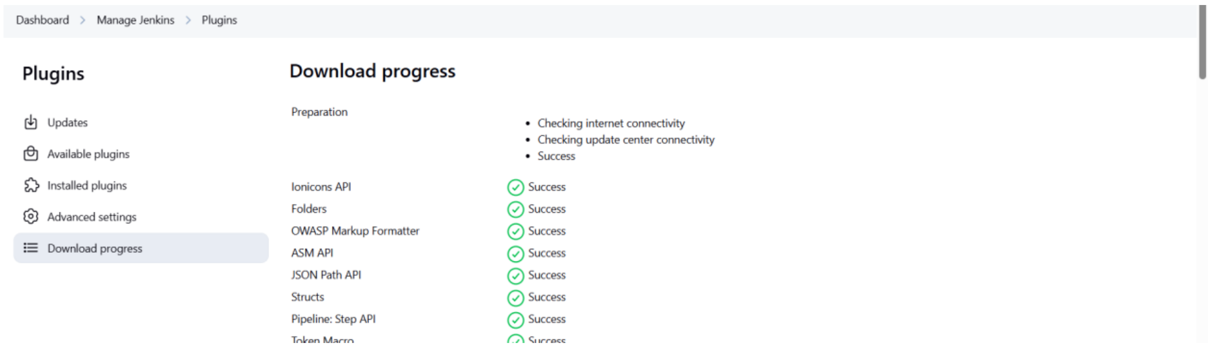
Do you want to benefit from all of SonarQube's features (like repository import and Pull Request decoration)? Create your project from your favorite DevOps platform.
First, you need to set up a DevOps platform configuration.

From Azure DevOps
Set up global configuration
From Bitbucket Server
Set up global configuration
From Bitbucket Cloud
Set up global configuration
From GitHub
Set up global configuration
From GitLab
Set up global configuration

2. Continuous Integration

2.1. Jenkins configuration

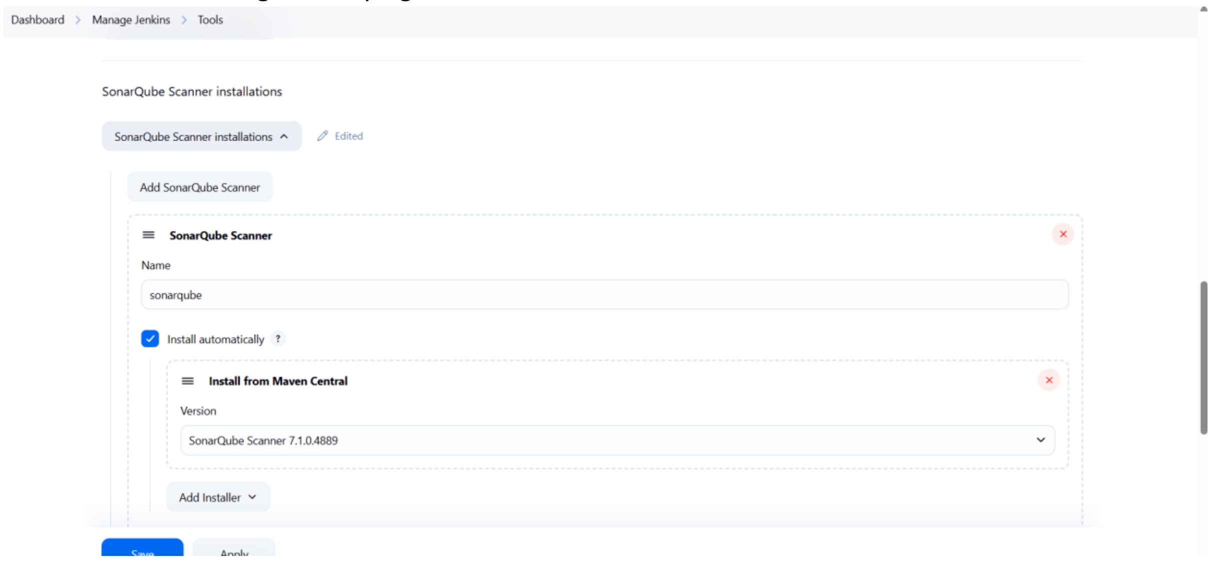
a. Add the necessary plugins to set up the Jenkins pipeline



Download progress

Preparation	• Checking internet connectivity • Checking update center connectivity • Success
Ionicons API	✓ Success
Folders	✓ Success
OWASP Markup Formatter	✓ Success
ASM API	✓ Success
JSON Path API	✓ Success
Structs	✓ Success
Pipeline: Step API	✓ Success
Token Macro	✓ Success

b. Configure the plugins


Dashboard > Manage Jenkins > Tools
SonarQube Scanner installations
SonarQube Scanner installations
Edited
Add SonarQube Scanner
SonarQube Scanner
Add Installer
Save
Apply

Name: sonarqube

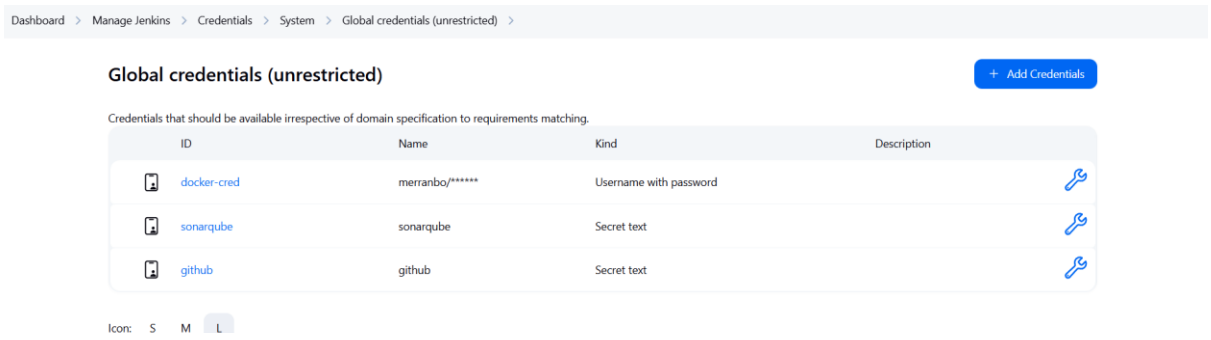
[✓] Install automatically

Install from Maven Central

Version: SonarQube Scanner 7.1.0.4889

2.2. Credential Management

Add Credentials for SonarQube, Github, and DockerHub


Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted)
+ Add Credentials
Icon: S M L

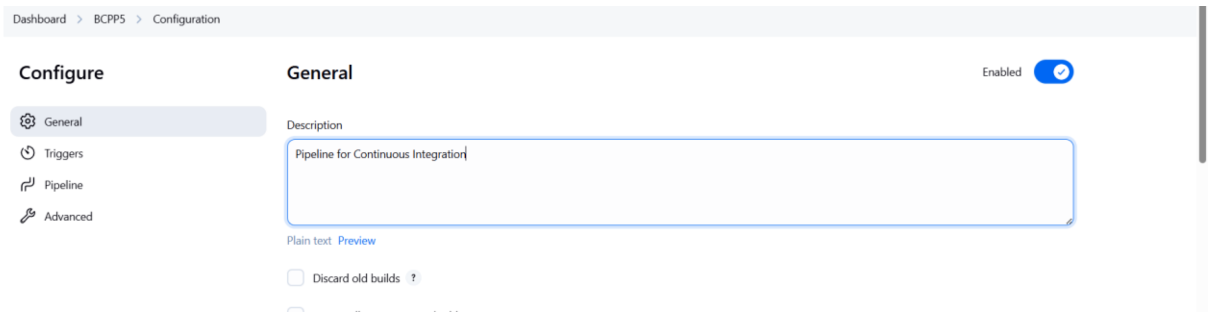
Global credentials (unrestricted)

Credentials that should be available irrespective of domain specification to requirements matching.

ID	Name	Kind	Description
docker-cred	merranbo/******	Username with password	
sonarqube	sonarqube	Secret text	
github	github	Secret text	

2.3. Pipeline Creation and Execution

a. Create a New Pipeline project


Dashboard > BCPP5 > Configuration

Configure

General

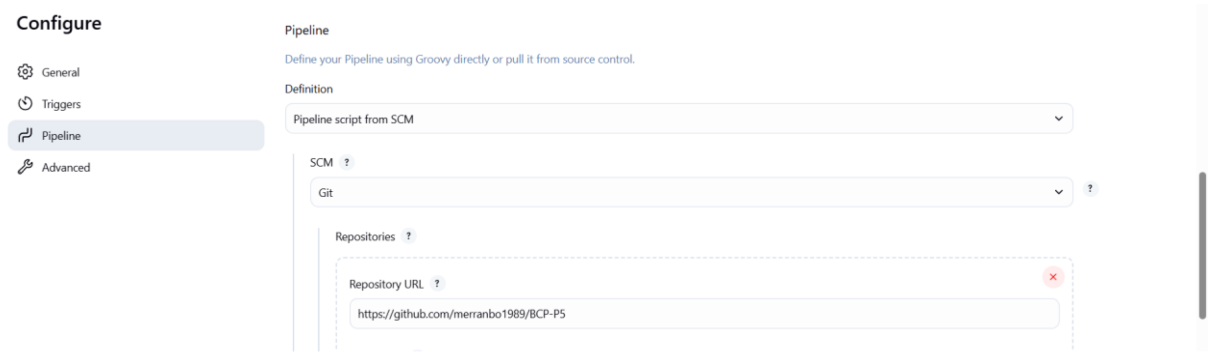
Enabled

Description: Pipeline for Continuous Integration

Plain text Preview

Discard old builds

b. Use Pipeline from SCM option for pipeline script


Configure

Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition: Pipeline script from SCM

SCM: Git

Repositories

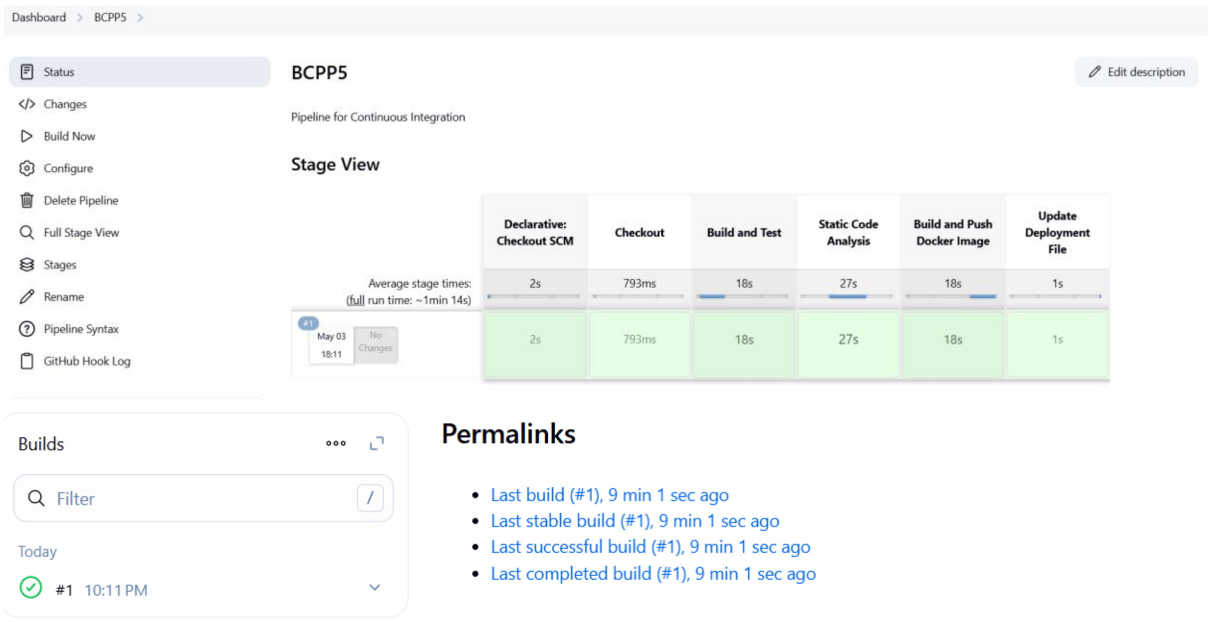
Repository URL: https://github.com/merranbo1989/BCP-P5

P.S. use the below repo https://github.com/merranbo1989/BCP-P5.git and the script path as “java-maven-sonar-argocd-helm-k8s/spring-boot-app/JenkinsFile”

***** *JenkinsFile code starts here* *****

```
pipeline {
 agent any
 stages {
  stage('Checkout') {
   steps {
    // Checkout code from Git repository
    checkout scmGit(branches: [[name: '*/main']], extensions: [], userRemoteConfigs: [[url:
'https://github.com/merranbo1989/BCP-P5.git']])
   }
  }
  stage('Build and Test') {
   steps {
    sh 'ls -ltr'
    // build the project and create a JAR file
    sh 'cd java-maven-sonar-argocd-helm-k8s/spring-boot-app && mvn clean package'
   }
  }
  stage('Static Code Analysis') {
   environment {
    SONAR_URL = "http://20.63.73.152:9000/"
   }
   steps {
    withCredentials([string(credentialsId: 'sonarqube', variable: 'SONAR_AUTH_TOKEN')]) {
     sh 'cd java-maven-sonar-argocd-helm-k8s/spring-boot-app && mvn sonar:sonar -
Dsonar.login=$SONAR_AUTH_TOKEN -Dsonar.host.url=${SONAR_URL}'
    }
   }
   }
   stage('Build and Push Docker Image') {
     environment {
       DOCKER_IMAGE = "merranbo/bcpp5:${BUILD_NUMBER}"
       // DOCKERFILE_LOCATION = "java-maven-sonar-argocd-helm-k8s/spring-boot-app/Dockerfile"
       REGISTRY_CREDENTIALS = credentials('docker-cred')
     }
     steps {
       script {
           sh 'cd java-maven-sonar-argocd-helm-k8s/spring-boot-app  && docker build -t
${DOCKER_IMAGE} .'
           def dockerImage = docker.image("${DOCKER_IMAGE}")
           docker.withRegistry('https://index.docker.io/v1/',  "docker-cred") {
           dockerImage.push()
           }
       }
     }
   }
   stage('Update Deployment File') {
       environment {
           GIT_REPO_NAME = "BCP-P5"
           GIT_USER_NAME = "merranbo1989"
       }
       steps {
           withCredentials([string(credentialsId:  'github',  variable:  'GITHUB_TOKEN')]) {
              sh '''
                  git config user.email "merranbo1989@gmail.com"
                  git config user.name "merranbo1989"
                  BUILD_NUMBER=${BUILD_NUMBER}
                  sed -i "s/replaceImageTag/${BUILD_NUMBER}/g"  java-maven-sonar-argocd-helm-
k8s/spring-boot-app-manifests/deployment.yml
                  git add java-maven-sonar-argocd-helm-k8s/spring-boot-app-manifests/deployment.yml
                  git commit -m "Update deployment image to version ${BUILD_NUMBER}"
                  git push
https://${GITHUB_TOKEN}@github.com/${GIT_USER_NAME}/${GIT_REPO_NAME}  HEAD:main
              '''
           }
       }
   }
 }
}
```
******** Code Ends Here ********

c. Click on “Build now” option to run the pipeline



Dashboard > BCPP5 >

Status
Changes
Build Now
Configure
Delete Pipeline
Full Stage View
Stages
Rename
Pipeline Syntax
GitHub Hook Log

BCPP5

Edit description

Pipeline for Continuous Integration

Stage View

	Declarative: Checkout SCM	Checkout	Build and Test	Static Code Analysis	Build and Push Docker Image	Update Deployment File
Average stage times: (full run time: ~1min 14s)	2s	793ms	18s	27s	18s	1s
#1 May 03 18:11 No Changes	2s	793ms	18s	27s	18s	1s

Builds

Filter

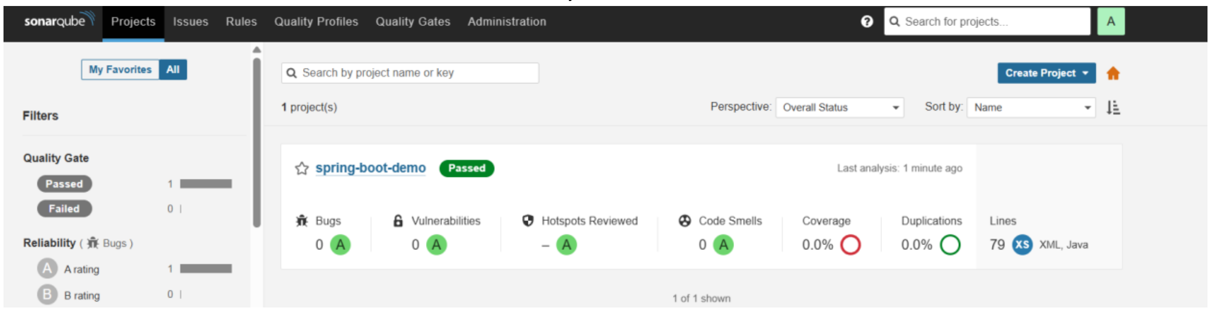
Today

#1 10:11 PM

Permalinks

- Last build (#1), 9 min 1 sec ago
- Last stable build (#1), 9 min 1 sec ago
- Last successful build (#1), 9 min 1 sec ago
- Last completed build (#1), 9 min 1 sec ago

d. Check the SonarQube for the code analysis result



sonarqube Projects Issues Rules Quality Profiles Quality Gates Administration

Search for projects...

My Favorites All

Filters

Quality Gate
Passed 1
Failed 0

Reliability (Bugs)
A rating 1
B rating 0

Search by project name or key

Create Project

1 project(s)

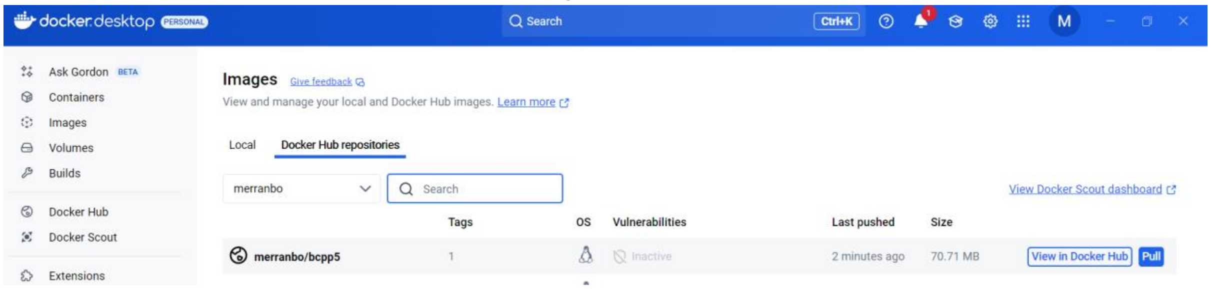
Perspective: Overall Status Sort by: Name

spring-boot-demo Passed Last analysis: 1 minute ago

Bugs	Vulnerabilities	Hotspots Reviewed	Code Smells	Coverage	Duplications	Lines
0 A	0 A	– A	0 A	0.0%	0.0%	79 XS XML, Java

1 of 1 shown

e. Check the Docker Hub to see if the Image is created



docker desktop PERSONAL

Search Ctrl+K

Ask Gordon BETA
Containers
Images
Volumes
Builds
Docker Hub
Docker Scout
Extensions

Images Give feedback

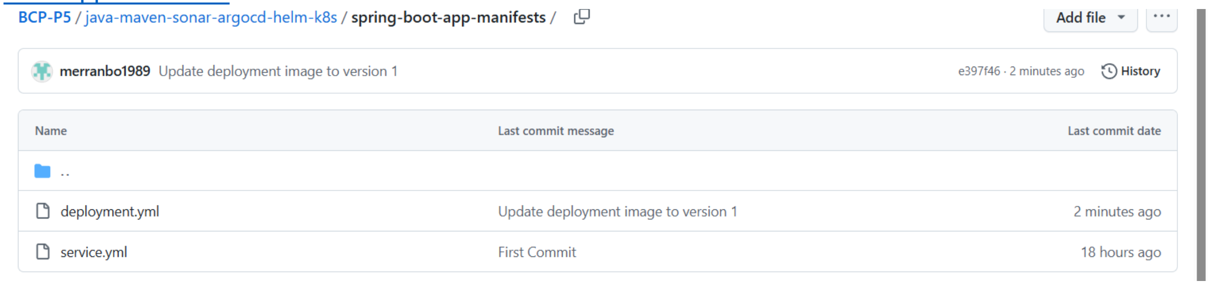
View and manage your local and Docker Hub images. Learn more

Local Docker Hub repositories

merranbo Search View Docker Scout dashboard

	Tags	OS	Vulnerabilities	Last pushed	Size	
merranbo/bcpp5	1		Inactive	2 minutes ago	70.71 MB	View in Docker Hub Pull

f. Verify that the “Kubernetes” Manifest file “deployment.yml” in the github path https://github.com/merranbo1989/BCP-P5/tree/main/java-maven-sonar-argocd-helm-k8s/spring-boot-app-manifests

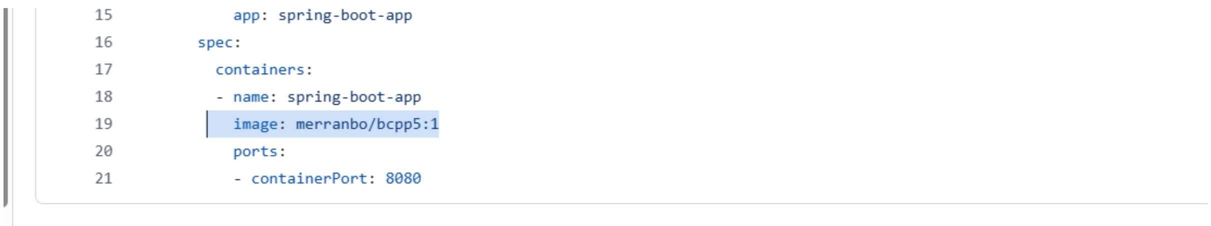


BCP-P5 / java-maven-sonar-argocd-helm-k8s / spring-boot-app-manifests /

Add file

merranbo1989 Update deployment image to version 1 e397f46 · 2 minutes ago History

Name	Last commit message	Last commit date
..		
deployment.yml	Update deployment image to version 1	2 minutes ago
service.yml	First Commit	18 hours ago



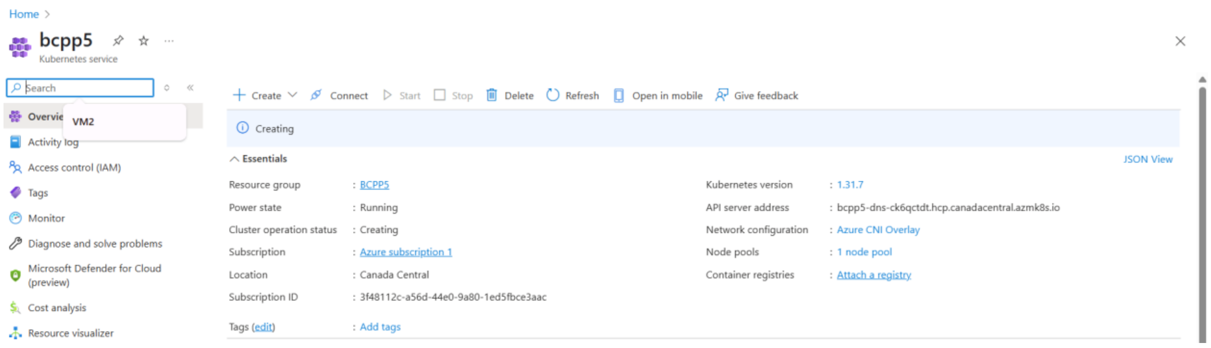
```
      app: spring-boot-app
    spec:
      containers:
      - name: spring-boot-app
        image: merranbo/bcpp5:1
        ports:
        - containerPort: 8080
```

P.S. The updated image name will serve as the input for the CD stage using Argo CD

3. Argo CD

3.1. AKS Cluster Installation

a. Create an AKS cluster in Azure Portal



Home >

bcpp5
Kubernetes service

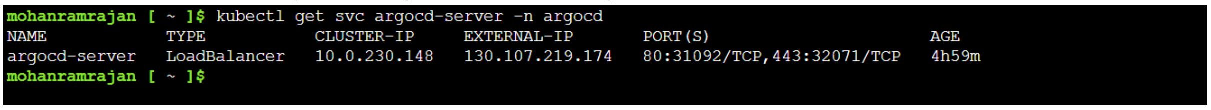
Creating

Essentials

Resource group	: BCPP5	Kubernetes version	: 1.31.7
Power state	: Running	API server address	: bcpp5-dns-ck6qctdt.hcp.canadacentral.azmk8s.io
Cluster operation status	: Creating	Network configuration	: Azure CNI Overlay
Subscription	: Azure subscription 1	Node pools	: 1 node pool
Location	: Canada Central	Container registries	: Attach a registry
Subscription ID	: 3f48112c-a56d-44e0-9a80-1ed5fbce3aac		
Tags (edit)	: Add tags		

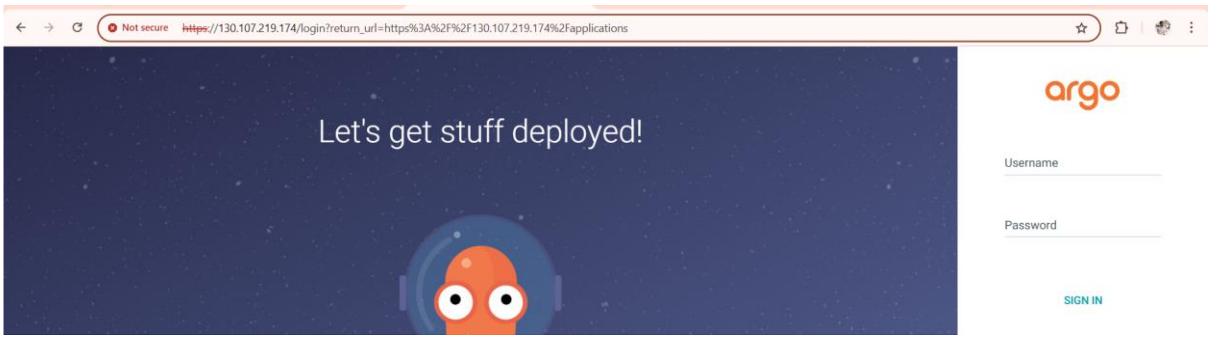
3.2. Install ArgoCD Operator and controller on AKS cluster

a. Follow the below commands to install the ArgoCD on AKS cluster
   i. az account set --subscription “<subscription name>”
   ii. az aks get-credentials --resource-group <resource group name> --name <AKS cluster name>
   iii. kubectl create namespace argocd
   iv. kubectl apply -n argocd -f https://raw.githubusercontent.com/argoproj/argo-cd/stable/manifests/install.yaml
   v. kubectl patch svc argocd-server -n argocd -p '{"spec": {"type": "LoadBalancer"}}'
   vi. kubectl get svc argocd-server -n argocd



```
mohanramrajan [ ~ ]$ kubectl get svc argocd-server -n argocd
NAME            TYPE           CLUSTER-IP     EXTERNAL-IP       PORT(S)                      AGE
argocd-server   LoadBalancer   10.0.230.148   130.107.219.174   80:31092/TCP,443:32071/TCP   4h59m
mohanramrajan [ ~ ]$
```

b. Use the external IP (from step vi) to launch the ArgoCD UI

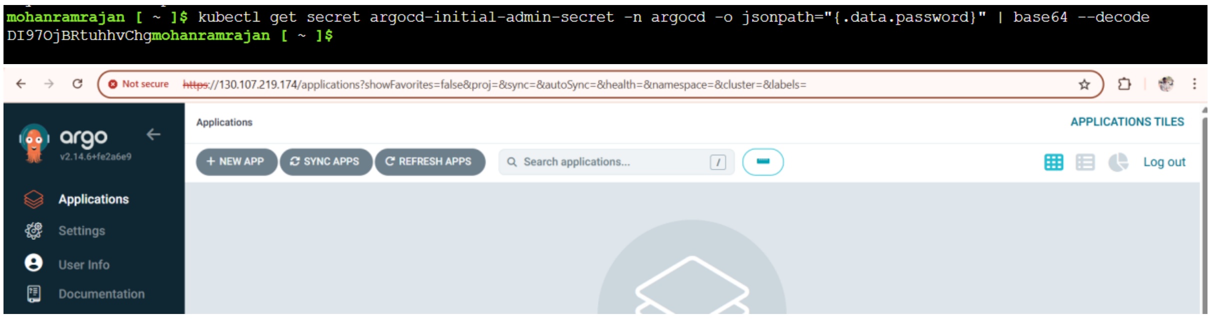


Not secure
https://130.107.219.174/login?return_url=https%3A%2F%2F130.107.219.174%2Fapplications
Let's get stuff deployed!
argo
Username
Password
SIGN IN

c. To get the initial password use the below command
   i. kubectl get secret argocd-initial-admin-secret -n argocd -o jsonpath="{.data.password}" | base64 --decode

Username: admin

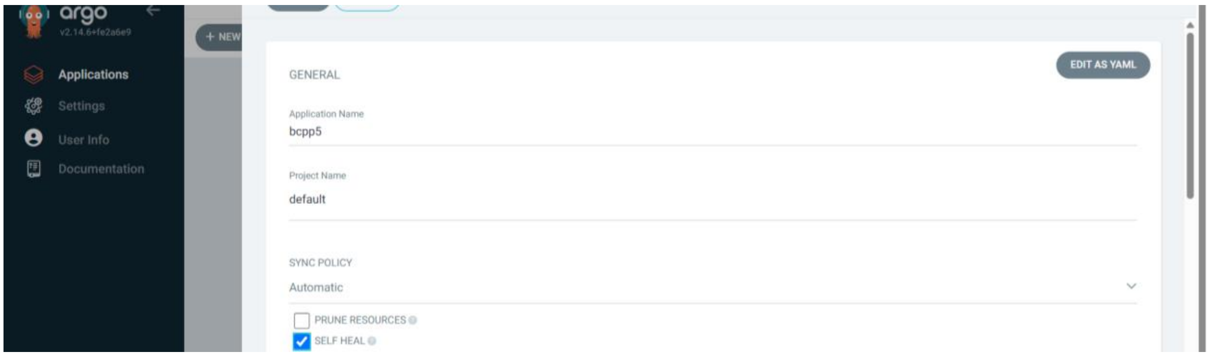
Password: DI97OjBRtuhhvChg



```
mohanramrajan [ ~ ]$ kubectl get secret argocd-initial-admin-secret -n argocd -o jsonpath="{.data.password}" | base64 --decode
DI97OjBRtuhhvChgmohanramrajan [ ~ ]$
```

3.3.Configure ArgoCD APP

a. Create a New App in ArgoCD UI.



GENERAL

Application Name: bcpp5

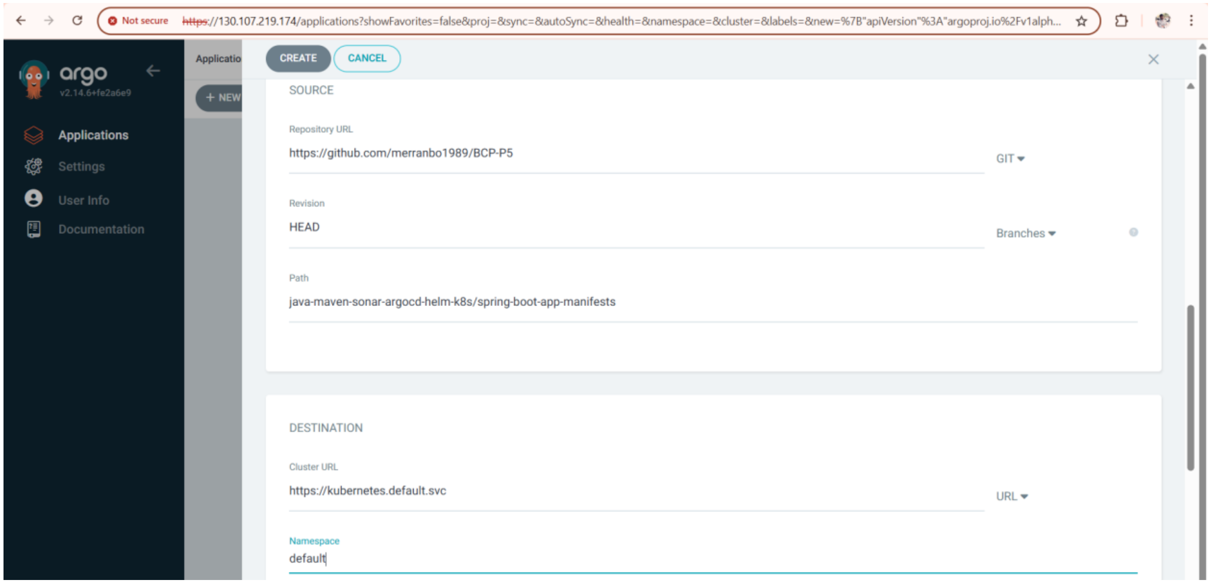
Project Name: default

SYNC POLICY: Automatic

PRUNE RESOURCES ☐

SELF HEAL ☑

b. Provide the Git Repository details where the Kubernetes Manifests are placed



Not secure https://130.107.219.174/applications?showFavorites=false&proj=&sync=&autoSync=&health=&namespace=&cluster=&labels=&new=%7B"apiVersion"%3A"argoproj.io%2Fv1alph...
argo v2.14.6+fe2a6e9
Applications
Settings
User Info
Documentation
CREATE
CANCEL

SOURCE

Repository URL: https://github.com/merranbo1989/BCP-P5 GIT

Revision: HEAD Branches

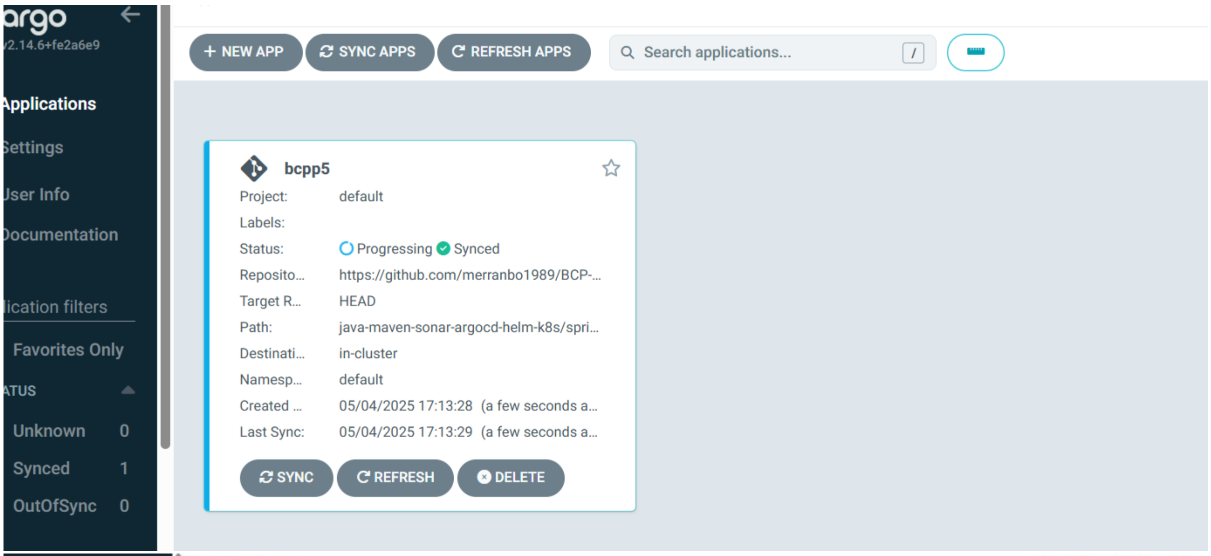
Path: java-maven-sonar-argocd-helm-k8s/spring-boot-app-manifests

DESTINATION

Cluster URL: https://kubernetes.default.svc URL

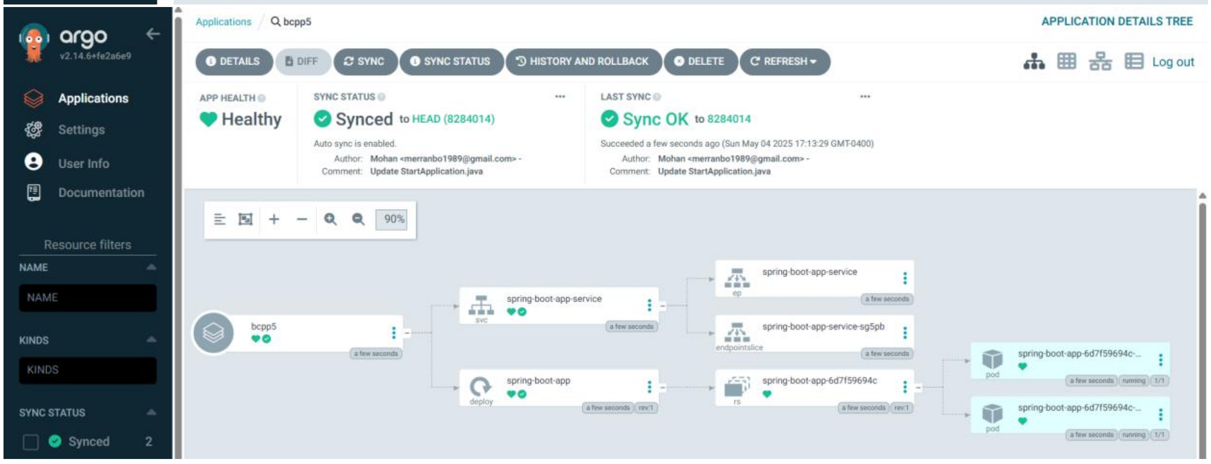
Namespace: default

c. Click on Create option



bcpp5

Project: default
Labels:
Status: Progressing Synced
Reposito... https://github.com/merranbo1989/BCP-...
Target R... HEAD
Path: java-maven-sonar-argocd-helm-k8s/spri...
Destinati... in-cluster
Namesp... default
Created ... 05/04/2025 17:13:28 (a few seconds a...
Last Sync: 05/04/2025 17:13:29 (a few seconds a...

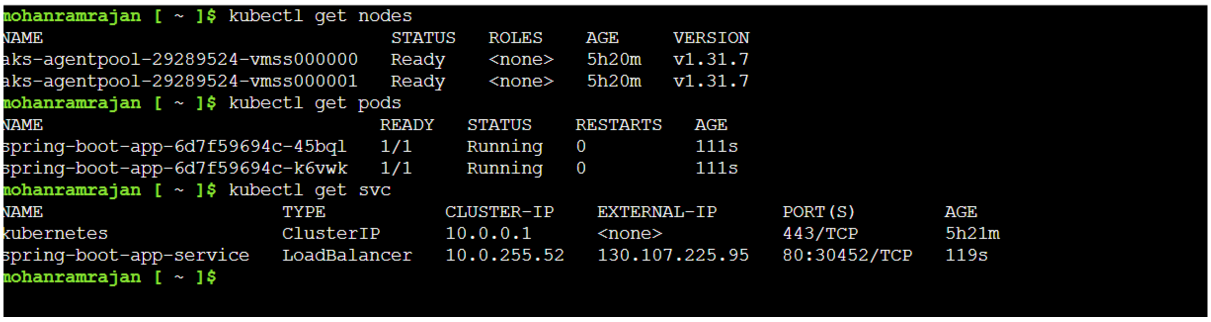


APP HEALTH
Healthy

SYNC STATUS
Synced to HEAD (8284014)
Auto sync is enabled.
Author: Mohan <merranbo1989@gmail.com> -
Comment: Update StartApplication.java

LAST SYNC
Sync OK to 8284014
Succeeded a few seconds ago (Sun May 04 2025 17:13:29 GMT-0400)
Author: Mohan <merranbo1989@gmail.com> -
Comment: Update StartApplication.java

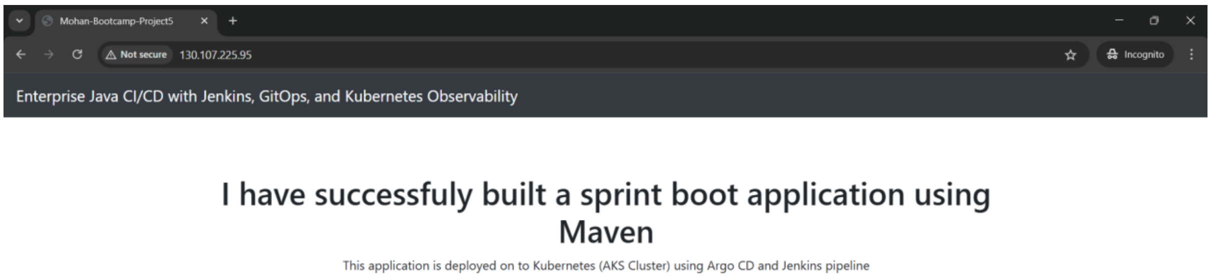
d. Use the below command to check if the pods are running
   a. Kubectl get nodes
   b. Kubectl get pods
   c. Kubectl get svc



```
mohanramrajan [ ~ ]$ kubectl get nodes
NAME                                STATUS   ROLES    AGE     VERSION
aks-agentpool-29289524-vmss000000   Ready    <none>   5h20m   v1.31.7
aks-agentpool-29289524-vmss000001   Ready    <none>   5h20m   v1.31.7
mohanramrajan [ ~ ]$ kubectl get pods
NAME                               READY   STATUS    RESTARTS   AGE
spring-boot-app-6d7f59694c-45bql   1/1     Running   0          111s
spring-boot-app-6d7f59694c-k6vwk   1/1     Running   0          111s
mohanramrajan [ ~ ]$ kubectl get svc
NAME                      TYPE           CLUSTER-IP     EXTERNAL-IP      PORT(S)        AGE
kubernetes                ClusterIP      10.0.0.1       <none>           443/TCP        5h21m
spring-boot-app-service   LoadBalancer   10.0.255.52    130.107.225.95   80:30452/TCP   119s
mohanramrajan [ ~ ]$
```

Validation

Use the External-IP to launch the application



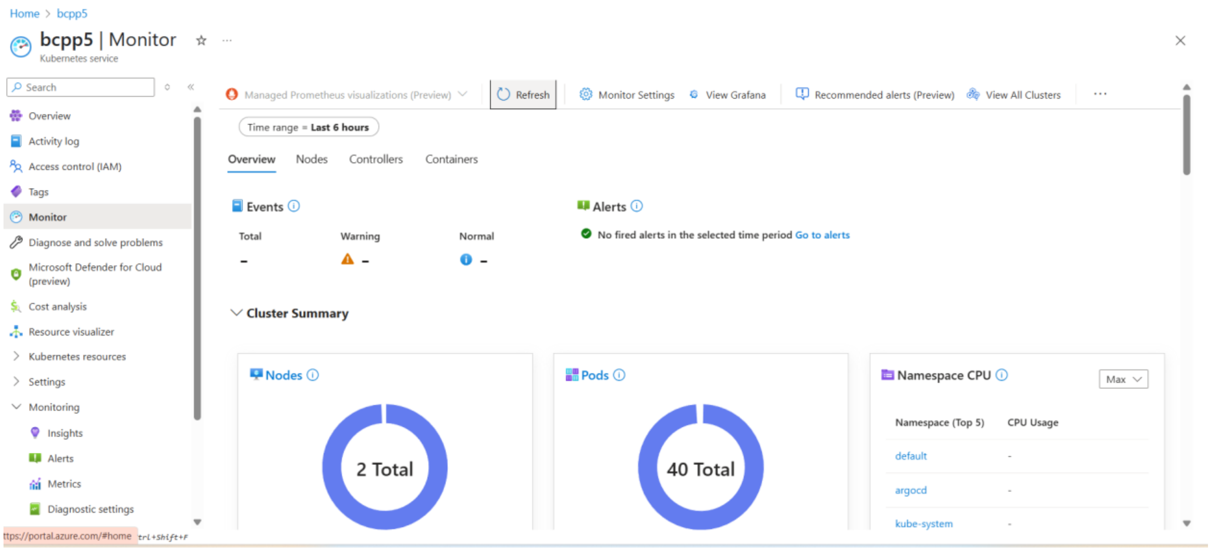
Enterprise Java CI/CD with Jenkins, GitOps, and Kubernetes Observability

I have successfully built a sprint boot application using Maven

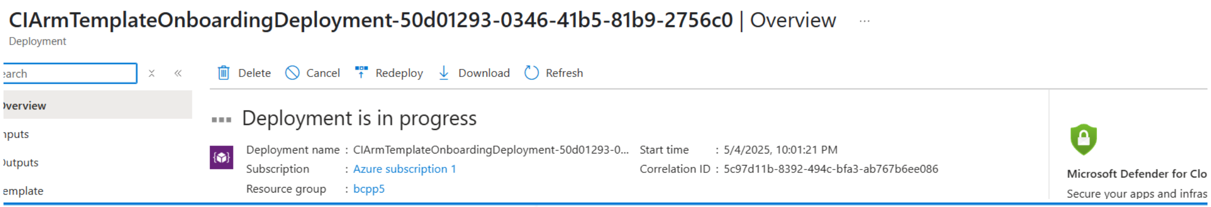
This application is deployed on to Kubernetes (AKS Cluster) using Argo CD and Jenkins pipeline

Monitoring

- Enable Prometheus in Azure AKS cluster



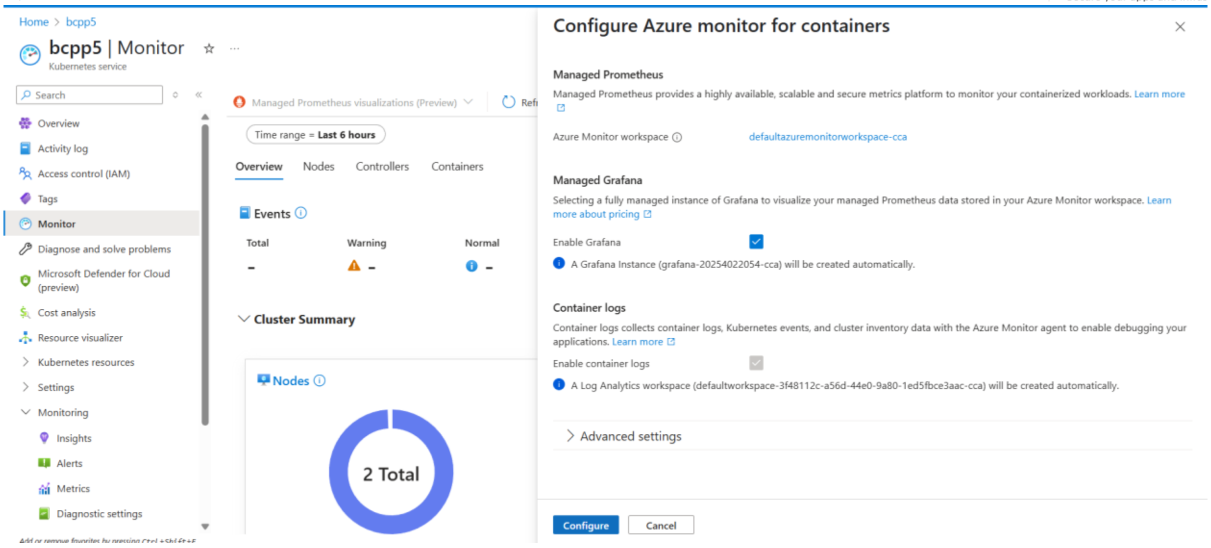
- Enable Grafana


CIArmTemplateOnboardingDeployment-50d01293-0346-41b5-81b9-2756c0 | Overview

Deployment

Deployment is in progress

Deployment name : CIArmTemplateOnboardingDeployment-50d01293-0...
Subscription : Azure subscription 1
Resource group : bcpp5
Start time : 5/4/2025, 10:01:21 PM
Correlation ID : 5c97d11b-8392-494c-bfa3-ab767b6ee086



Configure Azure monitor for containers

Managed Prometheus

Managed Prometheus provides a highly available, scalable and secure metrics platform to monitor your containerized workloads. Learn more

Azure Monitor workspace: defaultazuremonitorworkspace-cca

Managed Grafana

Selecting a fully managed instance of Grafana to visualize your managed Prometheus data stored in your Azure Monitor workspace. Learn more about pricing

Enable Grafana ✓

A Grafana Instance (grafana-20254022054-cca) will be created automatically.

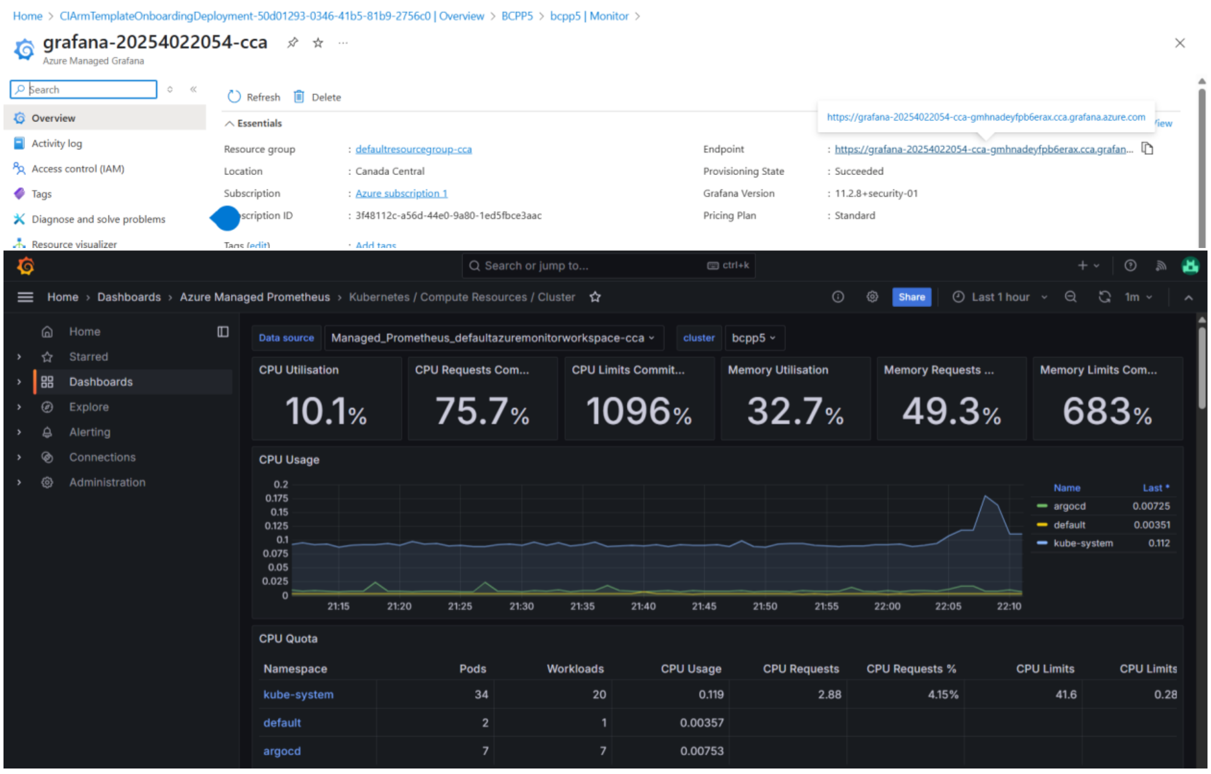
Container logs

Container logs collects container logs, Kubernetes events, and cluster inventory data with the Azure Monitor agent to enable debugging your applications. Learn more

Enable container logs ✓

A Log Analytics workspace (defaultworkspace-3f48112c-a56d-44e0-9a80-1ed5fbce3aac-cca) will be created automatically.

- View Grafana chart


Home > CIArmTemplateOnboardingDeployment-50d01293-0346-41b5-81b9-2756c0 | Overview > BCPP5 > bcpp5 | Monitor >

grafana-20254022054-cca

Azure Managed Grafana

Refresh Delete

Essentials

https://grafana-20254022054-cca-gmhnadeyfpb6erax.cca.grafana.azure.com

Resource group	: defaultresourcegroup-cca	Endpoint	: https://grafana-20254022054-cca-gmhnadeyfpb6erax.cca.grafan...
Location	: Canada Central	Provisioning State	: Succeeded
Subscription	: Azure subscription 1	Grafana Version	: 11.2.8+security-01
scription ID	: 3f48112c-a56d-44e0-9a80-1ed5fbce3aac	Pricing Plan	: Standard
Tags (edit)	: Add tags		

Data source: Managed_Prometheus_defaultazuremonitorworkspace-cca

cluster: bcpp5

CPU Utilisation	CPU Requests Com...	CPU Limits Commit...	Memory Utilisation	Memory Requests ...	Memory Limits Com...
10.1%	75.7%	1096%	32.7%	49.3%	683%

CPU Usage

Name	Last *
argocd	0.00725
default	0.00351
kube-system	0.112

CPU Quota

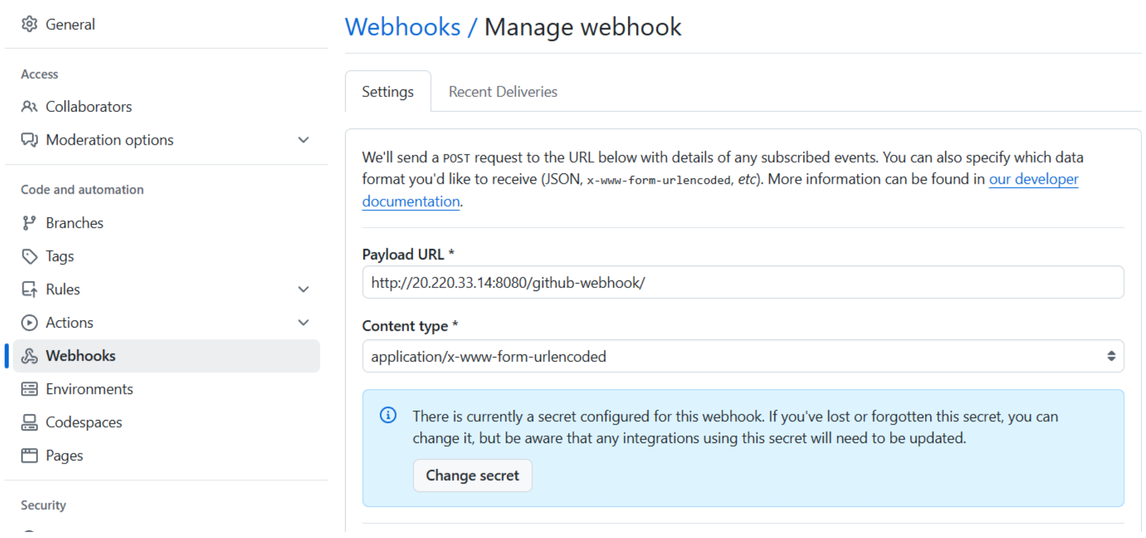
Namespace	Pods	Workloads	CPU Usage	CPU Requests	CPU Requests %	CPU Limits	CPU Limits
kube-system	34	20	0.119	2.88	4.15%	41.6	0.28
default	2	1	0.00357				
argocd	7	7	0.00753				

Conclusion

This project successfully demonstrates a modern, cloud-native DevOps workflow tailored for enterprise Java applications. By combining CI/CD automation, GitOps deployment, and Kubernetes observability, it addresses critical challenges in software delivery—speed, reliability, and visibility. The architecture and tooling are designed to scale across teams and environments, making this solution well-suited for organizations embracing DevOps and Kubernetes. Moreover, the implementation of proactive monitoring ensures system health is continuously assessed, allowing teams to detect and resolve issues before they impact users. This project sets a strong foundation for future enhancements such as security scanning, centralized logging, and policy-as-code integrations.

APPENDIX

A. Create WebHooks in Github Repository to automatically trigger the Jenkins pipeline job URL: https://github.com/merranbo1989/BCP-P5

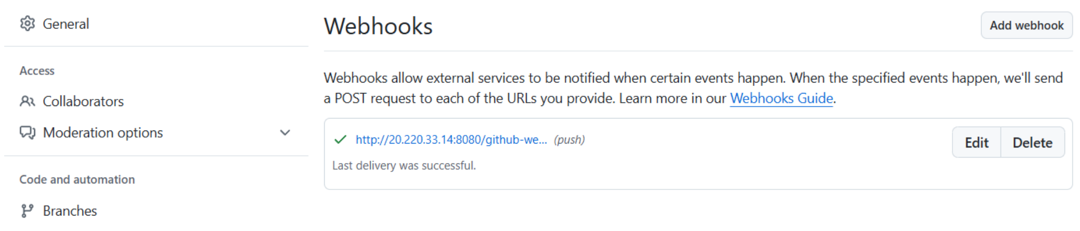


We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, *etc*). More information can be found in our developer documentation.

Payload URL *
http://20.220.33.14:8080/github-webhook/

Content type *
application/x-www-form-urlencoded

There is currently a secret configured for this webhook. If you've lost or forgotten this secret, you can change it, but be aware that any integrations using this secret will need to be updated.



Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.

✓ http://20.220.33.14:8080/github-we... *(push)*
Last delivery was successful.