

SimpliLearn-DevOps-Project

CI/CD Deployment for Springboot Application

Submitted by: KAVIN K R

Date of submission : 11-10-2023
GitHub Project Repository URL : [GitHub Link](#)


Creation of AWS EC2 Instance (DevOps Server):


FSD Java


AWS

This Lab will get reset on 11th October 2023, 10:32 PM


Current Lab : AWS Certification - Dedicated Account

AWS Web Console

AWS API Access



Your lab environment is at the final stage of completion. The lab credentials will be shown in a moment. The updated status will be shown automatically. Thank you for showing patience.

amazon web services

Category: Cloud Computing
Start Date: 2023-10-11 14:47
End Date: 2023-11-10 23:59
Code: SLAWS

Amazon Web Services (AWS) offers a suite of cloud-computing services that make up an on-demand computing platform. AWS has more than 70 services, spanning a wide range, including compute, storage, networking, database, analytics, application services, deployment, management, mobile, developer tools and tools for the Internet of things.

TERMINATE LAB ACCESS

[EC2](#) > [Instances](#) > Launch an instance

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

DevOps-Demo-Server

[Add additional tags](#)

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

[Quick Start](#)

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

Canonical, Ubuntu, 22.04 LTS, ...[read more](#)
ami-053b0d53c279acc90

Virtual server type (instance type)


t3.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 30 GiB

 **Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which

Cancel

Launch instance

[Review commands](#)

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

< 1 >

✓

Name

Instance ID

Instance state

Instance type

Status check

Alarm status

Availability Zone

Public

✓

DevOps-Demo...

i-00709fa045962bb85

Running

t3.micro

Initializing

No alarms

+

us-east-1c

ec2-3-

Instance: i-00709fa045962bb85 (DevOps-Demo-Server)

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

▼ Instance summary Info

Instance ID

i-00709fa045962bb85 (DevOps-Demo-Server)

Public IPv4 address

3.86.36.122 [open address](#)

Private IPv4 addresses

172.31.87.236

IPv6 address

-

Instance state

Running

Public IPv4 DNS

ec2-3-86-36-122.compute-1.amazonaws.com [open address](#)

Hostname type

Private IP DNS name (IPv4 only)

Installing Jenkins:

aws Services Search [Alt+S]

N. Virginia Corestack_Role/k.r.kavin007_gmail @ pra2020

```
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [974 kB]
Get:25 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [145 kB]
Get:26 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [16.7 kB]
Get:27 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [36.5 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [157 kB]
Get:29 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7060 B]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [532 B]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [991 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [260 B]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [217 kB]
Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [22.0 kB]
Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [41.6 kB]
Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [9768 B]
Get:37 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [472 B]
Get:38 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [41.7 kB]
Get:39 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [10.5 kB]
Get:40 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [388 B]
Get:41 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:42 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [24.3 kB]
Get:43 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [16.4 kB]
Get:44 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [640 B]
Get:45 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:46 https://pkg.jenkins.io/debian-stable binary/ Packages [25.6 kB]
Fetched 27.7 MB in 5s (5461 kB/s)
Reading package lists... Done
root@ip-172-31-87-236:/home/ubuntu# sudo apt-get install jenkins
```

i-00709fa045962bb85 (DevOps-Demo-Server)

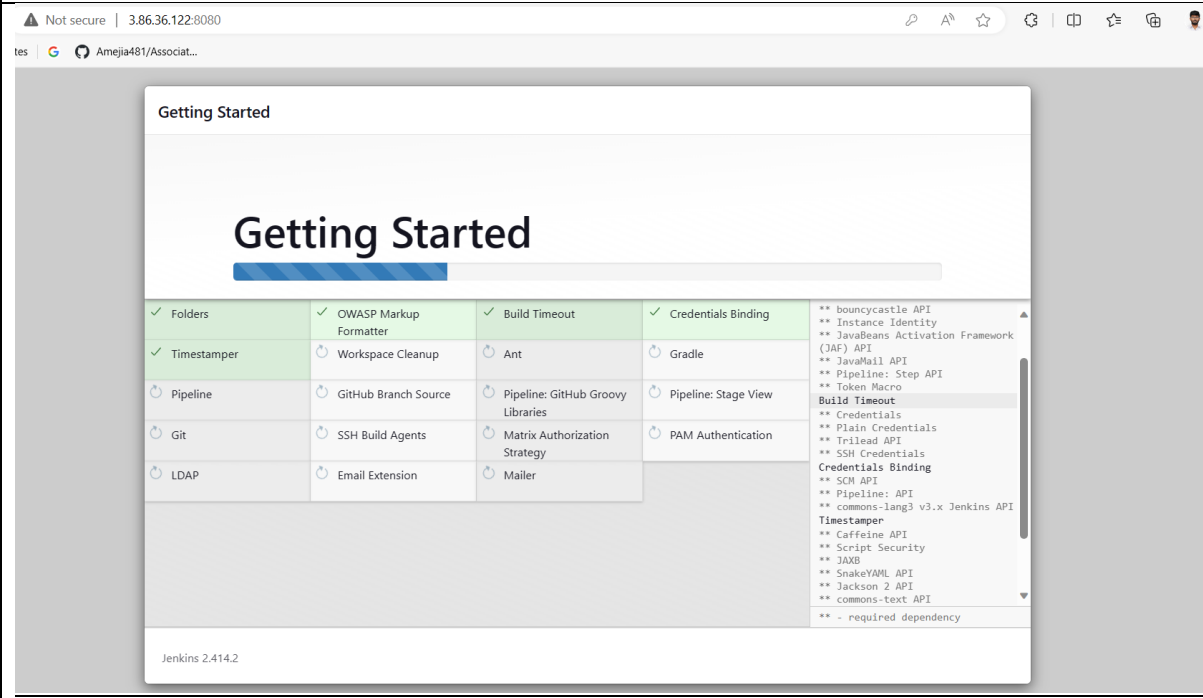
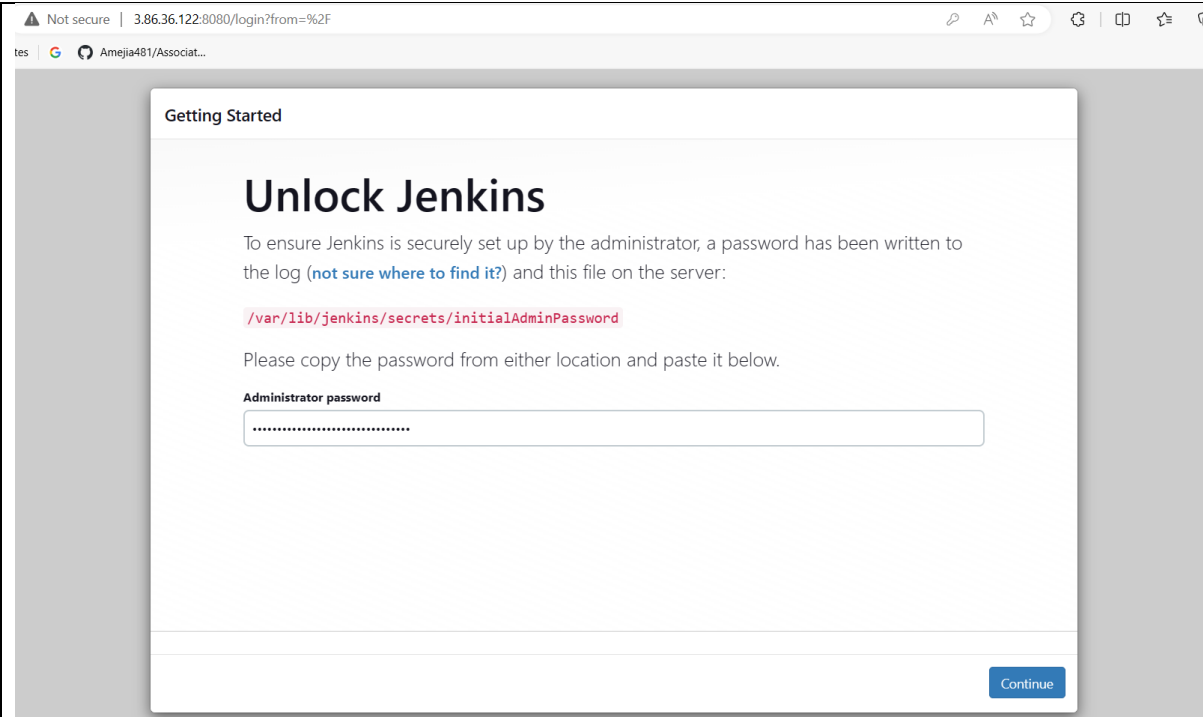
PublicIPs: 3.86.36.122 PrivateIPs: 172.31.87.236

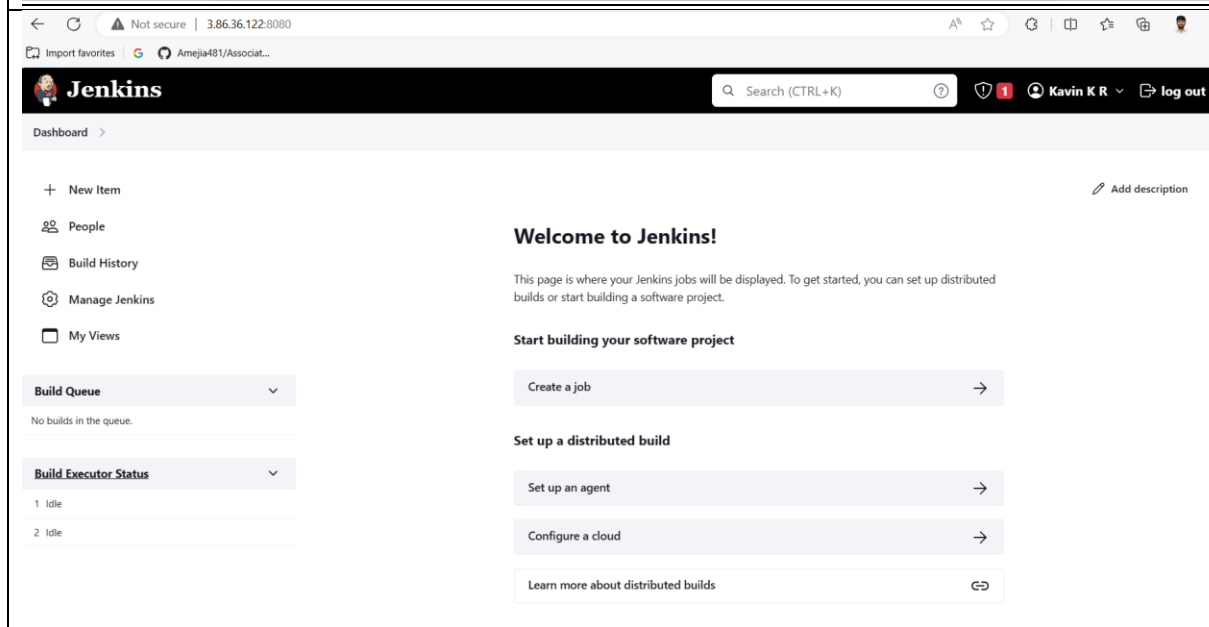
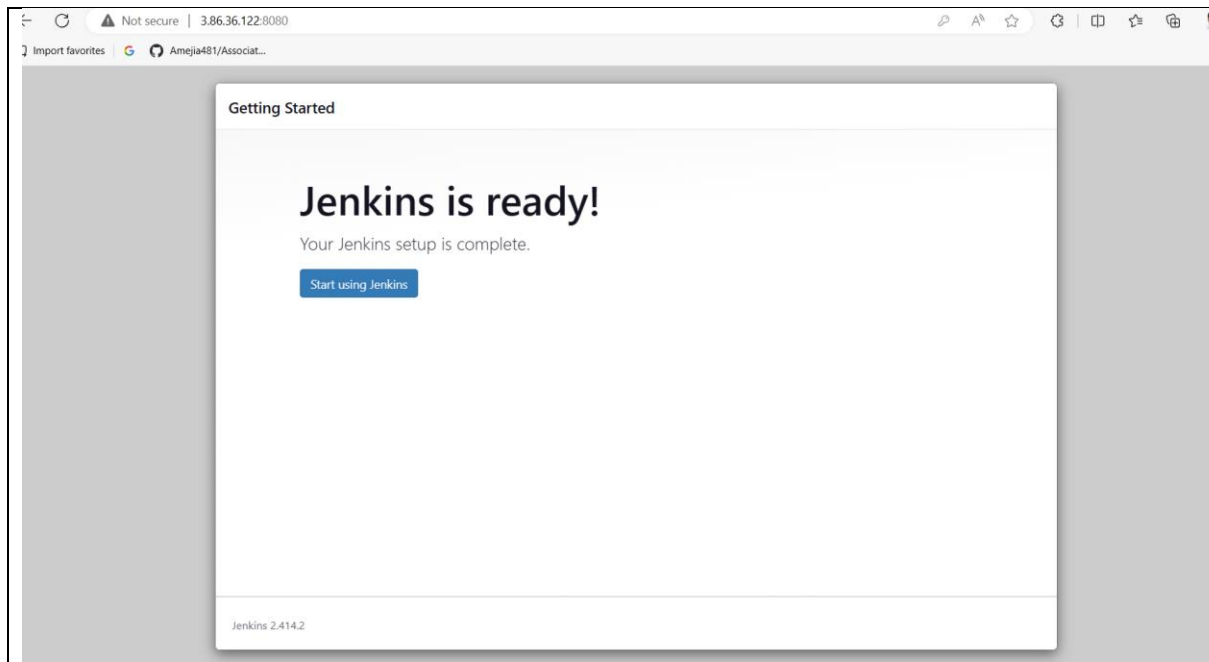
```
ubuntu@ip-172-31-87-236:~$ systemctl status jenkins
● jenkins.service Jenkins Continuous Integration Server
   Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-10-11 09:39:41 UTC; 19s ago
     Main PID: 428 (java)
       Tasks: 44 (limit: 1110)
      Memory: 423.1M
         CPU: 1min 15.243s
    CGroup: /system.slice/jenkins.service
            └─428 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Oct 11 09:38:58 ip-172-31-87-236 jenkins[428]: ee5b13f96737428d8dc5b3eb3d60c862
Oct 11 09:38:58 ip-172-31-87-236 jenkins[428]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Oct 11 09:38:58 ip-172-31-87-236 jenkins[428]: .....
Oct 11 09:38:58 ip-172-31-87-236 jenkins[428]: .....
Oct 11 09:38:58 ip-172-31-87-236 jenkins[428]: .....
Oct 11 09:39:41 ip-172-31-87-236 jenkins[428]: 2023-10-11 09:39:41.763+0000 [id=48] INFO h.m.DownloadService$Downloadable#load: Obtained the updated c
Oct 11 09:39:41 ip-172-31-87-236 jenkins[428]: 2023-10-11 09:39:41.765+0000 [id=48] INFO hudson.util.Retrier#start: Performed the action check updates
Oct 11 09:39:41 ip-172-31-87-236 jenkins[428]: 2023-10-11 09:39:41.790+0000 [id=32] INFO jenkins.InitReactorRunner$1#onAttained: Completed initializat
Oct 11 09:39:41 ip-172-31-87-236 jenkins[428]: 2023-10-11 09:39:41.802+0000 [id=24] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and r
Oct 11 09:39:41 ip-172-31-87-236 systemd[1]: Started Jenkins Continuous Integration Server.
lines 1-20/20 (END)
```

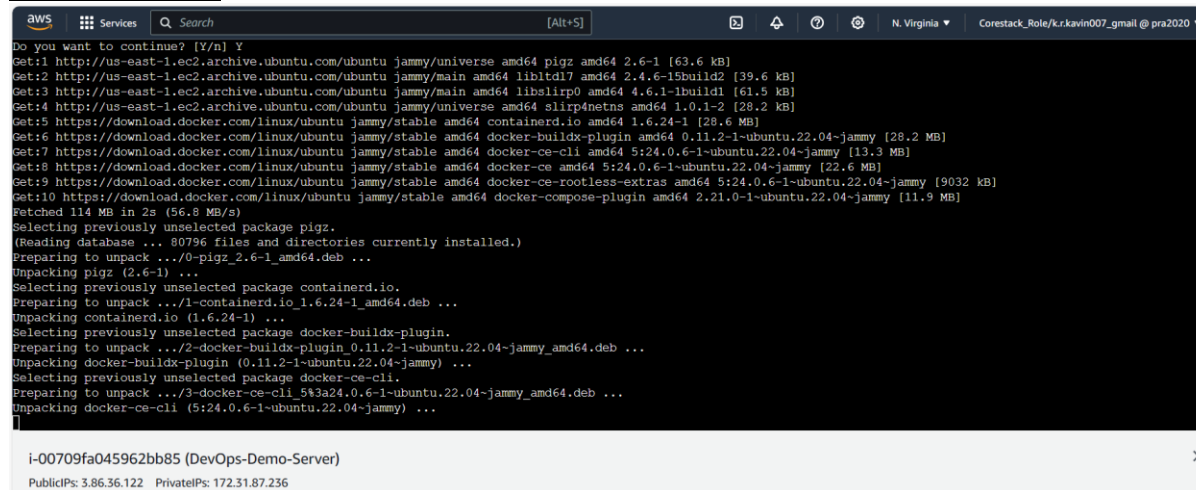
i-00709fa045962bb85 (DevOps-Demo-Server)

PublicIPs: 3.86.36.122 PrivateIPs: 172.31.87.236





Installing Docker:



```
aws Services Search [Alt+S] N. Virginia Corestack_Role/kr.kavin007_gmail@pra2020

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-87-236:/home/ubuntu# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-10-11 09:49:44 UTC; 29s ago
   TriggeredBy: ● docker.socket
     Docs: https://docs.docker.com
    Main PID: 3409 (dockerd)
      Tasks: 9
     Memory: 54.9M
        CPU: 466ms
   CGroup: /system.slice/docker.service
           └─3409 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

oct 11 09:49:43 ip-172-31-87-236 systemd[1]: Starting Docker Application Container Engine...
oct 11 09:49:43 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:43.905237320Z" level=info msg="Starting up"
oct 11 09:49:43 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:43.914133890Z" level=info msg="detected 127.0.0.53 nameserver, assuming systemd-resolved, so
oct 11 09:49:44 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:44.106988885Z" level=info msg="Loading containers: start."
oct 11 09:49:44 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:44.599276200Z" level=info msg="Loading containers: done."
oct 11 09:49:44 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:44.696082066Z" level=info msg="Docker daemon" commit=1a79695 graphdriver=overlay2 version=24.
oct 11 09:49:44 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:44.696226229Z" level=info msg="Daemon has completed initialization"
oct 11 09:49:44 ip-172-31-87-236 dockerd[3409]: time="2023-10-11T09:49:44.756209551Z" level=info msg="API listen on /run/docker.sock"
oct 11 09:49:44 ip-172-31-87-236 systemd[1]: Started Docker Application Container Engine.
lines 1-21/21 (END)
```

i-00709fa045962bb85 (DevOps-Demo-Server)

PublicIPs: 3.86.36.122 PrivateIPs: 172.31.87.236

Configuring maven in Jenkins:

Maven

Name

maven

☒ Install automatically ?

Install from Apache

Version

3.9.5

Add Installer

Add Maven

Installing SSH plugin in Jenkins:

Jenkins

Search (CTRL+K)

Kavin K R

log o

Dashboard > Manage Jenkins > Plugins

Updates 1

Available plugins

Installed plugins

Advanced settings

publish over ssh

Install Name Released

☒

Publish Over SSH 1.25

Artifact Uploaders Build Tools

3 mo 7 days ago

Jenkins

Search (CTRL+K)

Kavin K R

log o

Dashboard > Manage Jenkins > Plugins

Updates 1

Available plugins

Installed plugins

Advanced settings

Download progress

Download progress

Preparation

- Checking internet connectivity
- Checking update center connectivity
- Success

Publish Over SSH ☒ Success

Loading plugin extensions ☒ Success

Go back to the top page

(you can start using the installed plugins right away)

☐ Restart Jenkins when installation is complete and no jobs are running

Creating API Server (AWS EC2 instance):

es Search [Alt+S] N. Virginia Corestack_Role/k.r.kavin007_gmail @ pra2020

Instances (1/2) Info

Find Instance by attribute or tag (case-sensitive)

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
<input checked="" type="checkbox"/>	DevOps-Demo...	i-00709fa045962bb85	Running	t3.micro	2/2 checks passed	No alarms	us-east-1c	ec2-44-2
<input type="checkbox"/>	api-server	i-0dae1f436fa5d3cf5	Running	t3.micro	-	No alarms	us-east-1c	ec2-54-1

Adding SSH configuration of api server in Jenkins running in devops server:

SSH Server

Name ?

api-host

Hostname ?

54.158.56.227

Username ?

ubuntu

Remote Directory ?

/

☐ Avoid sending files that have not changed ?

Advanced

Test Configuration

Add

Save Apply

Creating pipeline in Jenkins

Dashboard > All >

Enter an item name

CD Deployment for Springboot Application

* Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

Multibranch Pipeline
Creates a set of Pipeline projects according to detected branches in one SCM repository.

Organization Folder
Creates a set of multibranch project subfolders by scanning for repositories.

OK

Configuring jenkins pipeline job:

Configure

General

Advanced Project Options

Pipeline

Plain text [Preview](#)

☐ Discard old builds ?

☐ Do not allow concurrent builds

☐ Do not allow the pipeline to resume if the controller restarts

☒ GitHub project

Project url ?

Advanced ▾

☐ Pipeline speed/durability override ?

☐ Preserve stashes from completed builds ?

☐ This project is parameterized ?

☐ Throttle builds ?

Build Triggers

☐ Build after other projects are built ?

Save

Apply

Configure

General

Advanced Project Options

Pipeline

Advanced Project Options

Advanced ▾

Pipeline

Definition

SCM ?

Repositories ?

Repository URL ?

Credentials ?

Save

Apply

Dashboard > CI CD Deployment for Springboot Application > Configuration

Configure

General

Advanced Project Options

Pipeline

Advanced ▾

Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ?

Add Branch

Repository browser ?

Additional Behaviours

Add ▾

Script Path ?

[Link Jenkinsfile to checkout](#) ?

Building the pipeline

Dashboard

DevOpsProject

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

GitHub

Rename

Pipeline Syntax

Build History

trend

Filter builds...

/

#1

Oct 11, 2023, 6:26 PM

Atom feed for all

Atom feed for failures

Pipeline DevOpsProject

Add description

Disable Project

Stage View

Average stage times:

Declarative: Checkout SCM	Declarative: Tool Install	Building the project
2s	358ms	6s

#1

Oct 11 18:26

No Changes

2s	358ms	6s
----	-------	----

Permalinks

Last build (#1), 55 sec ago

Pipeline DevOpsProject

Stage View

Average stage times:

Declarative: Checkout SCM	Declarative: Tool Install	Building the project	Creating docker image
2s	358ms	1min 11s	15s

#1

Oct 11 18:26

No Changes

2s	358ms	1min 11s	15s
----	-------	----------	-----

Dashboard

DevOpsProject

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

GitHub

Rename

Pipeline Syntax

Build History

trend

Filter builds...

/

#1

Oct 11, 2023, 6:26 PM

Atom feed for all

Atom feed for failures

Pipeline DevOpsProject

Add description

Disable Project

Stage View

Average stage times:

Declarative: Checkout SCM	Declarative: Tool Install	Building the project	Creating docker image	Pushing docker image to DockerHub	Pulling image from docker hub and executing container on api server over SSH connection
2s	358ms	1min 11s	18s	1min 11s	13s

#1

Oct 11 18:26

No Changes

2s	358ms	1min 11s	18s	1min 11s	13s
----	-------	----------	-----	----------	-----

Permalinks

Build Success:

Dashboard > DevOpsProject >

Pipeline DevOpsProject

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

GitHub

Rename

Pipeline Syntax

Add description

Disable Project

Stage View

Declarative: Checkout SCM	Declarative: Tool Install	Building the project	Creating docker image	Pushing docker image to DockerHub	Pulling image from docker hub and executing container on api server over SSH connection
2s	358ms	1min 11s	18s	1min 11s	27s

Average stage times: (Average full run time: ~4min 16s)

Build History trend

Filter builds...

Oct 11, 2023, 6:26 PM

Atom feed for all Atom feed for failures

Permalinks

Accessing the api running in api server hosted in AWS EC2 instance:

DevOpsProject [Jenkins] 54.158.56.227:8090/api/product/

Not secure | 54.158.56.227:8090/api/product/all

```
[
  {
    "id": 1,
    "productName": "Car"
  },
  {
    "id": 6,
    "productName": "House"
  },
  {
    "id": 7,
    "productName": "Land"
  },
  {
    "id": 8,
    "productName": "Laptop"
  },
  {
    "id": 9,
    "productName": "Pet animal"
  },
  {
    "id": 10,
    "productName": "Jwellery"
  },
  {
    "id": 11,
    "productName": "Building"
  }
]
```