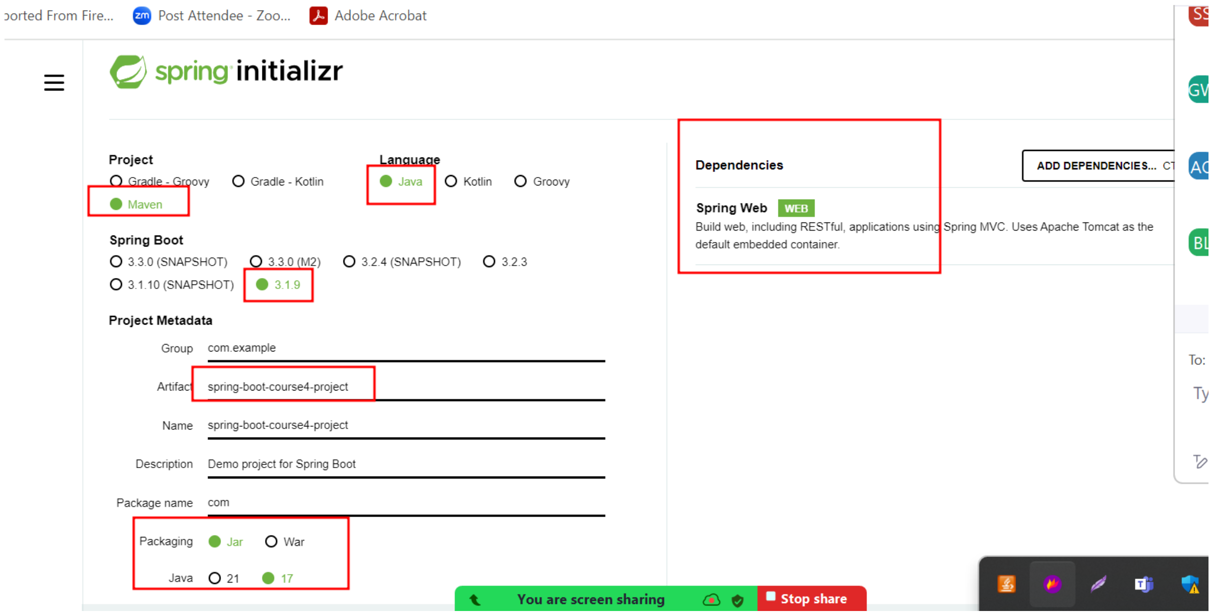
Course 4

1. Create spring boot project using spring initializer
   Create simple rest api to display welcome message.
   With only one web starter



spring initializr

Project
Gradle - Groovy Gradle - Kotlin [✓ Maven]

Language
[✓ Java] Kotlin Groovy

Spring Boot
3.3.0 (SNAPSHOT) 3.3.0 (M2) 3.2.4 (SNAPSHOT) 3.2.3
3.1.10 (SNAPSHOT) [✓ 3.1.9]

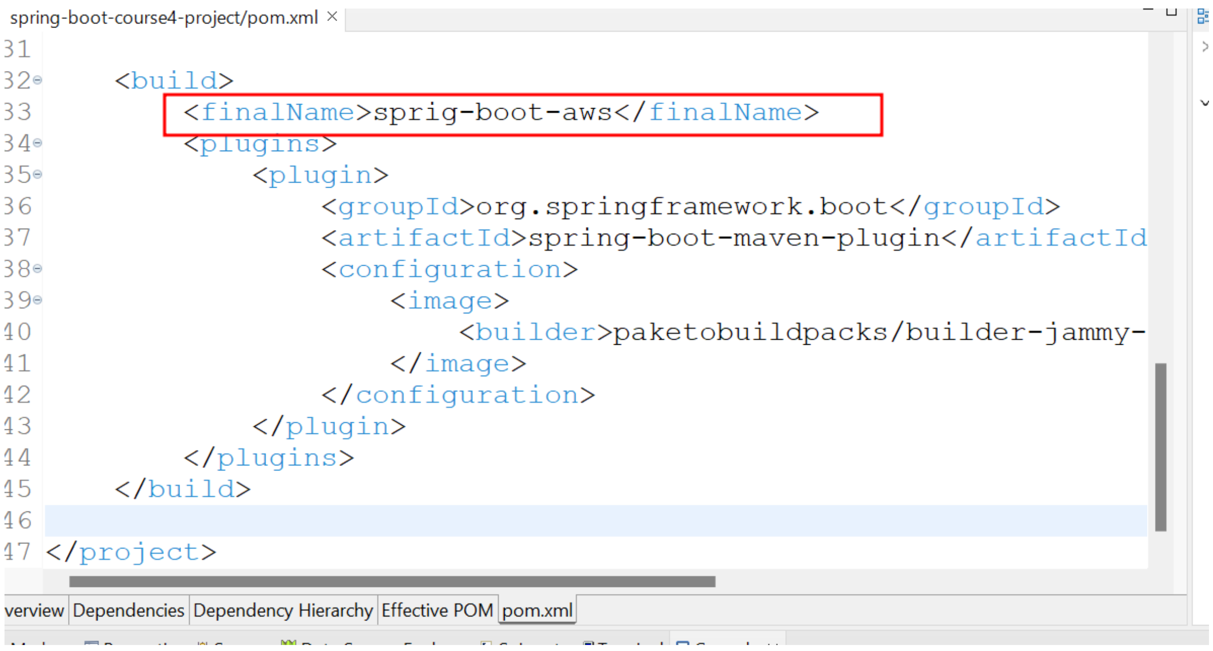
Project Metadata

Group	com.example
Artifact	spring-boot-course4-project
Name	spring-boot-course4-project
Description	Demo project for Spring Boot
Package name	com
Packaging	[✓ Jar] War
Java	21 [✓ 17]

Dependencies

Spring Web WEB
Build web, including RESTful, applications using Spring MVC. Uses Apache Tomcat as the default embedded container.

2. Create separate folder as course 4 assignment/projects
3. Extract the project and import in eclipse IDE.
4. Create simple rest api with get method to return simple message with basic styling.
5. Now we need to create jar file for spring boot project.
6. If we need to custom name for jar file do the changes in pom.xml file



spring-boot-course4-project/pom.xml

```
    <build>
        <finalName>sprig-boot-aws</finalName>
        <plugins>
            <plugin>
                <groupId>org.springframework.boot</groupId>
                <artifactId>spring-boot-maven-plugin</artifactId
                <configuration>
                    <image>
                        <builder>paketobuildpacks/builder-jammy-
                    </image>
                </configuration>
            </plugin>
        </plugins>
    </build>

</project>
```

7. Using eclipse IDE you need to create jar file with help of run with maven install option.
   Or
8. Using mvn package command you can create the jar file.
9. Now we need to create Dockerfile to create the image for spring boot application.
10. We create docker image in local machine and we will test the application.
11. Start the docker, create the image and run the container.

```
docker build -t my-spring-app . -f Dockerfile
docker images
docker run -d -p 9090:9090 my-spring-app
docker ps
```

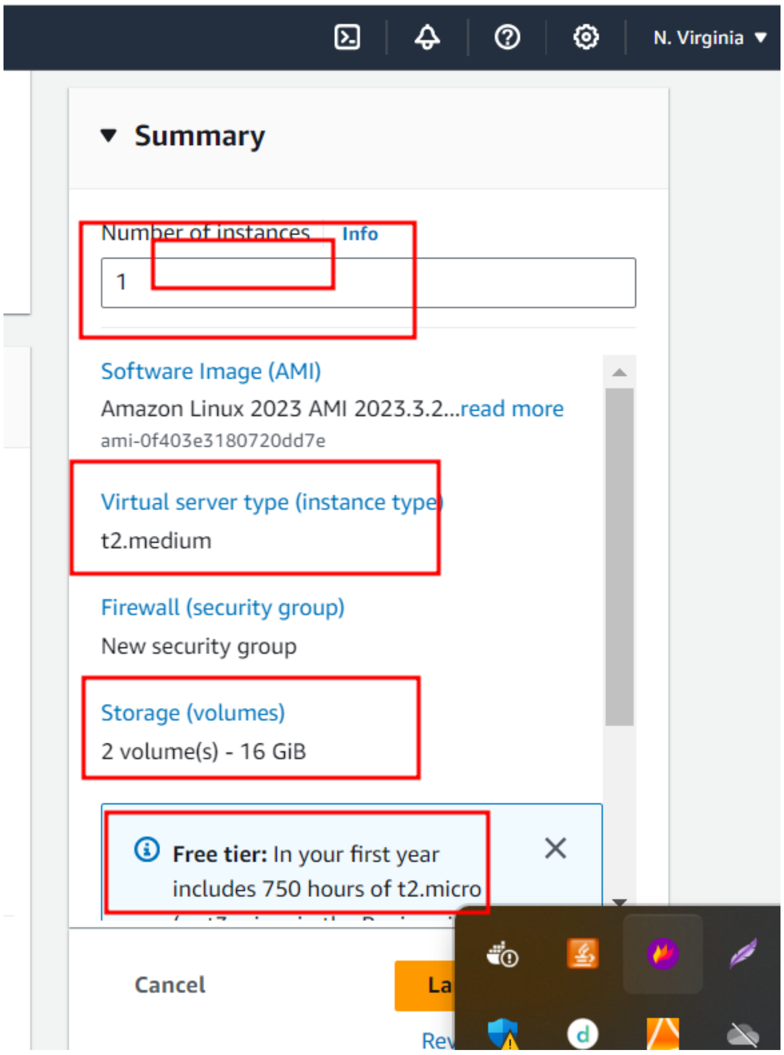
    check the application running or not.
12. Create the Jenkinsfile which is responsible to build the project using maven command, create docker image using docker file and run container.
13. Create Remote repository in git hub account and create token and push this project from local to remote repository.
    First create remote repository
    Then in local machine inside spring project open terminal
    git init

```
git add .
git commit -m “done”
git remote add origin URLWithToken
git push -u origin HEAD
```

git remote add origin https://token@github.com/Kaleakash/course4-caltech-batch-assignment.git

https://github.com/Kaleakash/course4-caltech-batch-assignment.git

14. After push the code in github account.
15. Now we need to login for AWS account and create EC2 instance.



Summary

Number of instances Info
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.3.2...read more
ami-0f403e3180720dd7e

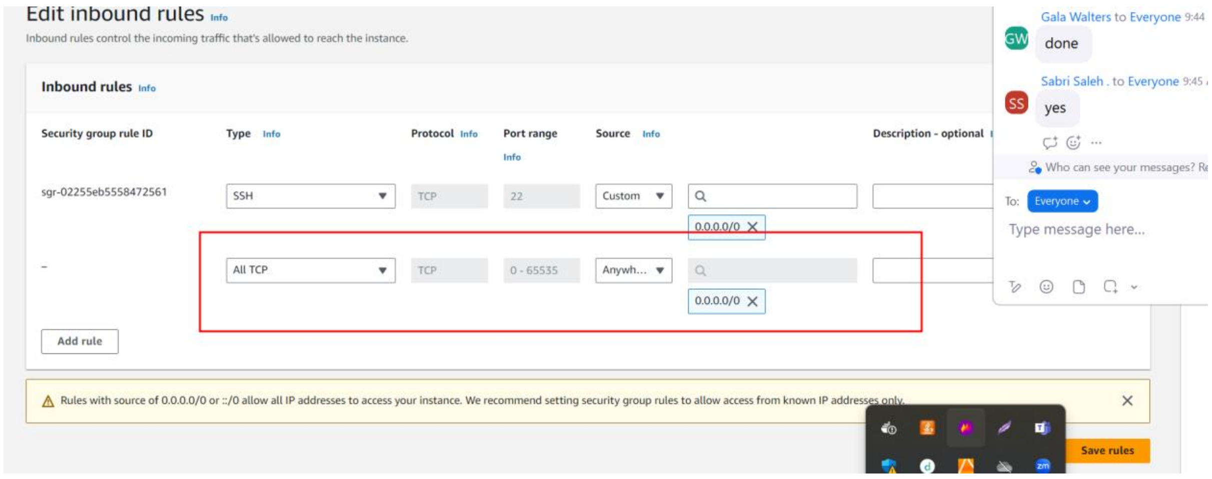
Virtual server type (instance type)
t2.medium

Firewall (security group)
New security group

Storage (volumes)
2 volume(s) - 16 GiB

Free tier: In your first year includes 750 hours of t2.micro

16. In security group we need to open two port number 8080 for jenkin 9090 for Spring boot application.
    Open all port number security group inbound rules.



Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info		Description - optional
sgr-02255eb5558472561	SSH	TCP	22	Custom	0.0.0.0/0	
-	All TCP	TCP	0 - 65535	Anywh...	0.0.0.0/0	

Add rule

Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Save rules

Gala Walters to Everyone 9:44
done

Sabri Saleh . to Everyone 9:45
yes

Who can see your messages?

To: Everyone

Type message here...

Now we need to install required software

Git
Java
Jenkin
Now using your EC2 instance public id address with port number 8080
We can open Jenkin software.

Below all command is use to install git, java, jenkin, docker and provide the permission

git install

--> sudo yum install git

➔ git --version

java install
--> sudo yum install java

➔ java –version

install Jenkin

-->sudo wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat/jenkins.repo

-->sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key

--> sudo yum install jenkins

--> sudo service jenkins start

--> sudo systemctl status jenkins

Install the docker

➔ sudo yum install docker

→sudo service docker start

→sudo docker info

----if you want to run docker and docker-compose in jenkin then please execute these command ---------------------

sudo usermod -a -G docker jenkins

sudo usermod -a -G docker ec2-user   (ec2-user is user name of instance)

sudo chmod 777 /var/run/docker.sock

please restart Jenkin server

→sudo service jenkins restart

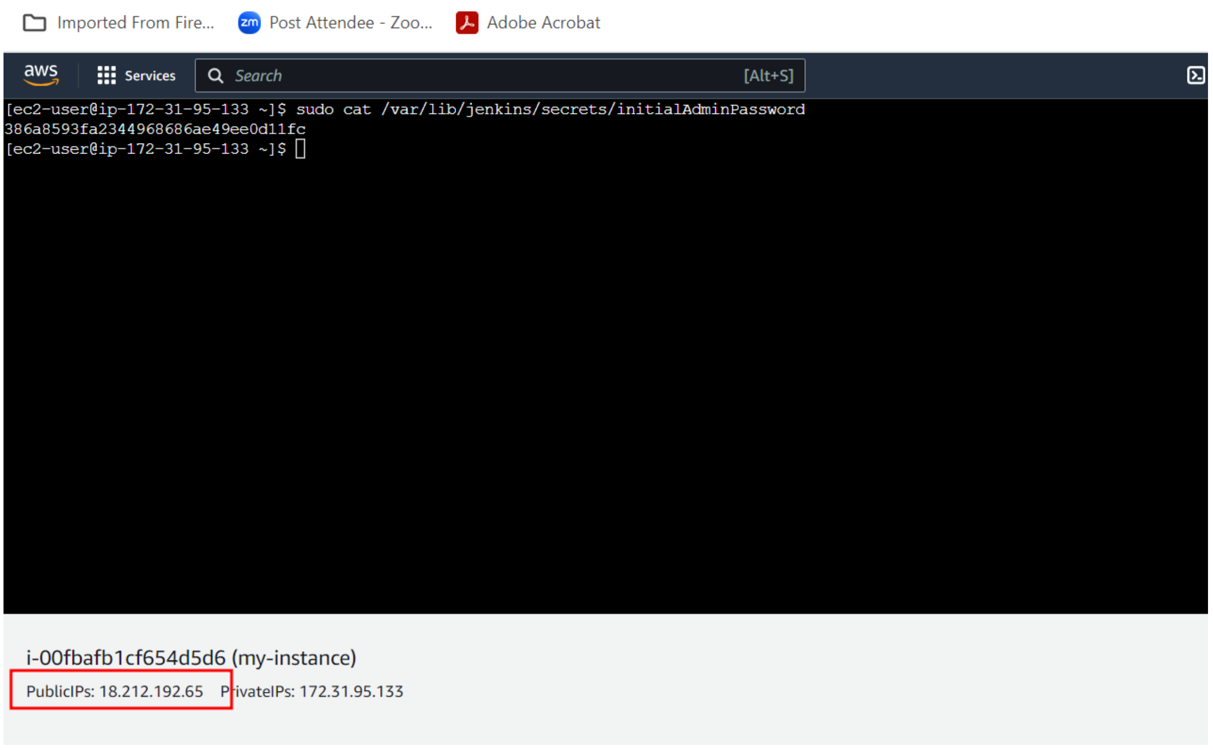
after restart check the Jenkin status

→sudo systemctl status jenkins

to find jenkin password

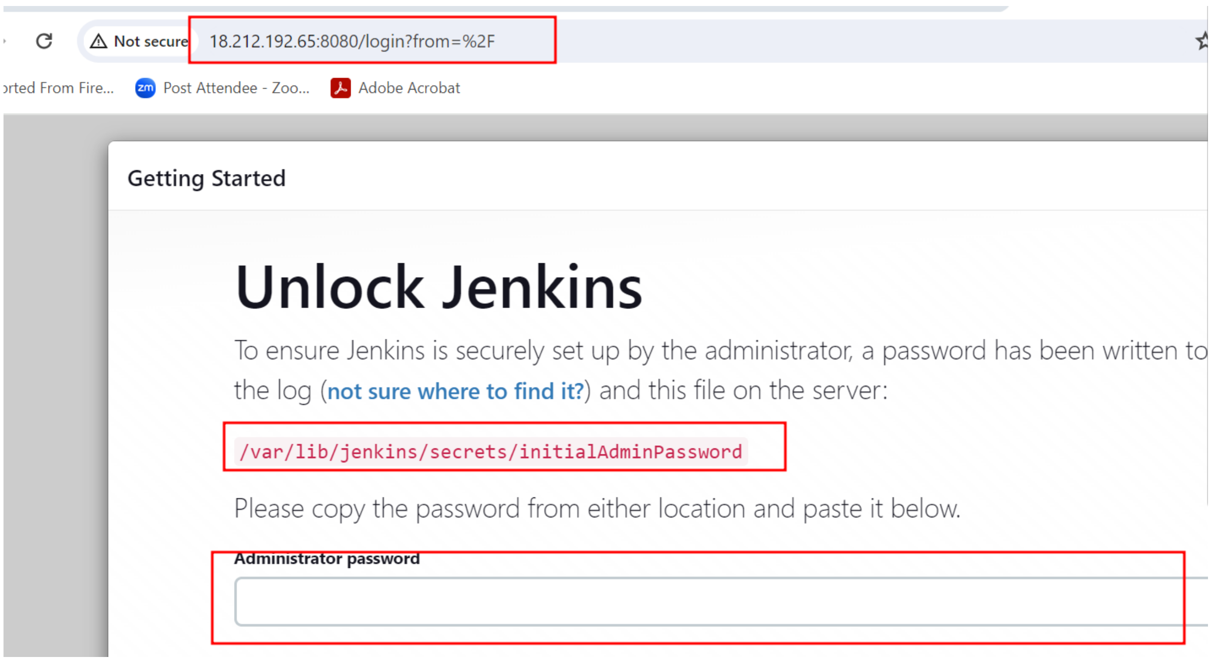
--> sudo cat /var/lib/jenkins/secrets/initialAdminPassword

Please check your EC2 instance public Ip Address and open browser and use below as
http://publicIdAddress:8080



```
[ec2-user@ip-172-31-95-133 ~]$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
386a8593fa2344968686ae49ee0d11fc
[ec2-user@ip-172-31-95-133 ~]$ 
```

i-00fbafb1cf654d5d6 (my-instance)
PublicIPs: 18.212.192.65   PrivateIPs: 172.31.95.133



Getting Started

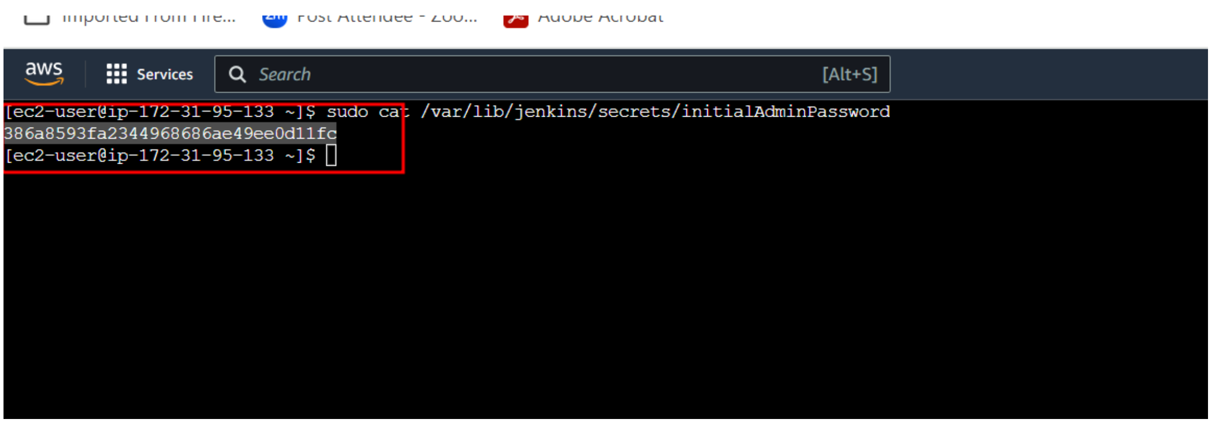
Unlock Jenkins

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:

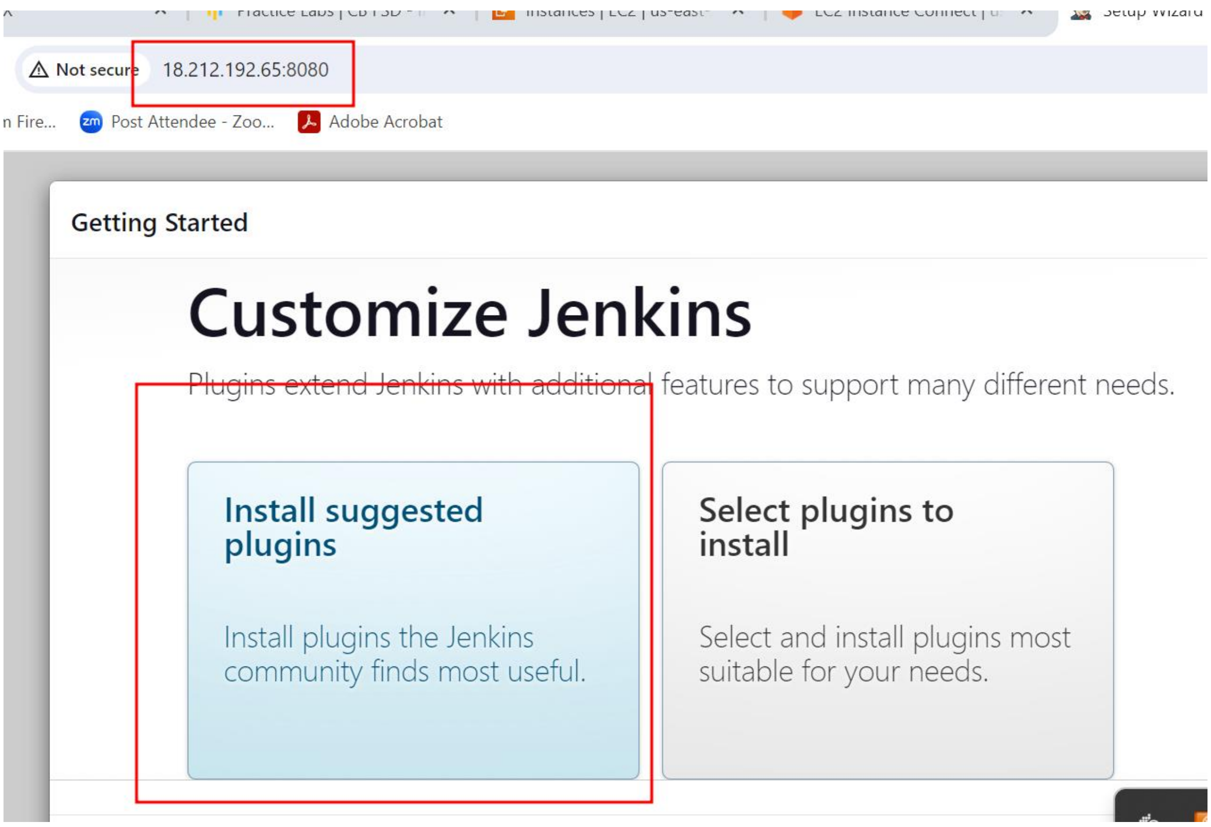
`/var/lib/jenkins/secrets/initialAdminPassword`

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

Administrator password



```
[ec2-user@ip-172-31-95-133 ~]$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
386a8593fa2344968686ae49ee0d11fc
[ec2-user@ip-172-31-95-133 ~]$
```



Getting Started

Customize Jenkins

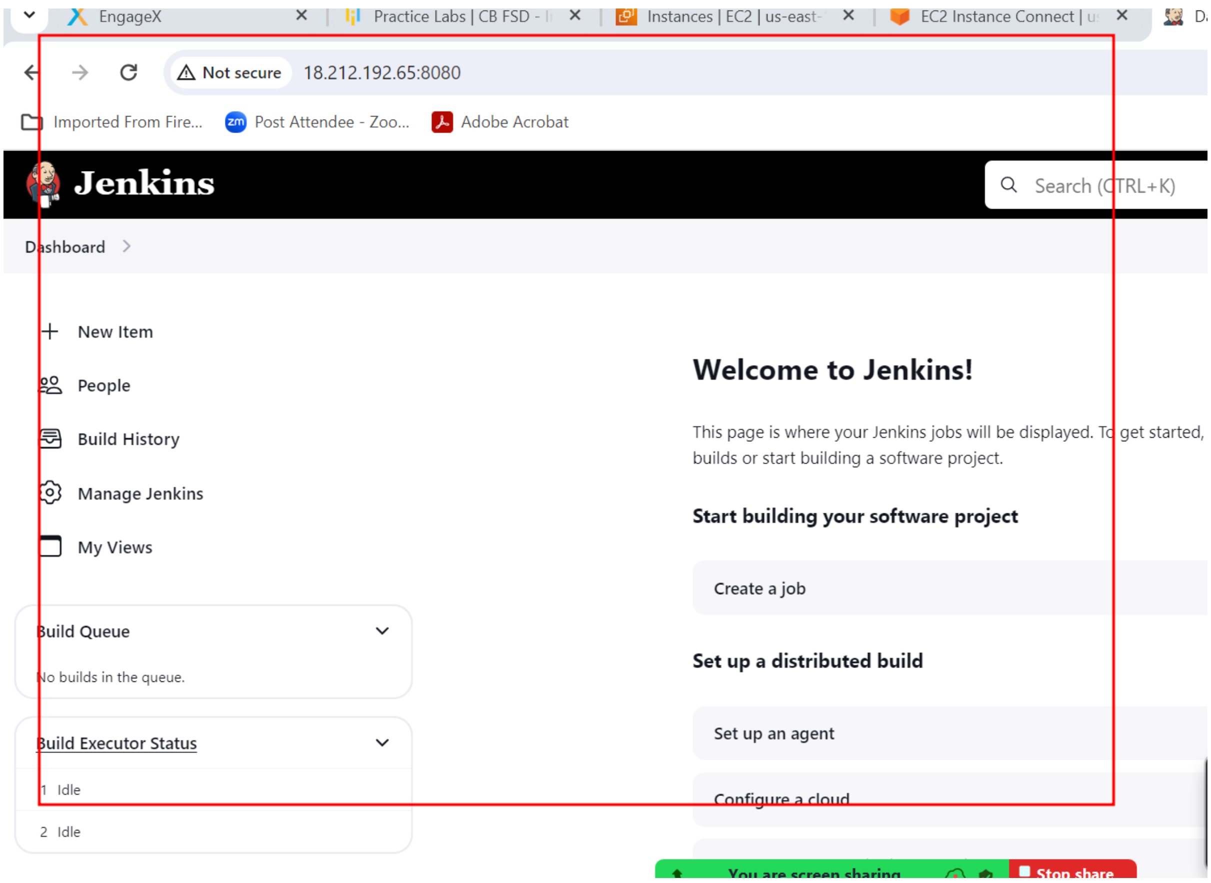
Plugins extend Jenkins with additional features to support many different needs.

Install suggested plugins

Install plugins the Jenkins community finds most useful.

Select plugins to install

Select and install plugins most suitable for your needs.



Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

Welcome to Jenkins!

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

Start building your software project

Create a job

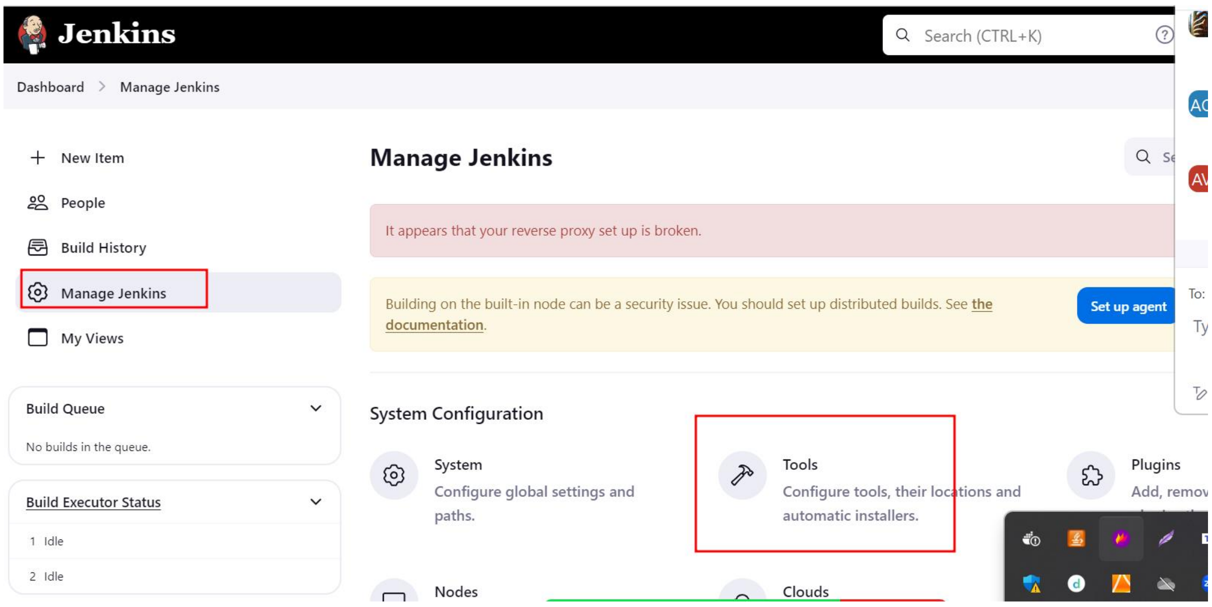
Set up a distributed build

Set up an agent

Configure a cloud

Now we will create the Jenkin pipe line jobs which is responsible to build the projects.

Now we configure Maven software in Jenkin dashboard



It appears that your reverse proxy set up is broken.

Building on the built-in node can be a security issue. You should set up distributed builds. See the documentation.

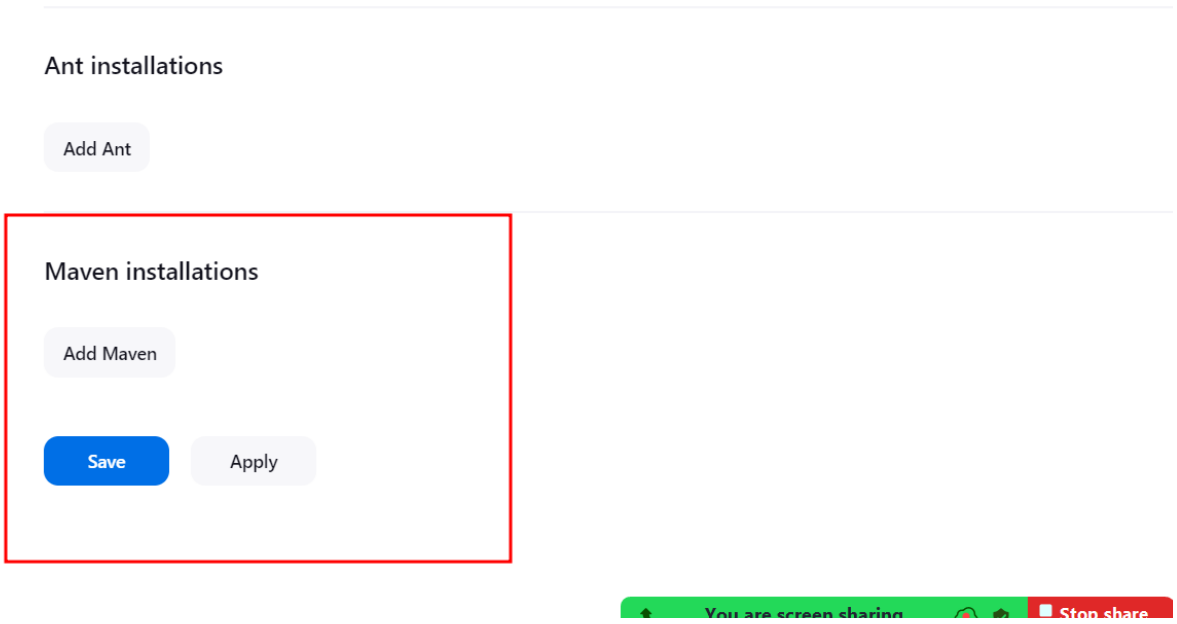
No builds in the queue.

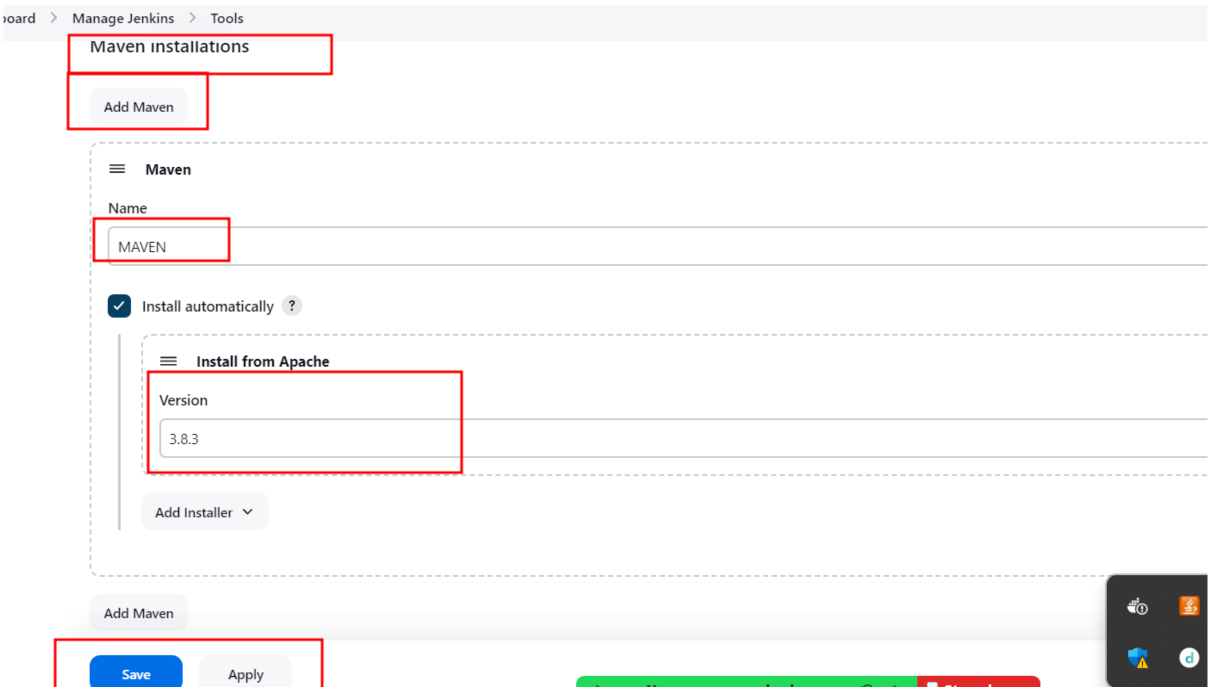
1 Idle

2 Idle

Configure global settings and paths.

Configure tools, their locations and automatic installers.




oard > Manage Jenkins > Tools

Maven installations

Add Maven

Maven

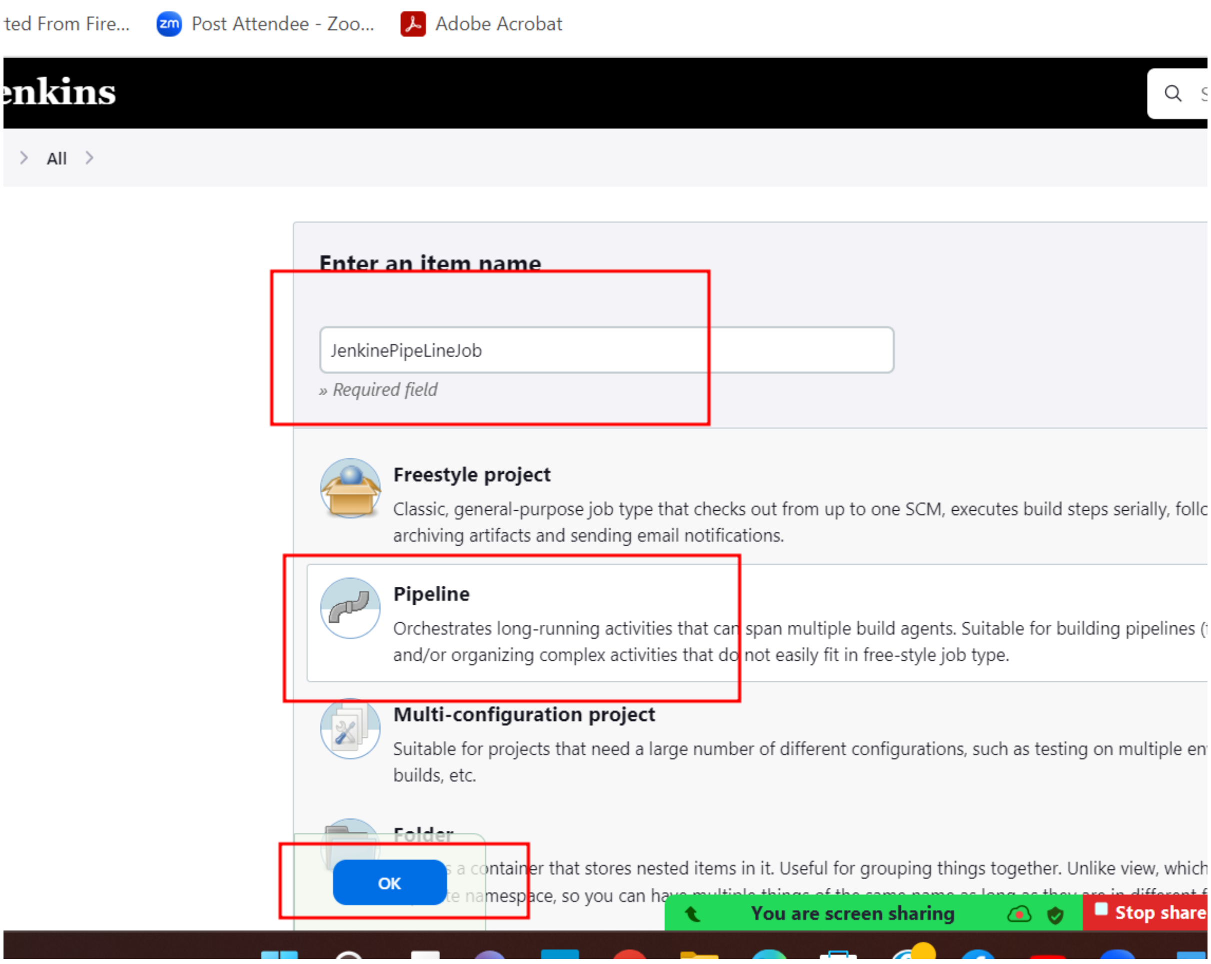
Name: MAVEN

Install automatically [✓]

Install from Apache

Version: 3.8.3

After maven configuration in Jenkin now we can create Jenkin pipeline jobs.



ted From Fire... Post Attendee - Zoo... Adobe Acrobat

enkins

All

Enter an item name

JenkinePipeLineJob

» Required field

Freestyle project

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, follo
archiving artifacts and sending email notifications.

Pipeline

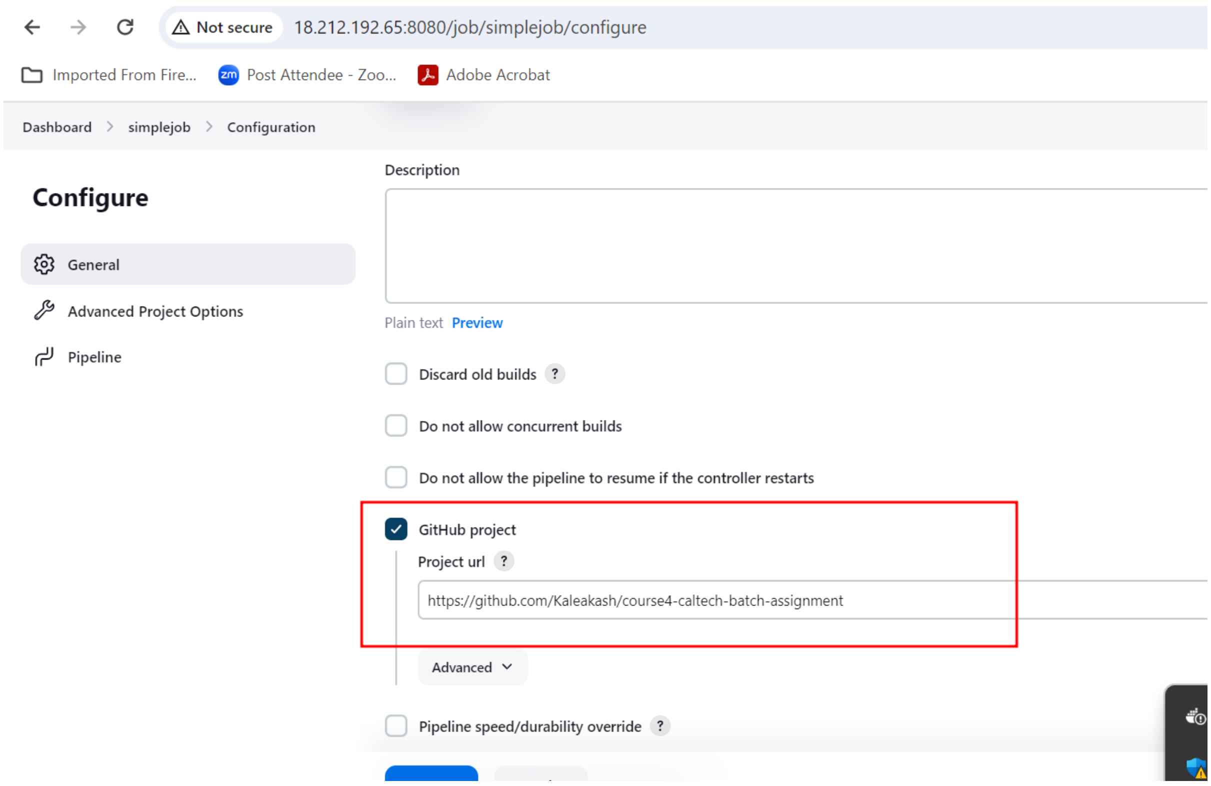
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (
and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple en
builds, etc.

Folder

s a container that stores nested items in it. Useful for grouping things together. Unlike view, which
e namespace, so you can have multiple things of the same name as long as they are in different f



Not secure 18.212.192.65:8080/job/simplejob/configure

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Dashboard > simplejob > Configuration

Configure

Description

Plain text Preview

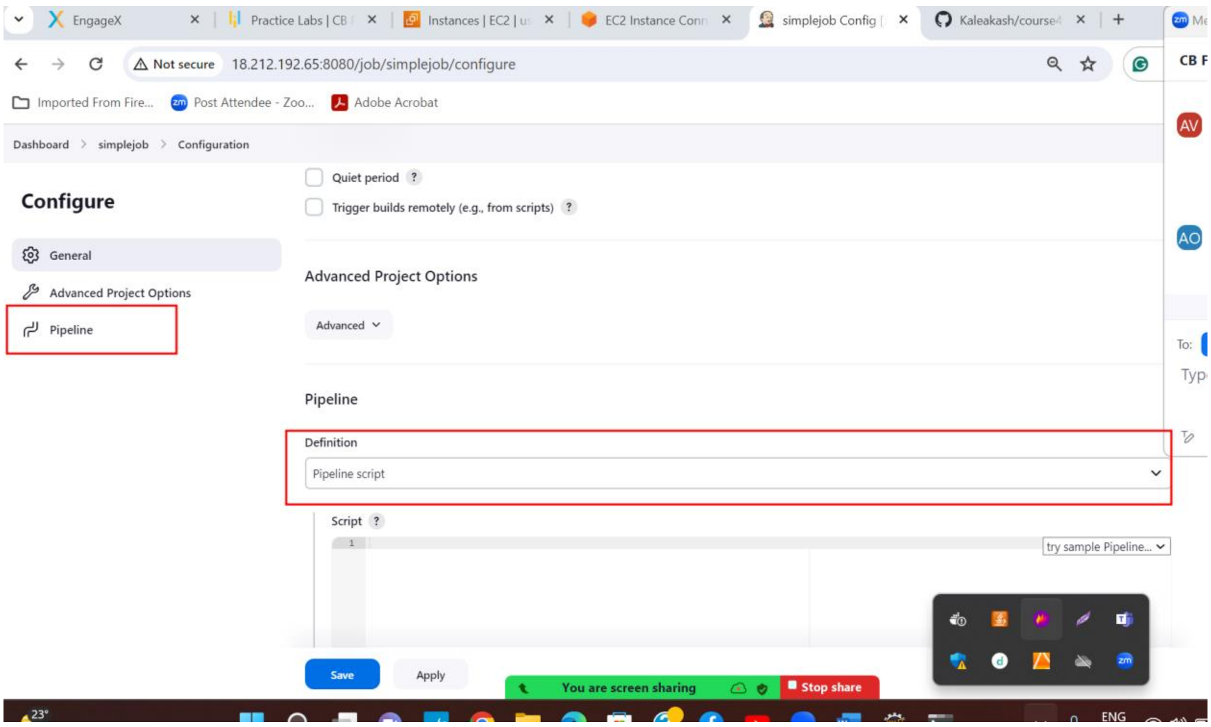
- [ ] Discard old builds
- [ ] Do not allow concurrent builds
- [ ] Do not allow the pipeline to resume if the controller restarts
- [x] GitHub project

Project url

https://github.com/Kaleakash/course4-caltech-batch-assignment

- [ ] Pipeline speed/durability override

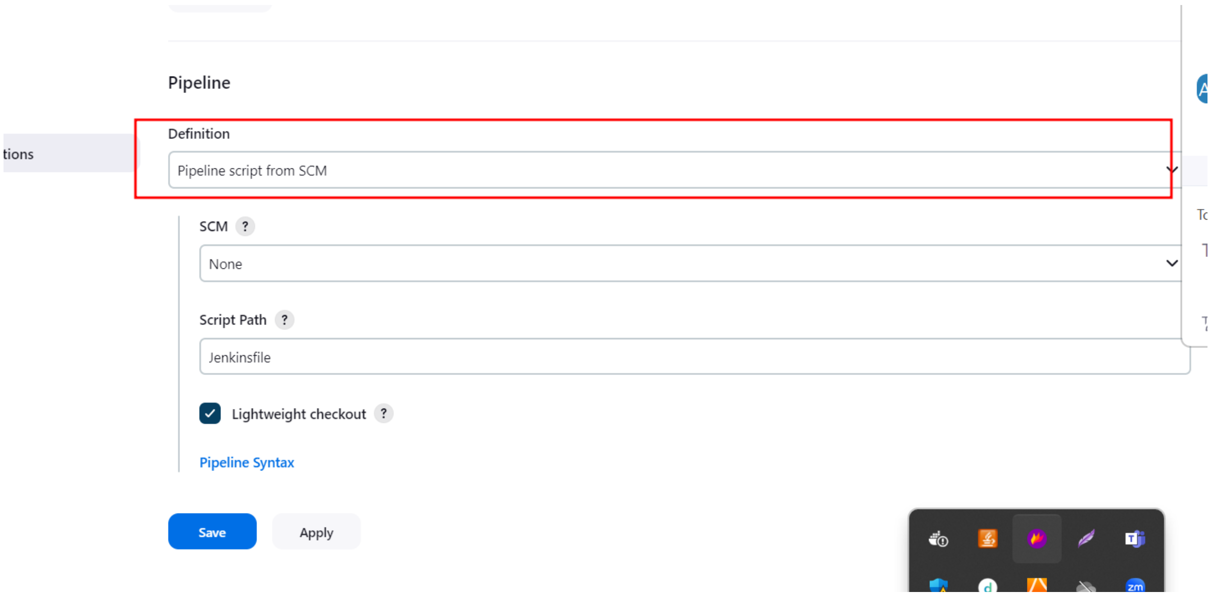
Not .git   (Base URL of your repository)


18.212.192.65:8080/job/simplejob/configure

Dashboard > simplejob > Configuration

Configure

Definition: Pipeline script

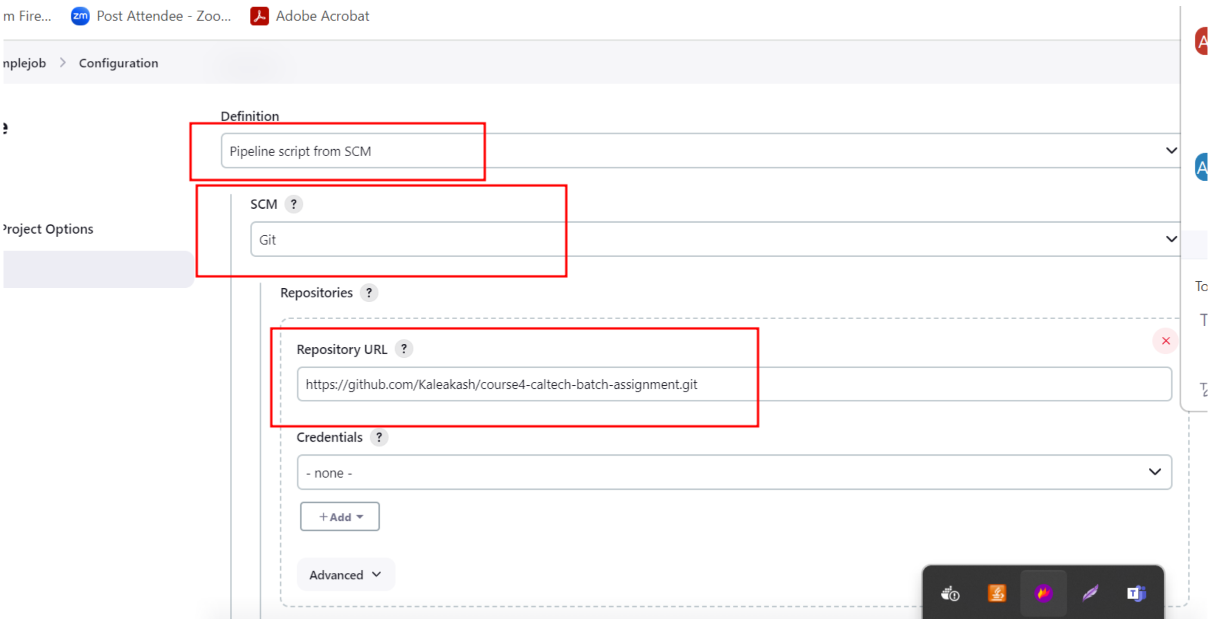

Pipeline

Definition: Pipeline script from SCM

SCM: None

Script Path: Jenkinsfile

- [x] Lightweight checkout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nplejob > Configuration

Project Options

Definition

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/Kaleakash/course4-caltech-batch-assignment.git

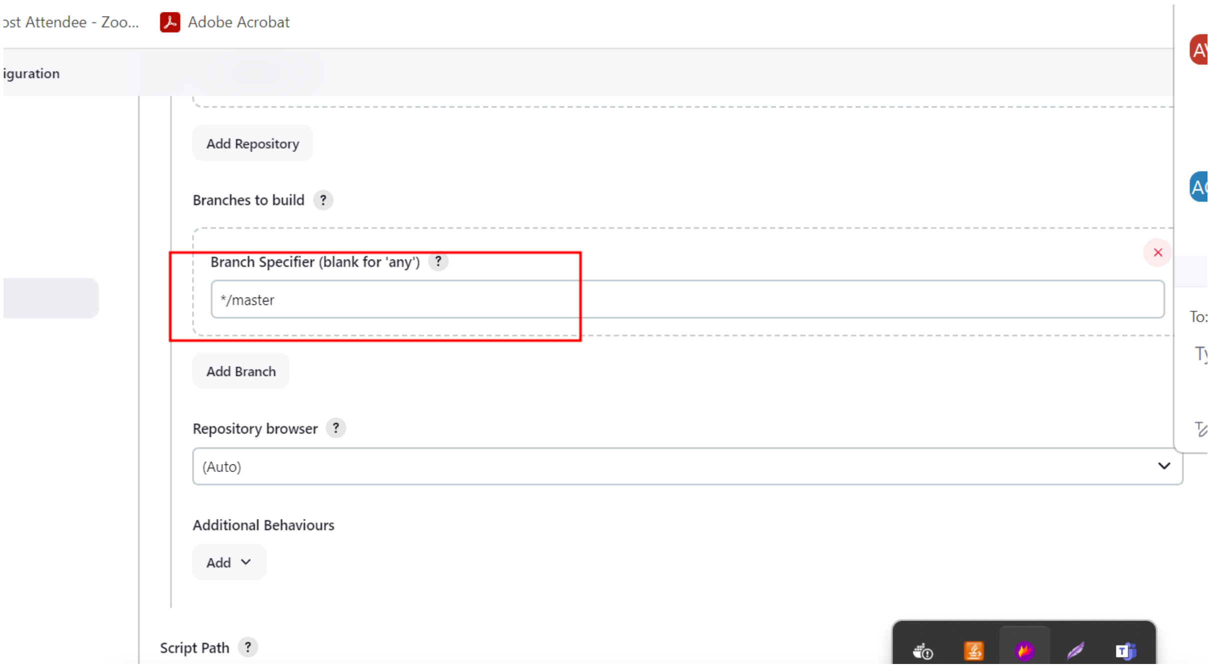
Credentials ?

- none -

+ Add

Advanced

Please check your branch name may be master or main


ost Attendee - Zoo... Adobe Acrobat

iguration

Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ?

*/master

Add Branch

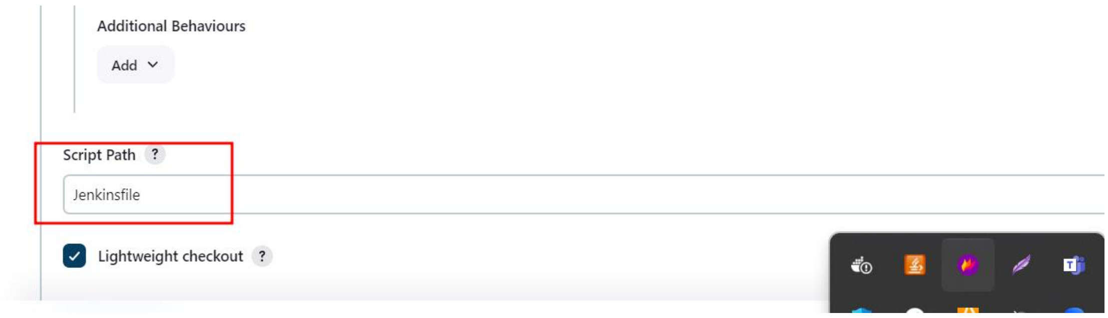
Repository browser ?

(Auto)

Additional Behaviours

Add

Script Path ?


Additional Behaviours

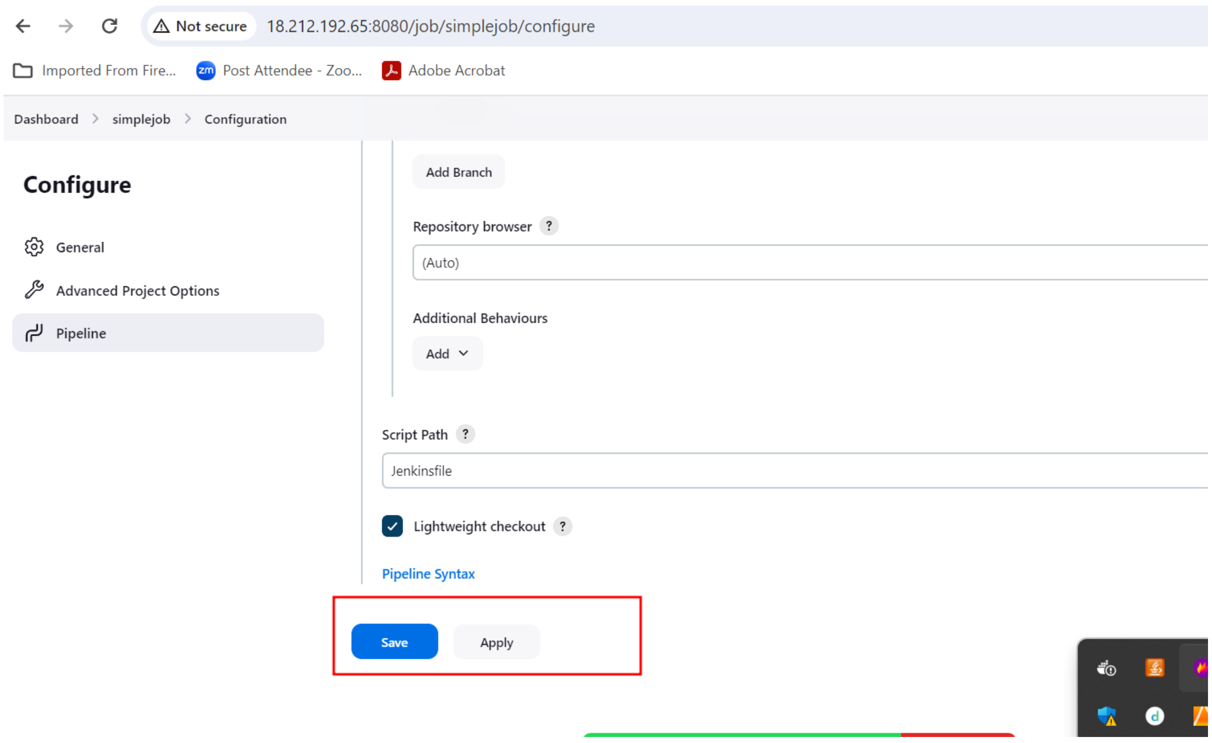
Add

Script Path ?

Jenkinsfile

✓ Lightweight checkout ?

In your remote repository please verify Jenkin file as Jenkinsfile



Not secure 18.212.192.65:8080/job/simplejob/configure

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Dashboard > simplejob > Configuration

Configure

- General
- Advanced Project Options
- Pipeline

Add Branch

Repository browser ?

(Auto)

Additional Behaviours

Add

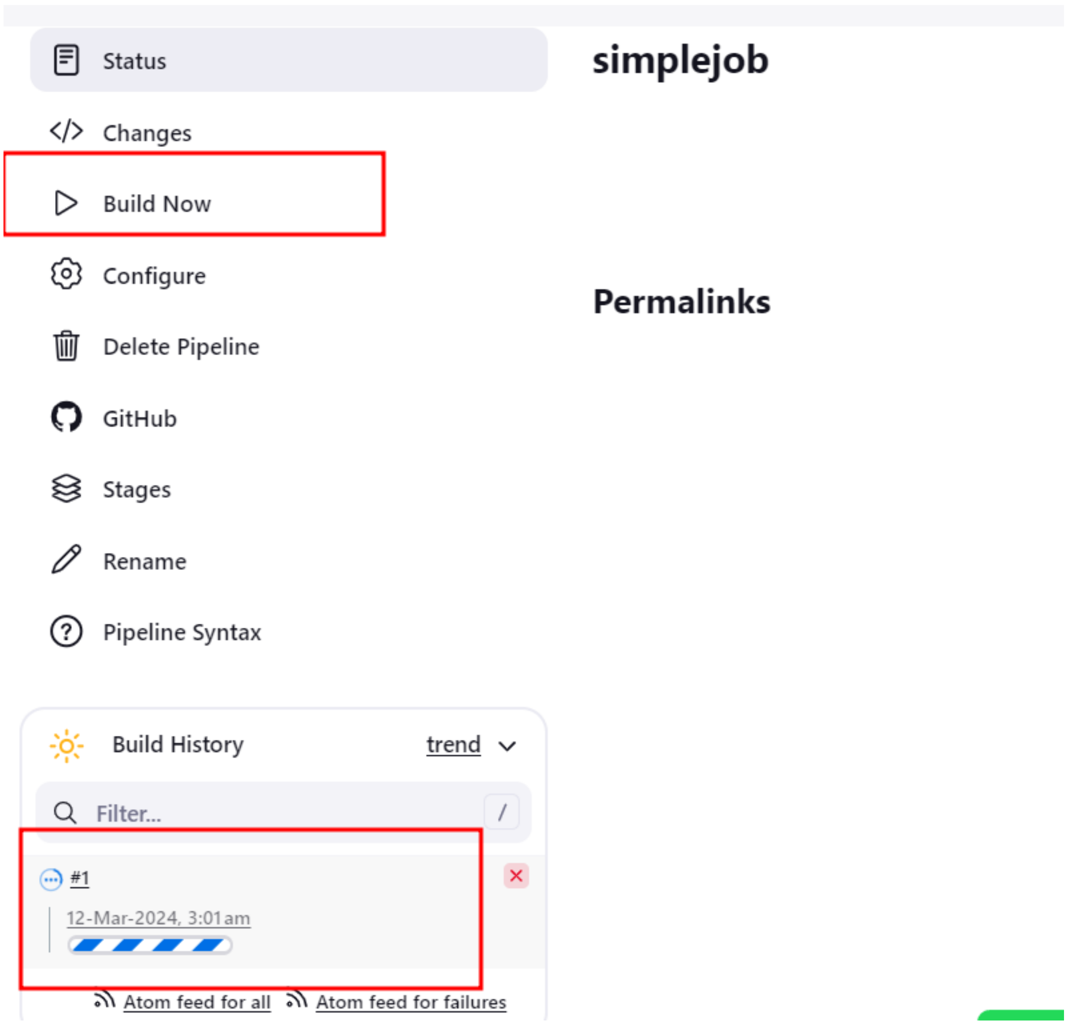
Script Path ?

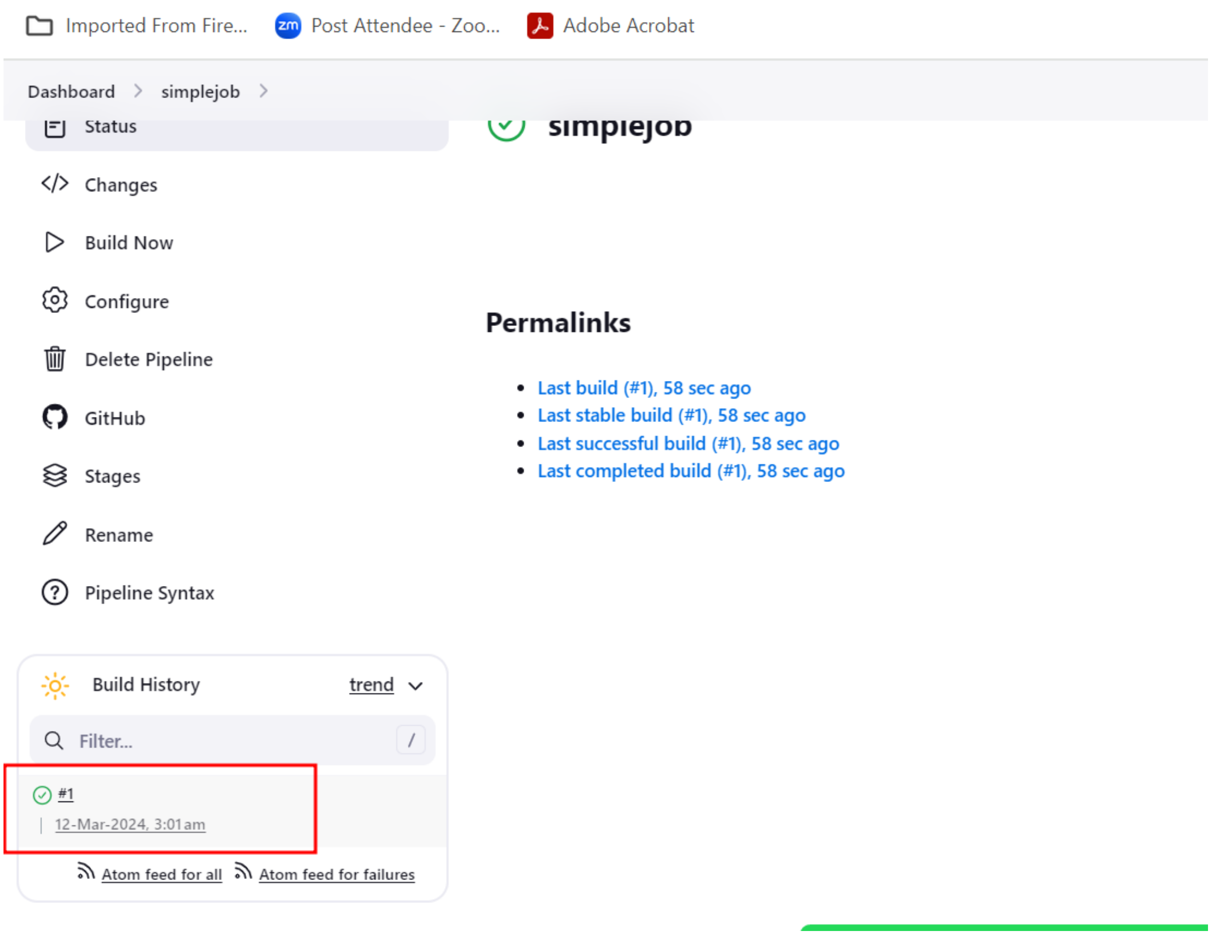
Jenkinsfile

[✓] Lightweight checkout ?

Pipeline Syntax

Save Apply


Status
Changes
Build Now
Configure
Delete Pipeline
GitHub
Stages
Rename
Pipeline Syntax
Build History
trend
Filter...
/
#1
12-Mar-2024, 3:01 am
Atom feed for all
Atom feed for failures
simplejob
Permalinks



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Dashboard > simplejob >

Status
Changes
Build Now
Configure
Delete Pipeline
GitHub
Stages
Rename
Pipeline Syntax

simplejob

Permalinks

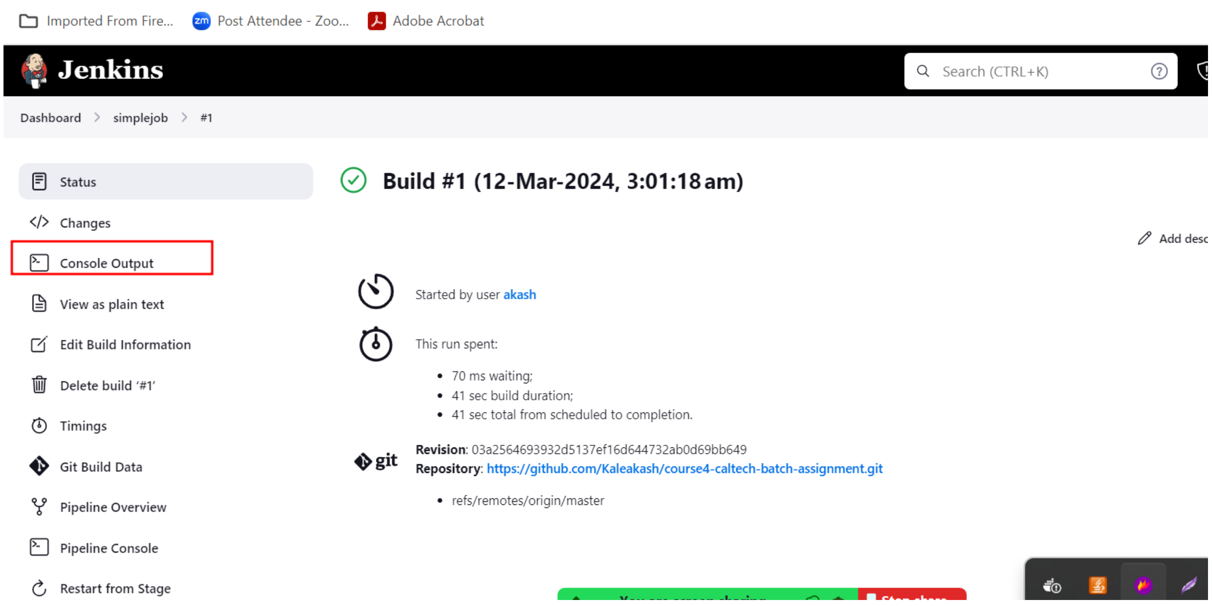
- Last build (#1), 58 sec ago
- Last stable build (#1), 58 sec ago
- Last successful build (#1), 58 sec ago
- Last completed build (#1), 58 sec ago

Build History trend

Filter... /

#1
12-Mar-2024, 3:01 am

Atom feed for all Atom feed for failures



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Jenkins

Search (CTRL+K)

Dashboard > simplejob > #1

Status
Changes
Console Output
View as plain text
Edit Build Information
Delete build '#1'
Timings
Git Build Data
Pipeline Overview
Pipeline Console
Restart from Stage

Build #1 (12-Mar-2024, 3:01:18 am)

Add desc

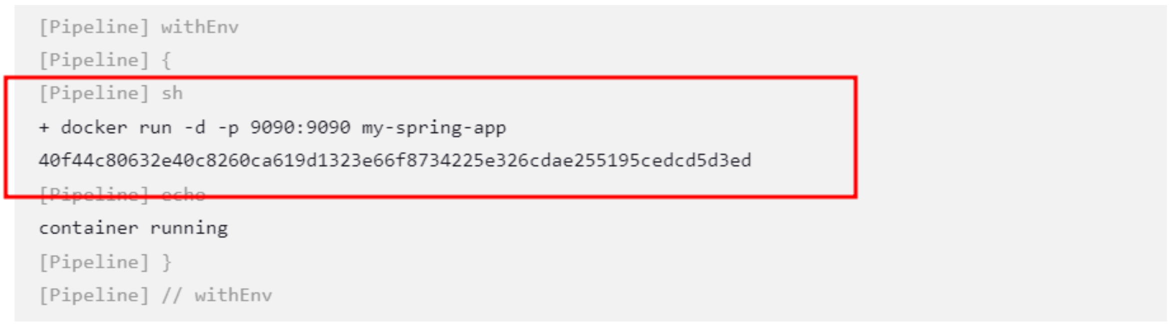
Started by user akash

This run spent:

- 70 ms waiting;
- 41 sec build duration;
- 41 sec total from scheduled to completion.

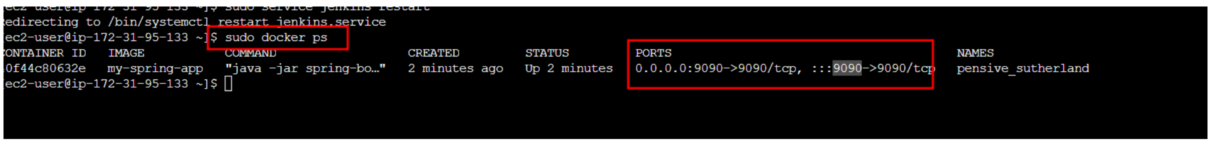
Revision: 03a2564693932d5137ef16d644732ab0d69bb649
Repository: https://github.com/Kaleakash/course4-caltech-batch-assignment.git

- refs/remotes/origin/master



```
[Pipeline] withEnv
[Pipeline] {
[Pipeline] sh
+ docker run -d -p 9090:9090 my-spring-app
40f44c80632e40c8260ca619d1323e66f8734225e326cdae255195cedcd5d3ed
[Pipeline] echo
container running
[Pipeline] }
[Pipeline] // withEnv
```

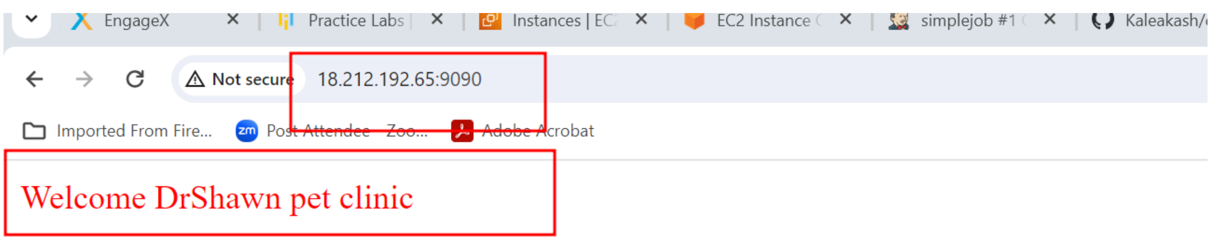
To verify container running or not. Please check in EC2 instance terminal using
docker ps



```
edirecting to /bin/systemctl restart jenkins.service
ec2-user@ip-172-31-95-133 ~]$ sudo docker ps
ONTAINER ID   IMAGE          COMMAND                  CREATED         STATUS         PORTS                                       NAMES
0f44c80632e   my-spring-app  "java -jar spring-bo…"   2 minutes ago   Up 2 minutes   0.0.0.0:9090->9090/tcp, :::9090->9090/tcp   pensive_sutherland
ec2-user@ip-172-31-95-133 ~]$
```

If running please your EC2 instance public ip address with spring boot port number 9090

http://publicIpAddress:9090



18.212.192.65:9090

Welcome DrShawn pet clinic