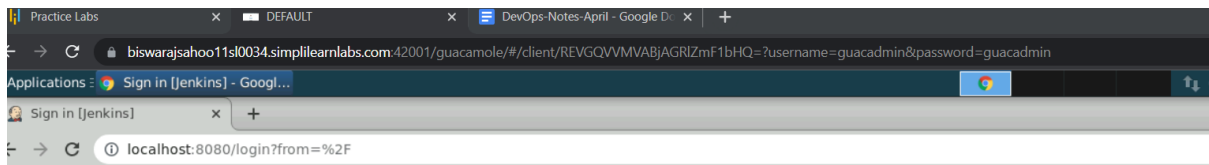


# Build a Docker Jenkins Pipeline to Implement CI/CD Workflow

First step we have to go to Jenkins login in browser by giving localhost:8080

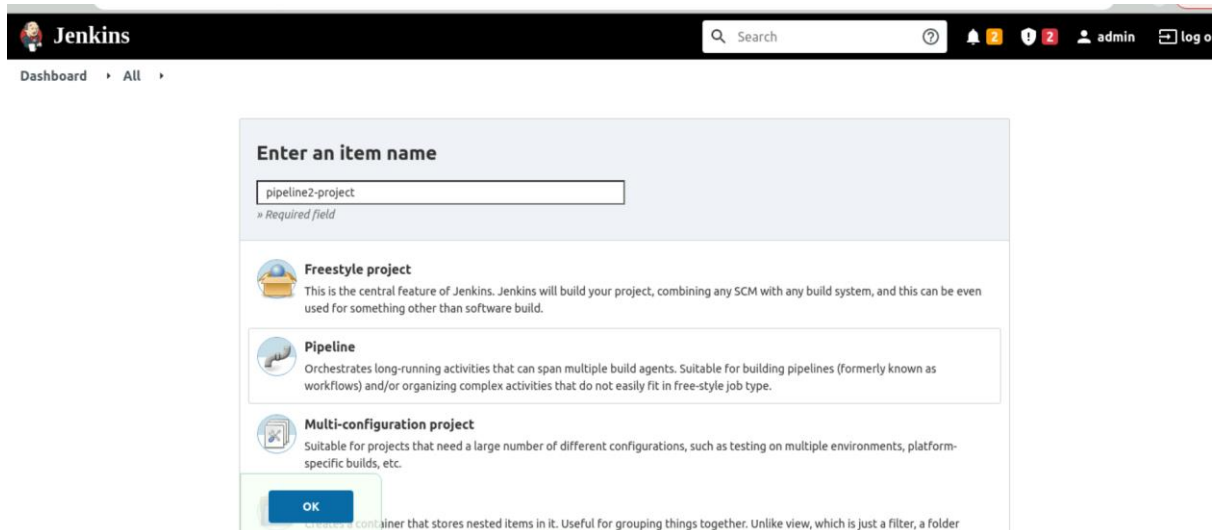


Welcome to Jenkins!

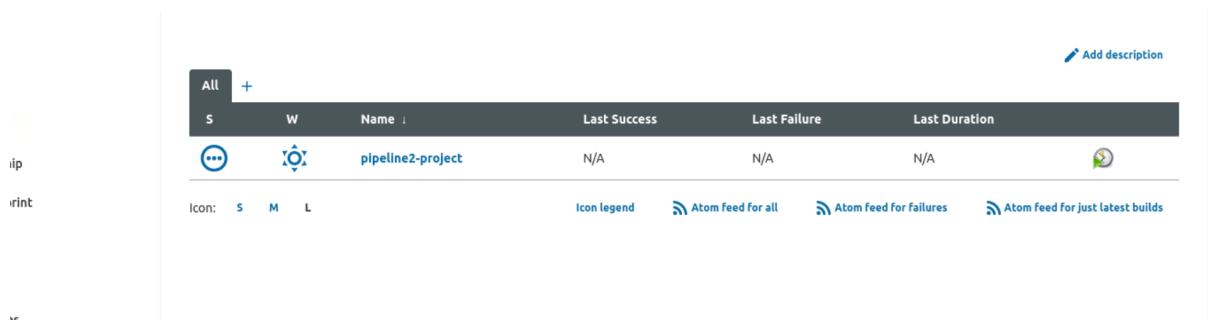
Sign in

☐ Keep me signed in

Here we have to create a new pipeline named as pipeline2-project



Pipeline2-project created



Now we have to set up maven tool fir the project pipeline

**> Set up Maven tool in Manage jenkins --> configure global tools--> scroll down --> add maven --> give tool name as mymaven--> save the chnages**

New Item

People

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Lockable Resources

New View

Build Queue

## Manage Jenkins

The following installed plugins are deprecated:  
[JavaScript GUI Lib: Handlebars bundle plugin](#)  
[JavaScript GUI Lib: ACE Editor bundle plugin](#)  
[JavaScript GUI Lib: Moment.js bundle plugin](#)  
[Pipeline: Shared Groovy Libraries](#)

In general, this means that these plugins are either obsolete, no longer being developed, or may no longer work.  
See the linked web pages for further information about the cause for the deprecation, and suggestions on how to proceed.

New version of Jenkins (2.387.3) is available for [download](#) ([changelog](#)).

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

Set up agent

Set up cloud

Dismiss

### System Configuration



#### Configure System

Configure global settings and paths.



#### Global Tool Configuration

Configure tools, their locations and automatic installers.



#### Manage Plugins

Add, remove, disable or enable plugins that can extend the functionality of Jenkins.  
▲ There are updates available



#### Manage Nodes and Clouds

Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

### Security



#### Configure Global Security

Secure Jenkins; define who is allowed to access/use the system.



#### Manage Credentials

Configure credentials



#### Configure Credential Providers

Configure the credential providers and types



#### Manage Users

Create/delete/modify users that can log in to this Jenkins

### Ant installations

Add Ant

List of Ant installations on this system

### Maven

Maven installations...

Save

Apply

ihboard > Global Tool Configuration

Maven installations

Add Maven

Maven

Name

my.maven

☒ Install automatically

Install from Apache

Version

3.9.2

Add Installer

Delete Installer

Delete Maven

Maven

Name

my.maven

Save Apply

Named the maven tool as “my.maven”

Now we will go to pipeline to build the pipeline

Jenkins

Search

admin

log out

Dashboard > pipeline2-project

Back to Dashboard

Status

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

Rename

Pipeline Syntax

Build History trend

Pipeline pipeline2-project

Add description

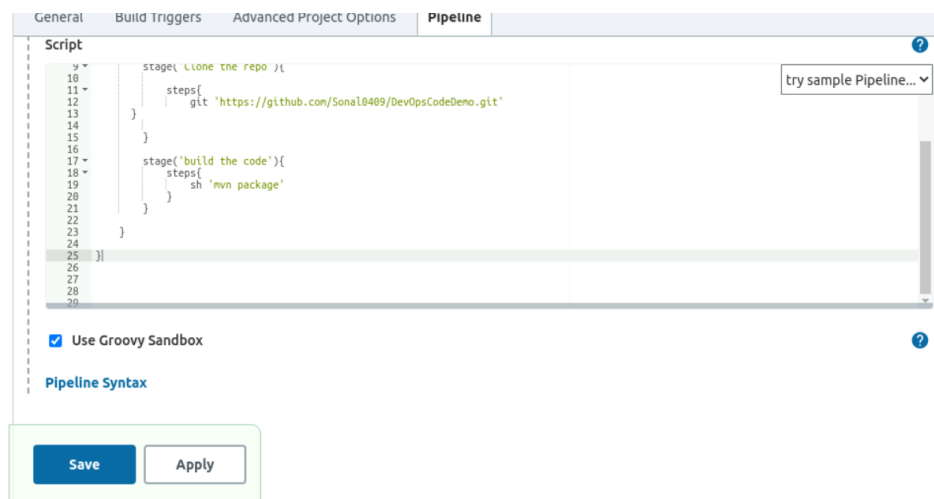
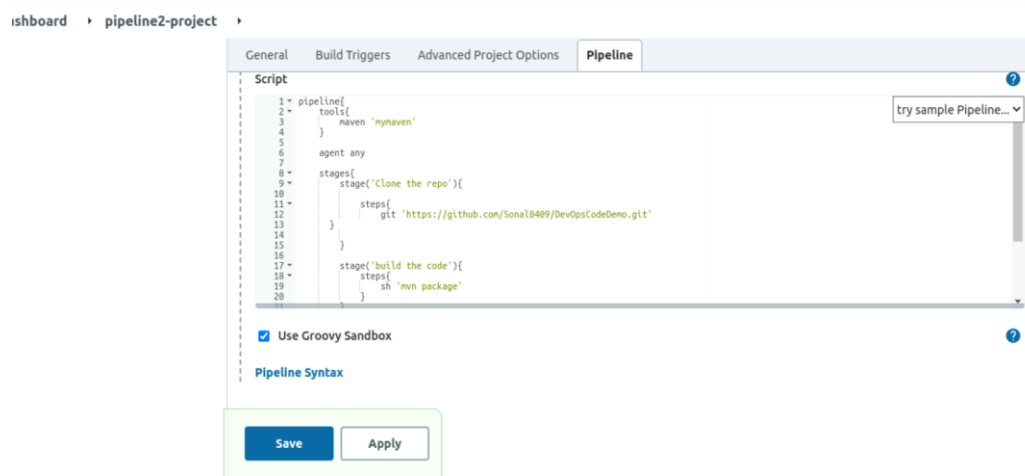
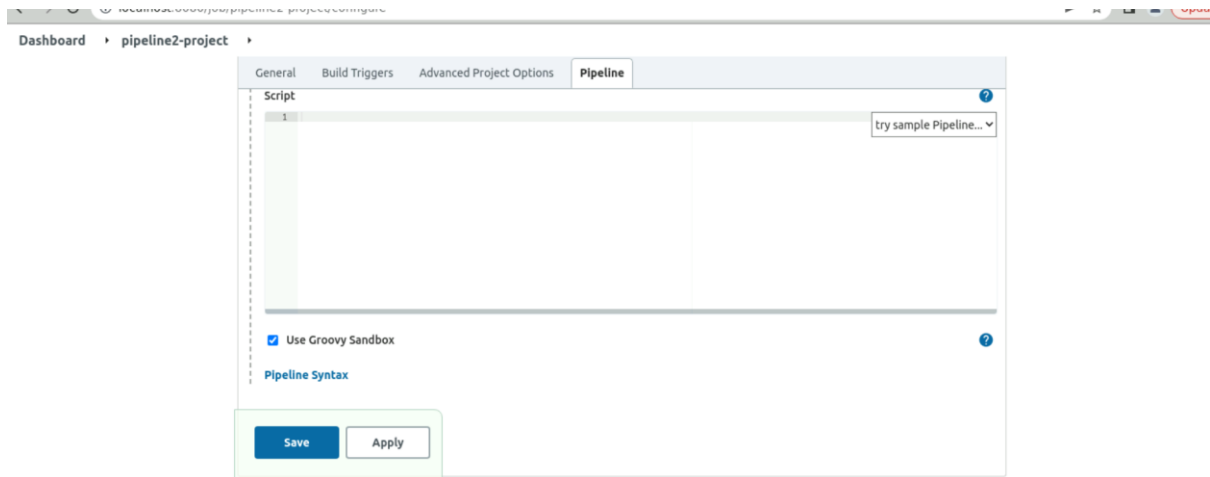
Disable Project

Recent Changes

Stage View

No data available. This Pipeline has not yet run.

Permalinks



Save it

Now we have to build the pipeline

localhost:8080/job/pipeline2-project/

Dashboard > pipeline2-project >

- Changes
- Build Now**
- Configure
- Delete Pipeline
- Full Stage View
- Rename
- Pipeline Syntax

Build History trend

Filter builds...

#1 May 23, 2023, 12:18 PM

Atom feed for all Atom feed for failures

Recent Changes

### Stage View

|   | Declarative: Tool Install | Clone the repo | build the code |
|---|---------------------------|----------------|----------------|
| Average stage times:<br>(Average full run time: ~13s) | 294ms                     | 932ms          | 8s             |
| May 23 12:18 No Changes                               | 294ms                     | 932ms          | 8s             |

### Permalinks

Dashboard > pipeline2-project > #1

- Back to Project
- Status
- Changes
- Console Output**
- View as plain text
- Edit Build Information
- Delete build '#1'
- Git Build Data
- Restart from Stage
- Build Now

### Console Output

Started by user admin

[Pipeline] Start of Pipeline

[Pipeline] node

Running on Jenkins in /var/lib/jenkins/workspace/pipeline2-project

```
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Tool Install)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Clone the repo)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] }
```

**Go to console output of the job, copy the path of war file generated**

```
Tests run: 5, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.002 sec - in com.mydemo.utilities.TestLogger
Running com.mydemo.utilities.TestGenericComparator
Tests run: 14, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.042 sec - in com.mydemo.utilities.TestGenericComparator

Results :

Tests run: 23, Failures: 0, Errors: 0, Skipped: 0

[INFO]
[INFO] --- war:3.3.2:war (default-war) @ addressbook ---
[INFO] Packaging webapp
[INFO] Assembling webapp [addressbook] in [/var/lib/jenkins/workspace/pipeline2-project/target/addressbook]
[INFO] Processing war project
[INFO] Building war: /var/lib/jenkins/workspace/pipeline2-project/target/addressbook.war
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 5.527 s
[INFO] Finished at: 2023-05-23T12:19:06Z
[INFO] -----
[WARNING]
[WARNING] Plugin validation issues were detected in 5 plugin(s)
[WARNING]
```

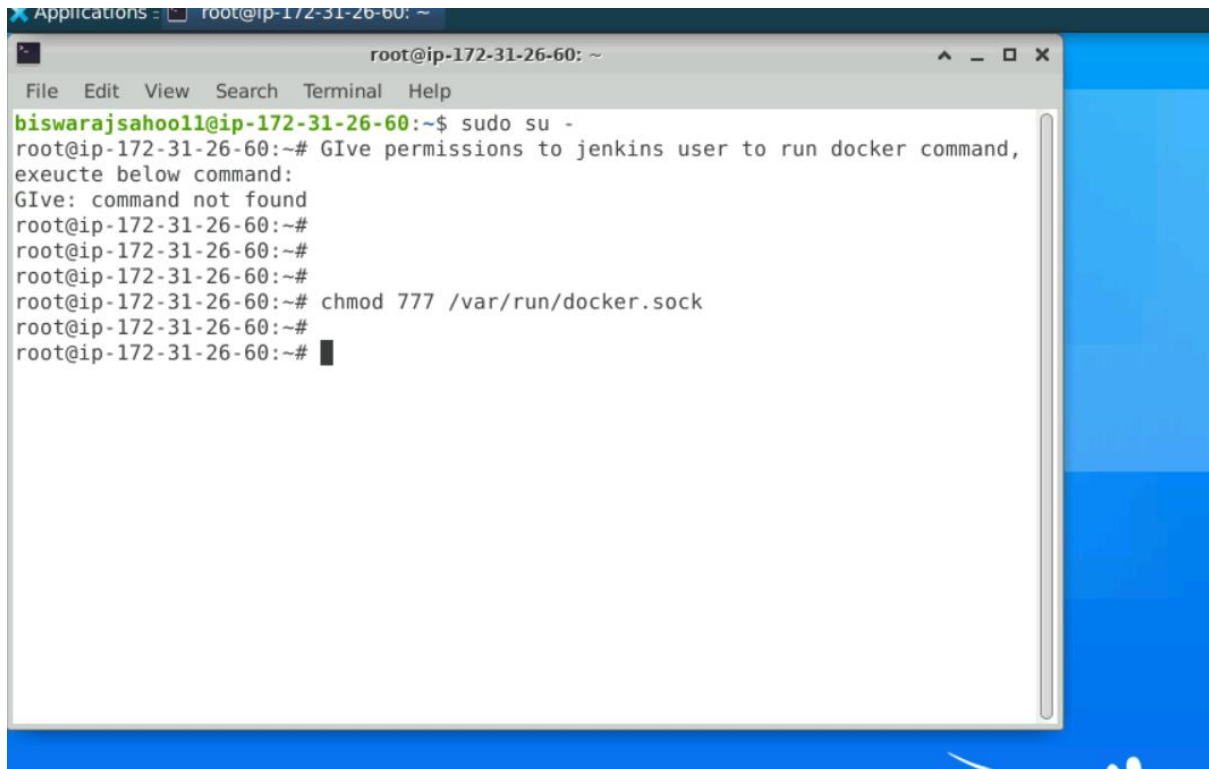
Again we have to build the pipeline

```
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (build the Image)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] sh
+ cp /var/lib/jenkins/workspace/pipeline2-project/target/addressbook.war .
[Pipeline] sh
+ docker build -t myaddressbook .
Got permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post
"http://%2Fvar%2Frun%2Fdocker.sock/v1.24/build?
buildargs=%7B%7D&cachefrom=%5B%5D&cgroupparent=&cgroupdriver=&cpuquota=0&cpusetcpus=&cpusetmems=&cpushares=0&dockerfile=dockerfile&labels=%7B%7D&memory=0&menswap=0&networkmode=default&rm=1&shmsize=0&t=myaddressbook&target=&ulimits=null&version=1": dial unix /var/run/docker.sock:
connect: permission denied
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
```

Jenkins cant address the docker image. For this we have to commit a command .

**Glve permissions to jenkins user to run docker command, exeucte below command:**

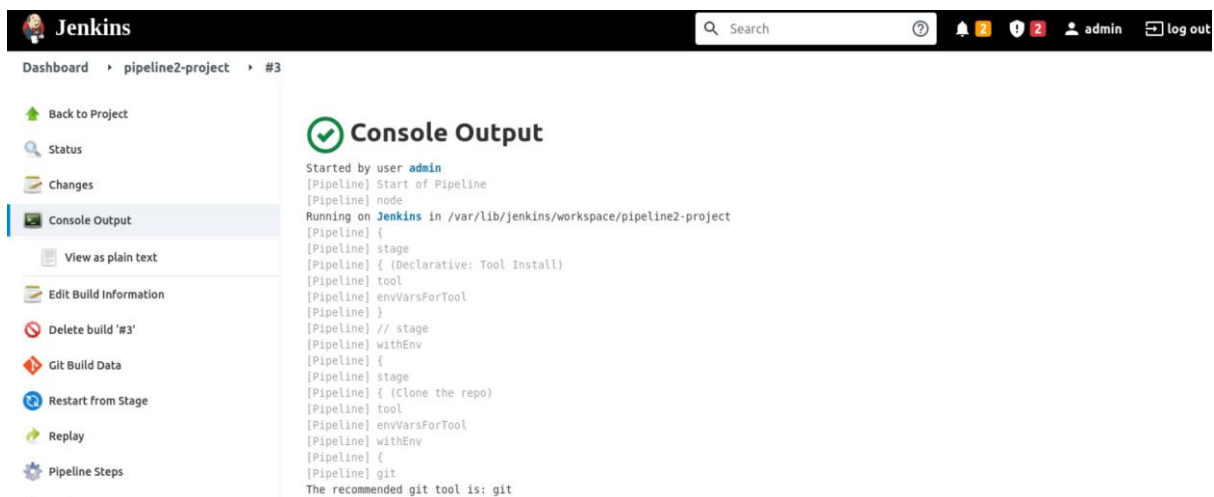
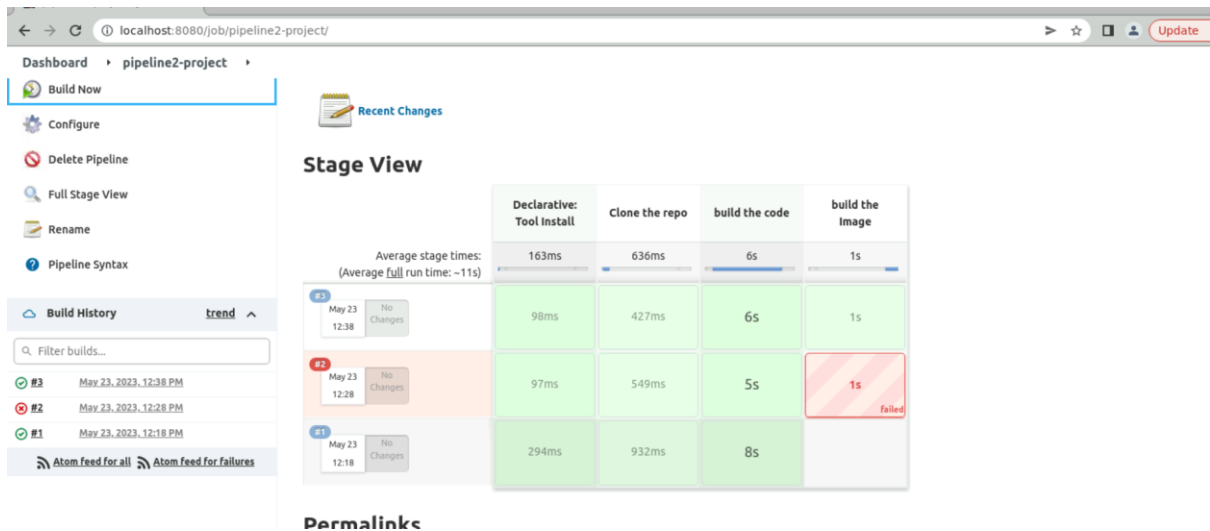
**chmod 777 /var/run/docker.sock**

A screenshot of a terminal window titled 'root@ip-172-31-26-60: ~'. The terminal shows a user 'biswarajsahool1@ip-172-31-26-60:~\$' running 'sudo su -'. The prompt changes to 'root@ip-172-31-26-60:~#'. The user then enters the text 'Give permissions to jenkins user to run docker command, exeucte below command:' followed by 'Give: command not found'. After several empty prompts, the user enters 'chmod 777 /var/run/docker.sock'. The terminal shows the command being executed successfully, with the prompt returning to 'root@ip-172-31-26-60:~#'.

```
root@ip-172-31-26-60: ~
File Edit View Search Terminal Help
biswarajsahool1@ip-172-31-26-60:~$ sudo su -
root@ip-172-31-26-60:~# Give permissions to jenkins user to run docker command,
exeucte below command:
Give: command not found
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~# chmod 777 /var/run/docker.sock
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~#
```

Now we have to build the pipeline





Copy the .war file in current workspace

> build the dockerfile which is jobs current workspace

```
root@ip-172-31-26-60: ~
File Edit View Search Terminal Help
biswarajsahoo11@ip-172-31-26-60:~$ sudo su -
root@ip-172-31-26-60:~# Give permissions to jenkins user to run docker command,
exeucte below command:
Give: command not found
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~# chmod 777 /var/run/docker.sock
root@ip-172-31-26-60:~#
root@ip-172-31-26-60:~# useradd -s /bin/bash docker jenkins
```

Now again we have to build the pipeline now we have to push docker image to docker hub account

Dashboard > pipeline2-project >

General Build Triggers Advanced Project Options Pipeline

Script

```
1
2
3
4
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21
22 stage('build the Image'){
23     steps{
24         sh 'cp /var/lib/jenkins/workspace/pipeline2-project/target/addressbook.war .'
25         sh 'docker build -t myaddressbook .'
26     }
27 }
28
29
30
31 stage('push Image to DockerHub'){
32     steps{
33         withCredentials([string(credentialsId: 'dockerhub_password', variable: 'dockerhub_password')]) {
34             sh 'docker login -u biswaraj111 -p ${dockerhub_password}'
35         }
36     }
37 }
38
39
40
41
```

☒ Use Groovy Sandbox

[Pipeline Syntax](#)

Save Apply

localhost:8080/job/pipeline2-project/pipeline-syntax/

Jenkins

Search

admin

log out

Dashboard

pipeline2-project

Pipeline Syntax

Back

Snippet Generator

Declarative Directive Generator

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Examples Reference

IntelliJ IDEA GDSDL

Overview

This **Snippet Generator** will help you learn the Pipeline Script code which can be used to define various steps. Pick a step you are interested in from the list, configure it, click **Generate Pipeline Script**, and you will see a Pipeline Script statement that would call the step with that configuration. You may copy and paste the whole statement into your script, or pick up just the options you care about. (Most parameters are optional and can be omitted in your script, leaving them at default values.)

Steps

Sample Step

archiveArtifacts: Archive the artifacts

archiveArtifacts

Files to archive

Advanced...

Generate Pipeline Script

localhost:8080/job/pipeline2-project/pipeline-syntax/

Update

Dashboard

pipeline2-project

Pipeline Syntax

Snippet Generator

Declarative Directive Generator

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Steps Reference

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Examples Reference

IntelliJ IDEA GDSDL

Overview

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Steps

Sample Step

withCredentials: Bind credentials to variables

withCredentials

Secret values are masked on a best-effort basis to prevent accidental disclosure. Multiline secrets, such as the contents of a SSH private key file, are not masked. See the inline help for details and usage guidelines.

Bindings

Add

Generate Pipeline Script

Dashboard

pipeline2-project

Pipeline Syntax

IntelliJ IDEA GDSDL

Bindings

Secret text

Variable

dockerhub\_password

Add

Delete

Add

Generate Pipeline Script

withCredentials([string(credentialsid: 'dockerhub\_password', variable: '')] {  
 // some block  
})

```

Now generate the pipeline script
withCredentials([string(credentialsId:
'dockerhub_password', variable: '')] {

    // some block

}

```

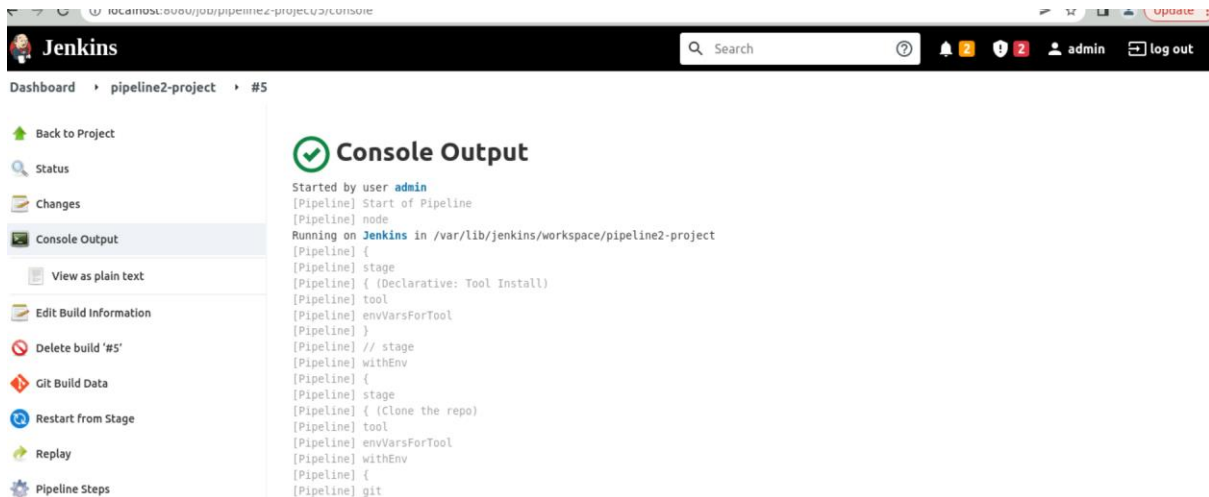
The screenshot shows the 'Add Credentials' dialog box in Jenkins. The 'Domain' is set to 'Global credentials (unrestricted)'. The 'Kind' is 'Secret text'. The 'Scope' is 'Global (Jenkins, nodes, items, all child items, etc)'. The 'Secret' field is masked with asterisks. The 'ID' is 'dockerhub\_password1'. The 'Description' is 'dockerhub\_password1'. There are 'Add' and 'Cancel' buttons at the bottom.

The screenshot shows the Jenkins Pipeline configuration page for a project named 'pipeline2-project'. The 'Script' tab is selected, showing a Groovy script. The script defines a pipeline with two stages: 'build' and 'create containers'. The 'build' stage uses 'withCredentials' to log in to Docker Hub. The 'create containers' stage runs a Docker container. The 'Use Groovy Sandbox' checkbox is checked. There are 'Save' and 'Apply' buttons at the bottom.

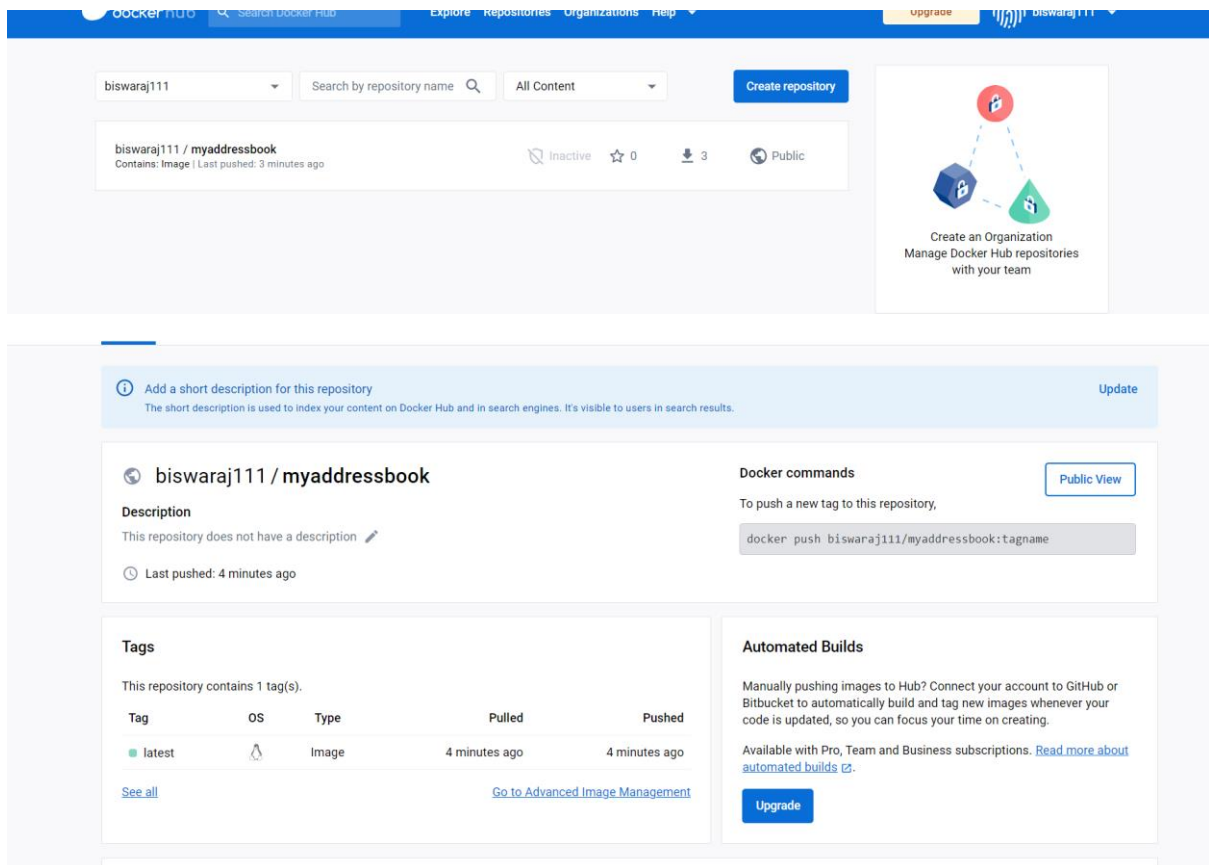
```

31  stage('build') {
32  |   steps {
33  |       |   withCredentials([string(credentialsId: 'dockerhub_password', variable: 'dockerhub_password')]) {
34  |           |   sh 'docker login -u biswara3111 -p ${dockerhub_password}'
35  |       |   }
36  |   }
37  |   sh 'docker tag myaddressbook biswara3111/myaddressbook'
38  |   sh 'docker push biswara3111/myaddressbook'
39  |   sh 'docker rmi biswara3111/myaddressbook'
40  |   }
41  }
42
43  stage('create containers') {
44  |   steps {
45  |       |   sh 'docker run -d -P biswara3111/myaddressbook'
46  |   }
47  }
48
49
50
51

```



Now we have to sign in our docker hub account



Now we can see the containers and images here

```
Applications: root@ip-172-31-26-60: ~
root@ip-172-31-26-60: ~
File Edit View Search Terminal Help
command 'groups' from deb coreutils (8.30-3ubuntu2)
command 'grop' from deb grop (2:0.10-1.1build1)

Try: apt install <deb name>

root@ip-172-31-26-60:~# groupadd docker
groupadd: group 'docker' already exists
root@ip-172-31-26-60:~# docker images
REPOSITORY          TAG             IMAGE ID        CREATED         SIZE
biswaraj111/myaddressbook  latest         f66739ace60e   6 minutes ago   493MB
myaddressbook          latest         f66739ace60e   6 minutes ago   493MB
<none>                 <none>         1b8554c93f50   5 hours ago     493MB
biswaraj111/myaddressbook  <none>         47a7449de754   9 hours ago     493MB
biswaraj111/myaddressbook  <none>         04e4becbe021   9 hours ago     493MB
<none>                 <none>         22bb95dc3356   11 hours ago    493MB
<none>                 <none>         da5ed4f98514   11 hours ago    493MB
```

Now we can see the address book

```
root@ip-172-31-26-60: ~
File Edit View Search Terminal Help
root@ip-172-31-26-60:~# docker ps --latest
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                               NAMES
7fc2f16d530d  biswaraj111/myaddressbook          "catalina.sh run"       8 minutes ago  Up 8 minutes  0.0.0.0:32768->8080/tcp, :::32768->8080/tcp  hungry_davinci
root@ip-172-31-26-60:~#
```

If we want to access the application we have to put localhost:32768/addressbook/

| Filter contacts... |           |                      | New contact |
|--------------------|-----------|----------------------|-------------|
| First Name         | Last Name | Email                |             |
| George             | White     | george@white.com     |             |
| Daniel             | Thompson  | daniel@thompson.com  |             |
| Timothy            | Jones     | timothy@jones.com    |             |
| Peter              | Wilson    | peter@wilson.com     |             |
| Dan                | Robinson  | dan@robinson.com     |             |
| Dan                | Davis     | dan@davis.com        |             |
| Olivia             | Davis     | olivia@davis.com     |             |
| Dan                | Smith     | dan@smith.com        |             |
| Daniel             | Anderson  | daniel@anderson.com  |             |
| Alice              | Thomas    | alice@thomas.com     |             |
| Linda              | Harris    | linda@harris.com     |             |
| Daniel             | Robinson  | daniel@robinson.com  |             |
| Mike               | Young     | mike@young.com       |             |
| Umberto            | Anderson  | umberto@anderson.com |             |
| Scott              | Thompson  | scott@thompson.com   |             |

Here comes the end of our project.