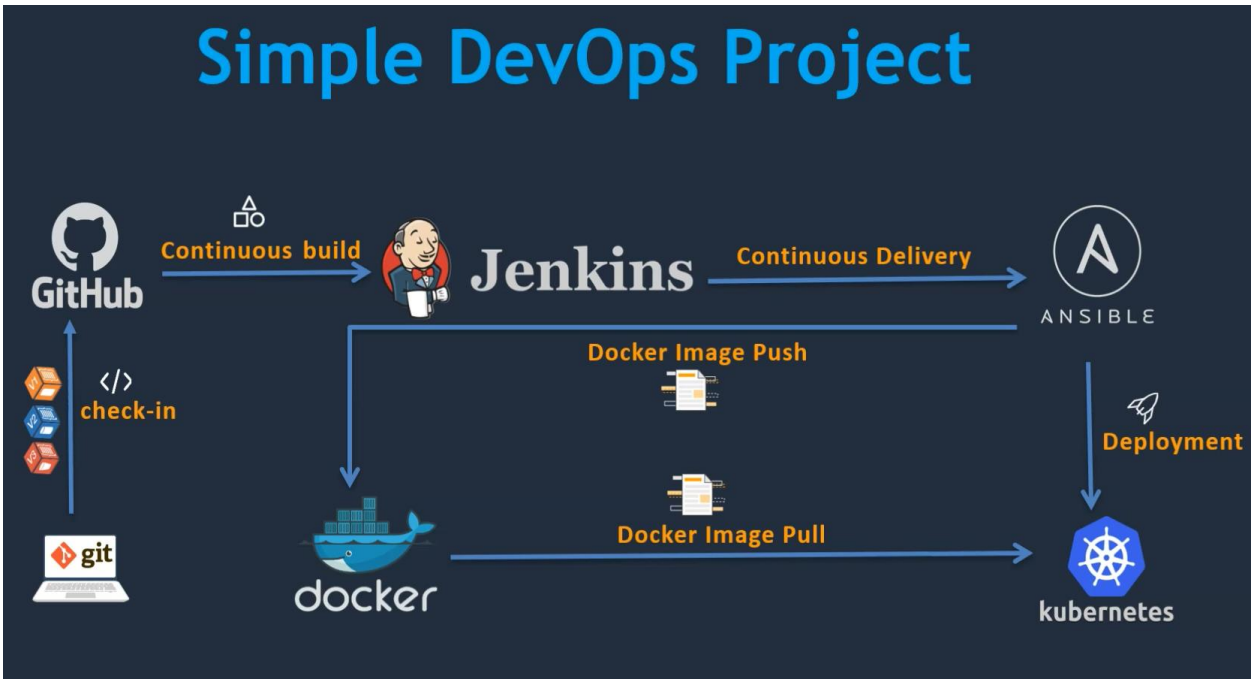
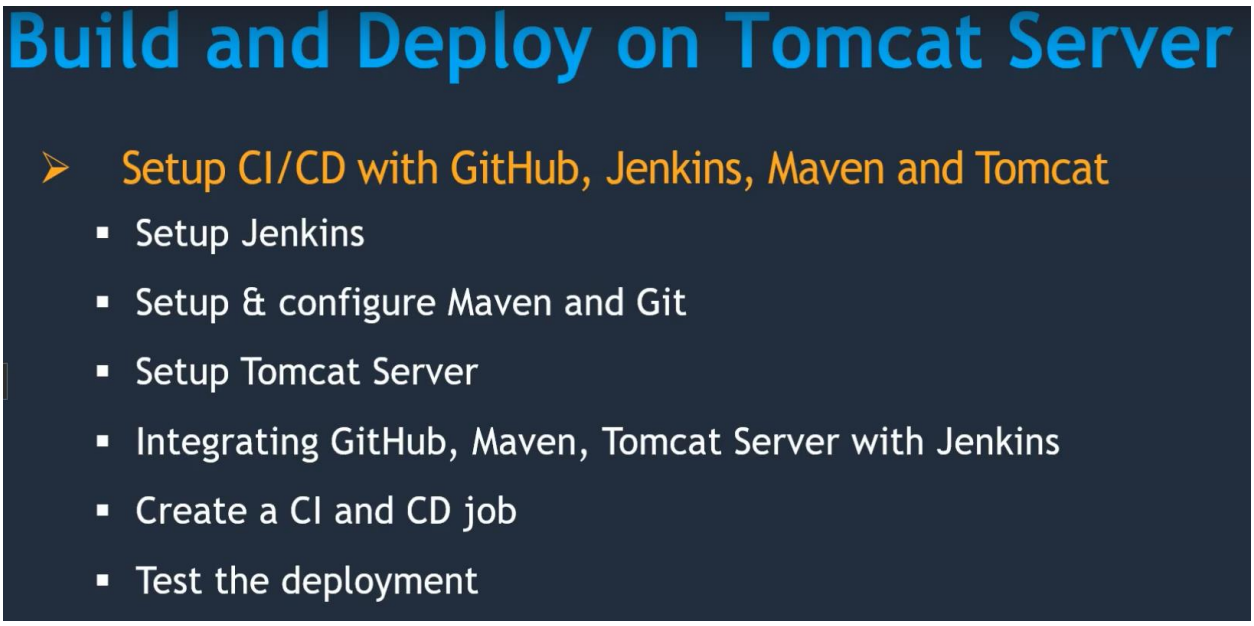
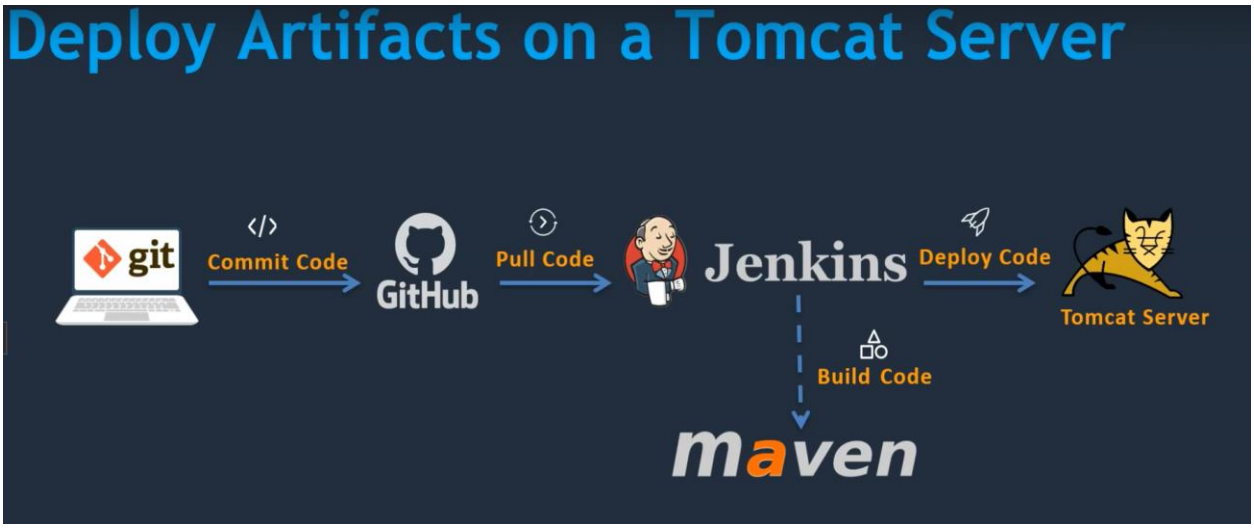


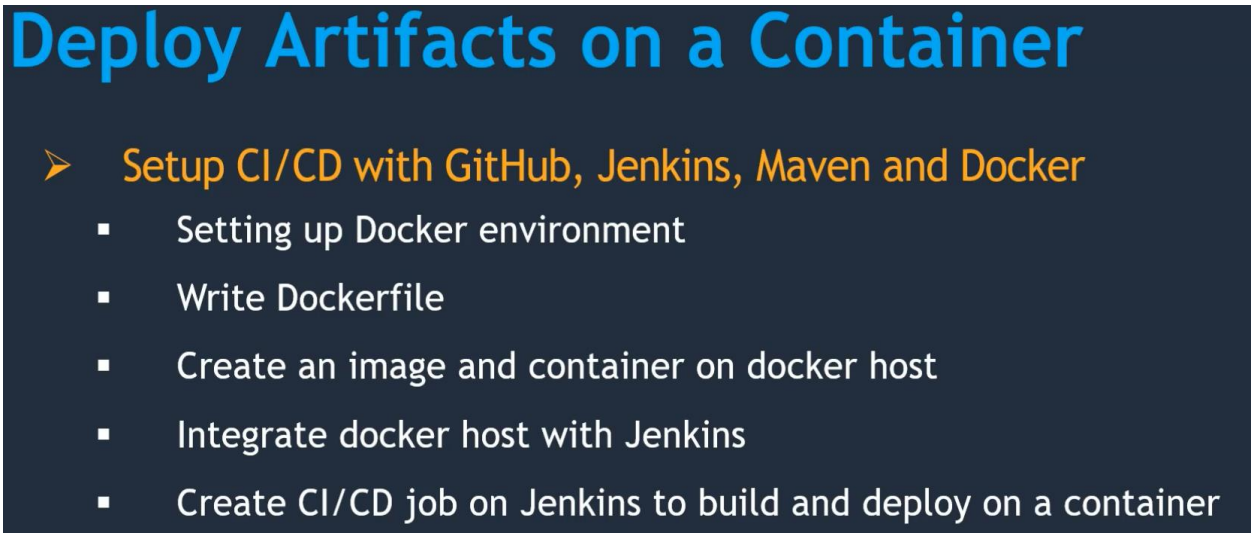
Deploy artifacts on VM



Second phase deploy artifacts on tomcat server.



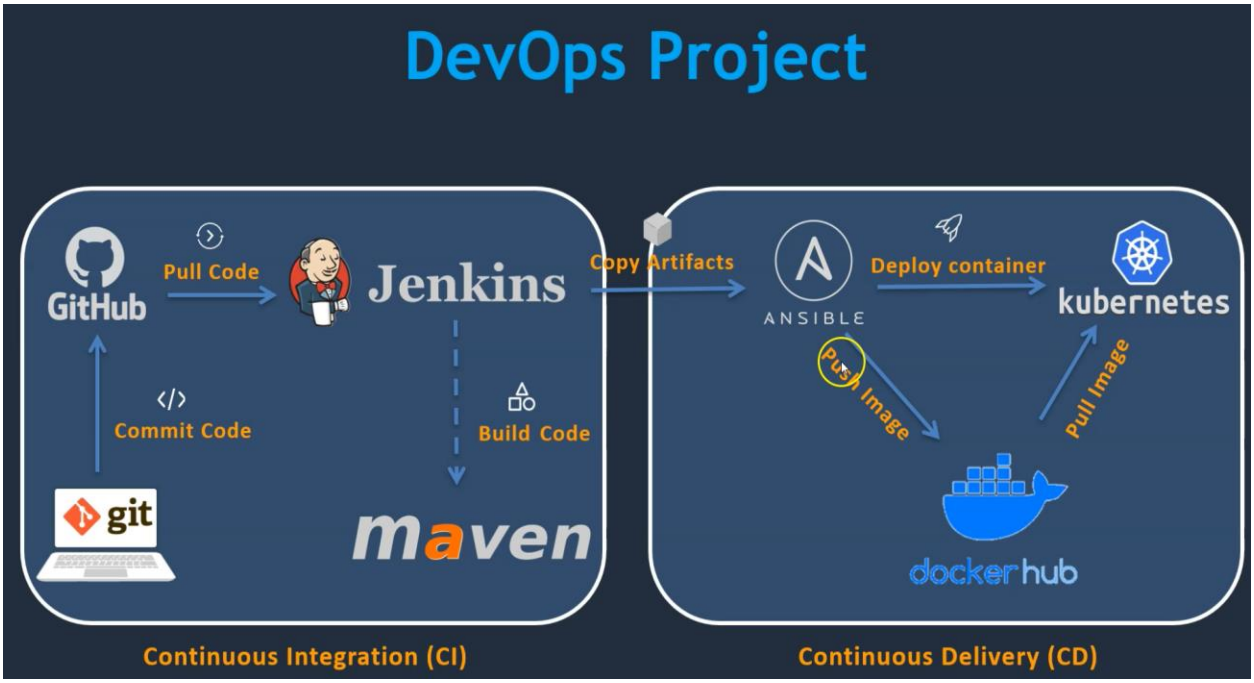
2. Deploy artifacts on a container



Simple DevOps Project

- Continuous Integration (CI)
- Continuous Delivery (CD)

- Continuous Deployment (CD)



FOR DOCUMENT

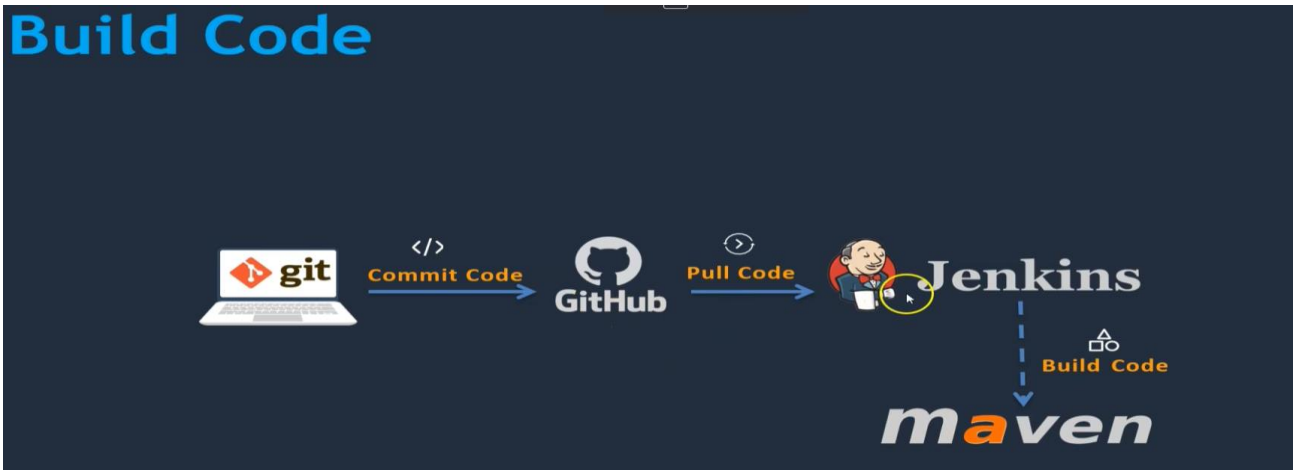
bunty4200/Udemy-Simple-DevOps-Project: Udemy_Course_Project (github.com)

SOURCE CODE

bunty4200/Udemy-hello-world: Udemy_Course_Project (github.com)

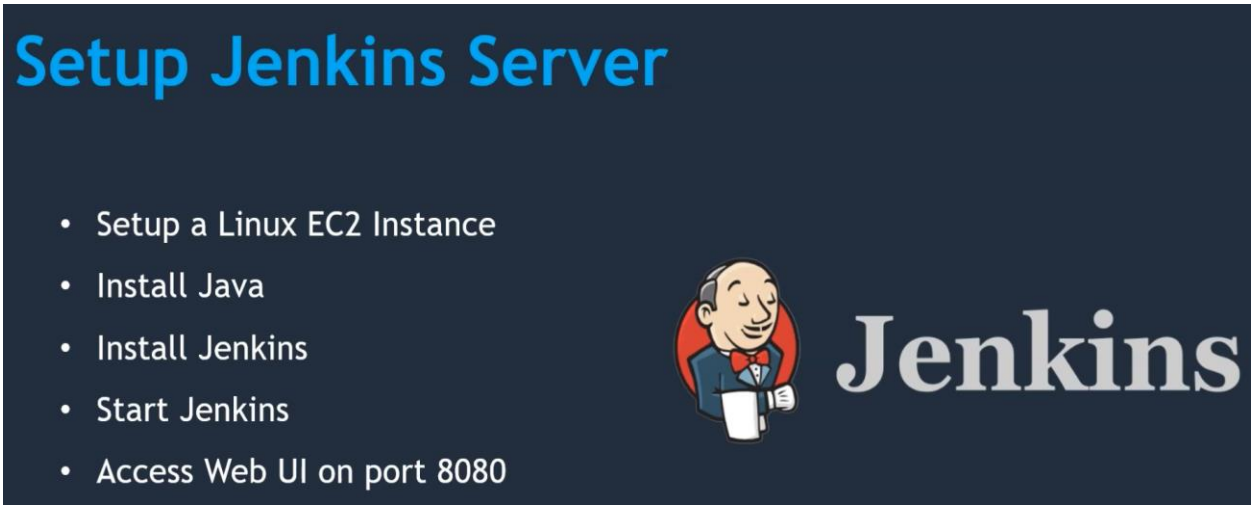
STARTING

1. Step



Chose AMAZONE LINUX 2

2. Setup Jenkins Server



3. Create EC2 instance Amazon Linux 2.

Add port number 8080 to the security group.

4. Install Jenkins

Linux (jenkins.io)

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

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

sudo yum upgrade

sudo amazon-linux-extras
amazon-linux-extras install java-openjdk11
yum install jenkins
systemctl daemon-reload
systemctl enable jenkins
systemctl start jenkins
systemctl status jenkins
```

5. Browse publicIP with Port Number 8080 to access Jenkins UI
6. skip Install suggested plugins click on right nd side cross symbol
7. click on start using Jenkins.

Run first job in jenkins

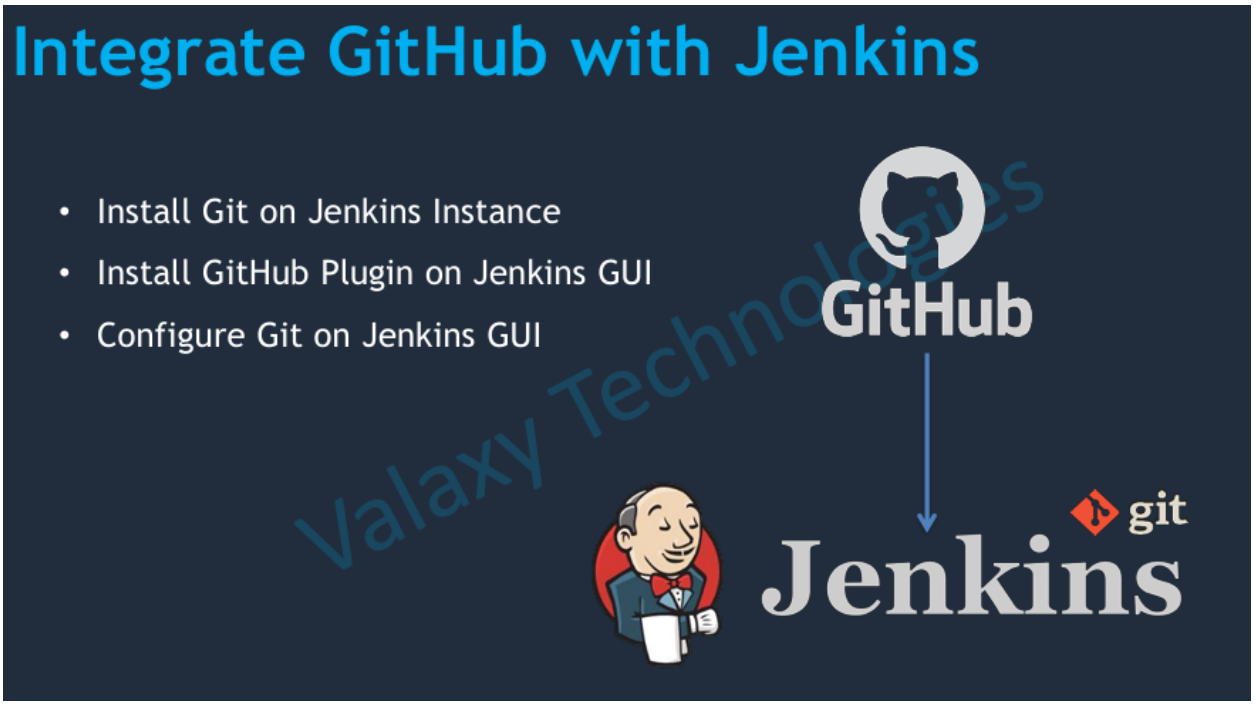
Helloworldjob

Uptime

echo “Hello world”

8. Integrate Git with Jenkins

   Pull the code from GitHub we need install git on Jenkins



Install Git on Jenkins Instance

```
   25  git --version
   26  yum install git
   27  git --version
   28  history
[root@jenkins-server ~]#
[root@jenkins-server ~]#
```

Install GitHub Plugin on Jenkins GUI

Dashboard > Mange Jenkins > Plugins > available plugins > github > install

Configure Git on Jenkins GUI

Dashboard > Mange Jenkins > tools > git

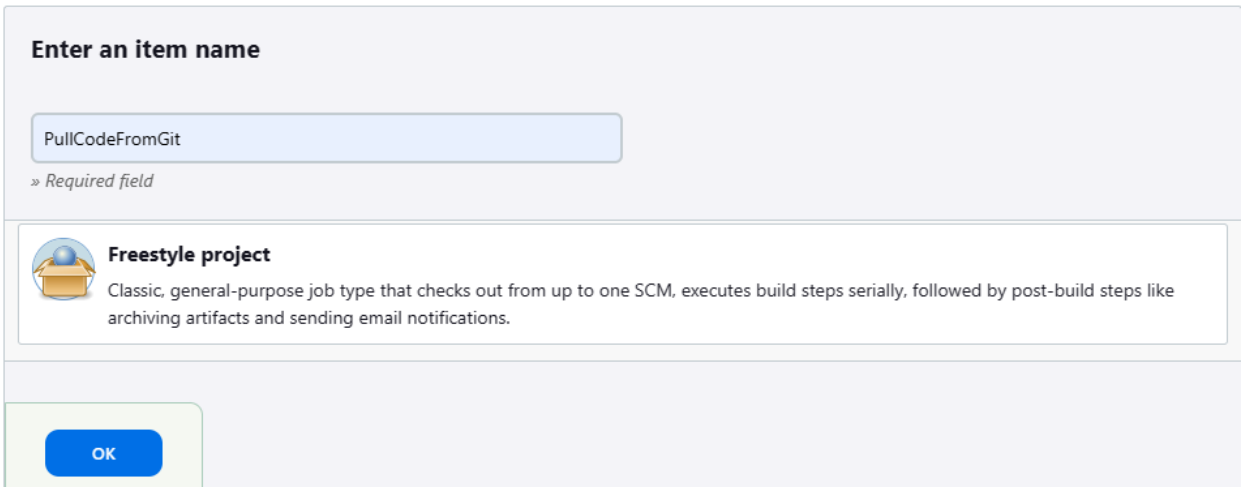
Name git

Path to Git executable

git or using command whereisgit in Jenkins instance it will show the executeble path

9. Run Jenkins job to pull the code from GitHub

Create new job



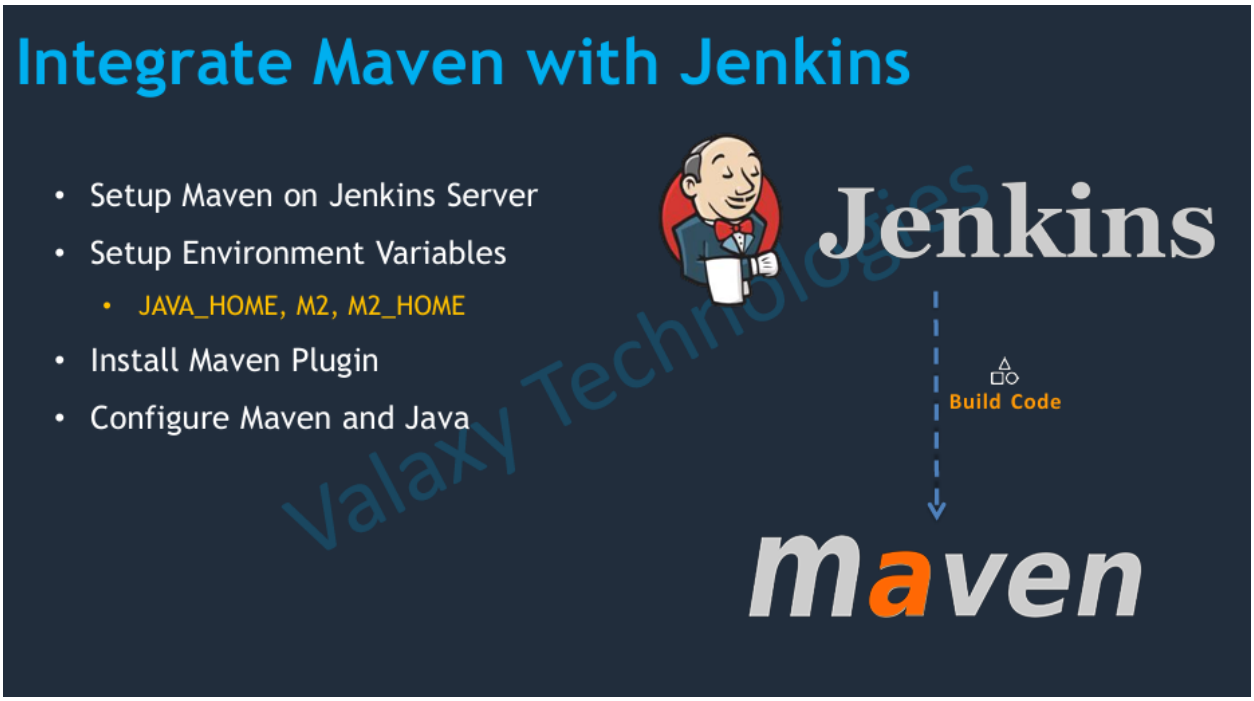
Apply and save and build job.

```
[root@jenkins-server ~]# cd /var/lib/jenkins/workspace/PullCodeFromGit
[root@jenkins-server PullCodeFromGit]#
[root@jenkins-server PullCodeFromGit]# ls
Dockerfile  pom.xml  README.md  regapp-deploy.yml  regapp-service.yml  server  webapp
[root@jenkins-server PullCodeFromGit]#
[root@jenkins-server PullCodeFromGit]#
```

10. Integrate maven with Jenkins

Setup Maven on Jenkins server

Download maven [Maven – Download Apache Maven]



Setup Maven on Jenkins server

```
[root@jenkins-server ~]# cd /opt/
[root@jenkins-server opt]# ls
aws  rh
[root@jenkins-server opt]#
[root@jenkins-server opt]# wget https://dlcdn.apache.org/maven/maven-3/3.9.6/binaries/apache-maven-3.9.6-bin.tar.gz
--2024-05-14 10:39:44--  https://dlcdn.apache.org/maven/maven-3/3.9.6/binaries/apache-maven-3.9.6-bin.tar.gz
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9410508 (9.0M) [application/x-gzip]
Saving to: 'apache-maven-3.9.6-bin.tar.gz'

100%[=============================================================================================================================>] 9,410,508

2024-05-14 10:39:44 (145 MB/s) - 'apache-maven-3.9.6-bin.tar.gz' saved [9410508/9410508]

[root@jenkins-server opt]#
[root@jenkins-server opt]# ls
apache-maven-3.9.6-bin.tar.gz  aws  rh
[root@jenkins-server opt]#
[root@jenkins-server opt]# tar -xvzf apache-maven-3.9.6-bin.tar.gz
apache-maven-3.9.6/README.txt
apache-maven-3.9.6/LICENSE
apache-maven-3.9.6/NOTICE
apache-maven-3.9.6/lib/
apache-maven-3.9.6/lib/aopalliance.license
apache-maven-3.9.6/lib/commons-cli.license
```

```
[root@jenkins-server opt]# ll
total 9192
drwxr-xr-x 6 root root      99 May 14 10:40 apache-maven-3.9.6
-rw-r--r-- 1 root root 9410508 Dec  1 11:22 apache-maven-3.9.6-bin.tar.gz
drwxr-xr-x 4 root root      33 May  3 23:45 aws
drwxr-xr-x 2 root root       6 Aug 16  2018 rh
[root@jenkins-server opt]#
[root@jenkins-server opt]# mv apache-maven-3.9.6 maven
[root@jenkins-server opt]#
[root@jenkins-server opt]# ll
total 9192
-rw-r--r-- 1 root root 9410508 Dec  1 11:22 apache-maven-3.9.6-bin.tar.gz
drwxr-xr-x 4 root root      33 May  3 23:45 aws
drwxr-xr-x 6 root root      99 May 14 10:40 maven
drwxr-xr-x 2 root root       6 Aug 16  2018 rh
[root@jenkins-server opt]# cd maven/
[root@jenkins-server maven]# ll
total 36
drwxr-xr-x 2 root root    97 May 14 10:40 bin
drwxr-xr-x 2 root root    76 May 14 10:40 boot
drwxr-xr-x 3 root root    63 Nov 28 09:59 conf
drwxr-xr-x 4 root root  4096 May 14 10:40 lib
-rw-r--r-- 1 root root 18945 Nov 28 09:59 LICENSE
-rw-r--r-- 1 root root  5034 Nov 28 09:59 NOTICE
-rw-r--r-- 1 root root  2533 Nov 28 09:59 README.txt
[root@jenkins-server maven]#
[root@jenkins-server maven]# cd bin/
[root@jenkins-server bin]# ll
total 32
-rw-r--r-- 1 root root  327 Nov 28 09:59 m2.conf
-rwxr-xr-x 1 root root 5883 Nov 28 09:59 mvn
-rw-r--r-- 1 root root 6324 Nov 28 09:59 mvn.cmd
-rwxr-xr-x 1 root root 1684 Nov 28 09:59 mvnDebug
-rw-r--r-- 1 root root 2169 Nov 28 09:59 mvnDebug.cmd
-rwxr-xr-x 1 root root 1611 Nov 28 09:59 mvnyjp
[root@jenkins-server bin]#
[root@jenkins-server bin]# mvn -v
bash: mvn: command not found
[root@jenkins-server bin]# ./mvn -v
Apache Maven 3.9.6 (bc0240f3c744dd6b6ec2920b3cd08dcc295161ae)
Maven home: /opt/maven
Java version: 11.0.22, vendor: Red Hat, Inc., runtime: /usr/lib/jvm/java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
Default locale: en_US, platform encoding: UTF-8
OS name: "linux", version: "5.10.215-203.850.amzn2.x86_64", arch: "amd64", family: "unix"
[root@jenkins-server bin]#
```

./mvn -v i could able to execute in maven folder but i could not be able to execute to maven

So for that we need to set it up env variable under .bash rc or set it up environment directory.

```
[root@jenkins-server bin]# cd ..
[root@jenkins-server maven]#
[root@jenkins-server maven]#
[root@jenkins-server maven]# ./mvn -v
bash: ./mvn: No such file or directory
[root@jenkins-server maven]# mvn -v
bash: mvn: command not found
[root@jenkins-server maven]#
```

11. Setup Environment Variables • JAVA_HOME, M2, M2_HOME

```
[root@jenkins-server ~]# ls -la
total 20
dr-xr-x---  3 root root 103 May 14 09:08 .
dr-xr-xr-x 18 root root 257 May 14 09:08 ..
-rw-r--r--  1 root root  18 Oct 18  2017 .bash_logout
-rw-r--r--  1 root root 176 Oct 18  2017 .bash_profile
-rw-r--r--  1 root root 176 Oct 18  2017 .bashrc
-rw-r--r--  1 root root 100 Oct 18  2017 .cshrc
drwx------  2 root root  29 May 14 09:08 .ssh
-rw-r--r--  1 root root 129 Oct 18  2017 .tcshrc
[root@jenkins-server ~]#
[root@jenkins-server ~]# vim .bash_profile
```

```
# .bash_profile

# Get the aliases and functions
if [ -f ~/.bashrc ]; then
        . ~/.bashrc
fi
M2_HOME=/opt/maven
M2=/opt/maven/bin
JAVA_HOME=/usr/lib/jvm/java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
# User specific environment and startup programs

PATH=$PATH:$HOME/bin:$JAVA_HOME:$M2_HOME:$M2

export PATH
~
```

```
[root@jenkins-server ~]# find / -name jvm
/etc/jvm
/usr/lib/jvm
/usr/share/jvm
[root@jenkins-server ~]#
[root@jenkins-server ~]# cd /usr/lib/jvm
[root@jenkins-server jvm]# ll
total 0
drwxr-xr-x 6 root root 68 May 14 09:49 java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
lrwxrwxrwx 1 root root 21 May 14 09:49 jre -> /etc/alternatives/jre
lrwxrwxrwx 1 root root 24 May 14 09:49 jre-11 -> /etc/alternatives/jre_11
lrwxrwxrwx 1 root root 32 May 14 09:49 jre-11-openjdk -> /etc/alternatives/jre_11_openjdk
lrwxrwxrwx 1 root root 46 May 14 09:49 jre-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64 -> java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
lrwxrwxrwx 1 root root 29 May 14 09:49 jre-openjdk -> /etc/alternatives/jre_openjdk
[root@jenkins-server jvm]#
[root@jenkins-server jvm]# find / -name java-11*
find: '/proc/19323': No such file or directory
/usr/lib/jvm/java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
/usr/share/doc/java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
[root@jenkins-server jvm]#
[root@jenkins-server jvm]#
```

```
[root@jenkins-server ~]#
[root@jenkins-server ~]# vim .bash_profile
[root@jenkins-server ~]#
[root@jenkins-server ~]#
[root@jenkins-server ~]#
[root@jenkins-server ~]# echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/bin
[root@jenkins-server ~]#
[root@jenkins-server ~]# source .bash_profile
[root@jenkins-server ~]#
[root@jenkins-server ~]# echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/bin:/root/bin:/usr/lib/jvm/java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64:/opt/maven:/opt/maven/bin
[root@jenkins-server ~]#
[root@jenkins-server ~]#
```

```
[root@jenkins-server ~]# mvn -v
Apache Maven 3.9.6 (bc0240f3c744dd6b6ec2920b3cd08dcc295161ae)
Maven home: /opt/maven
Java version: 11.0.22, vendor: Red Hat, Inc., runtime: /usr/lib/jvm/java-11-openjdk-11.0.22.0.7-1.amzn2.0.1.x86_64
Default locale: en_US, platform encoding: UTF-8
OS name: "linux", version: "5.10.215-203.850.amzn2.x86_64", arch: "amd64", family: "unix"
[root@jenkins-server ~]#
```

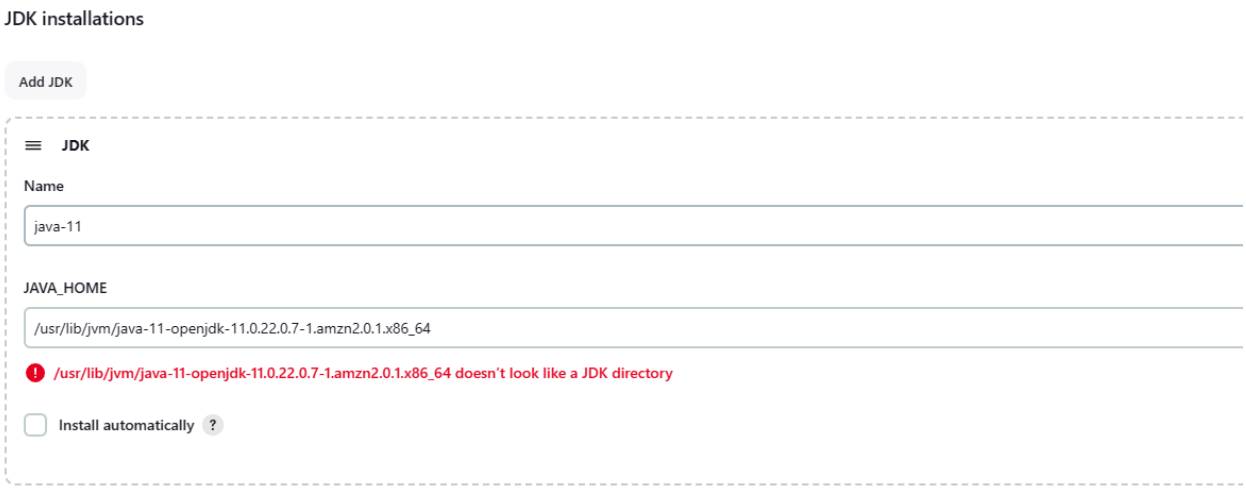
12. Install Maven Plugin

Dashboard > Manage Jenkins > Plugin > Maven Integration

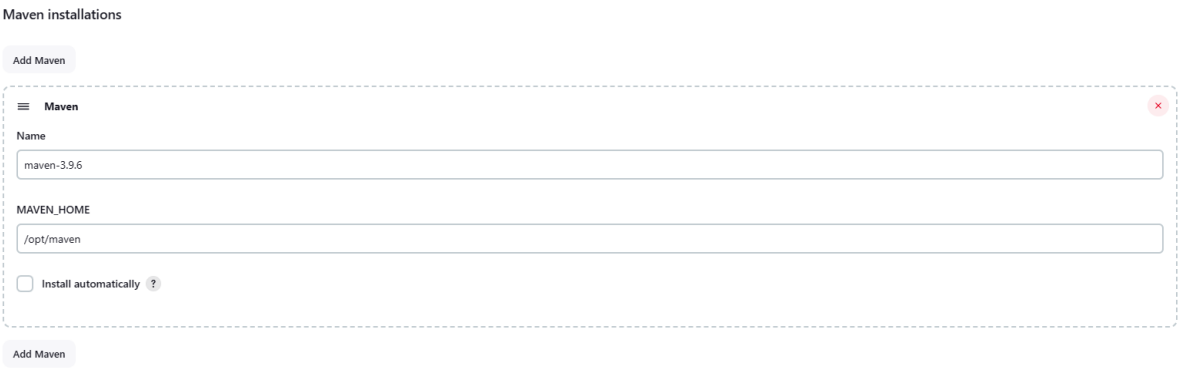
After that configure Jenkins with maven

Dashboard > Manage Jenkins > Tools

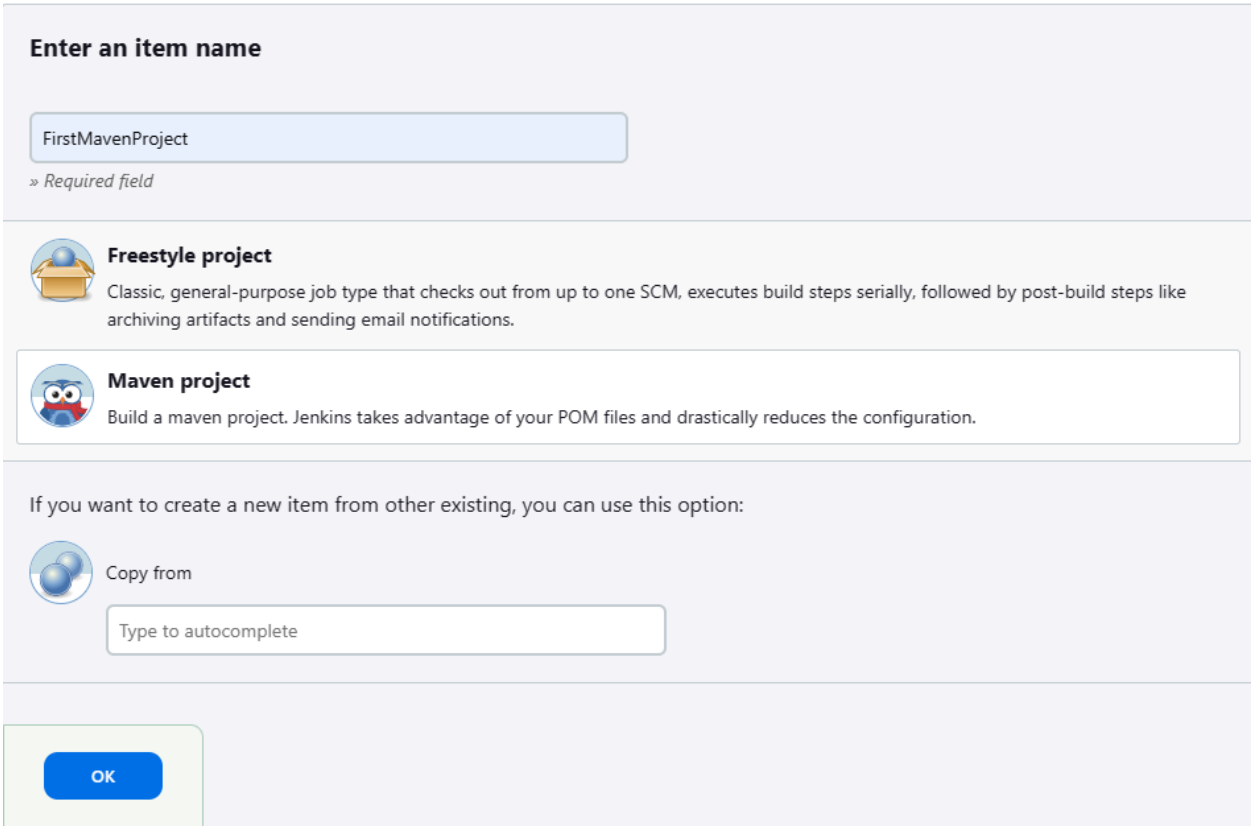
Add java JAVA_HOME in tools

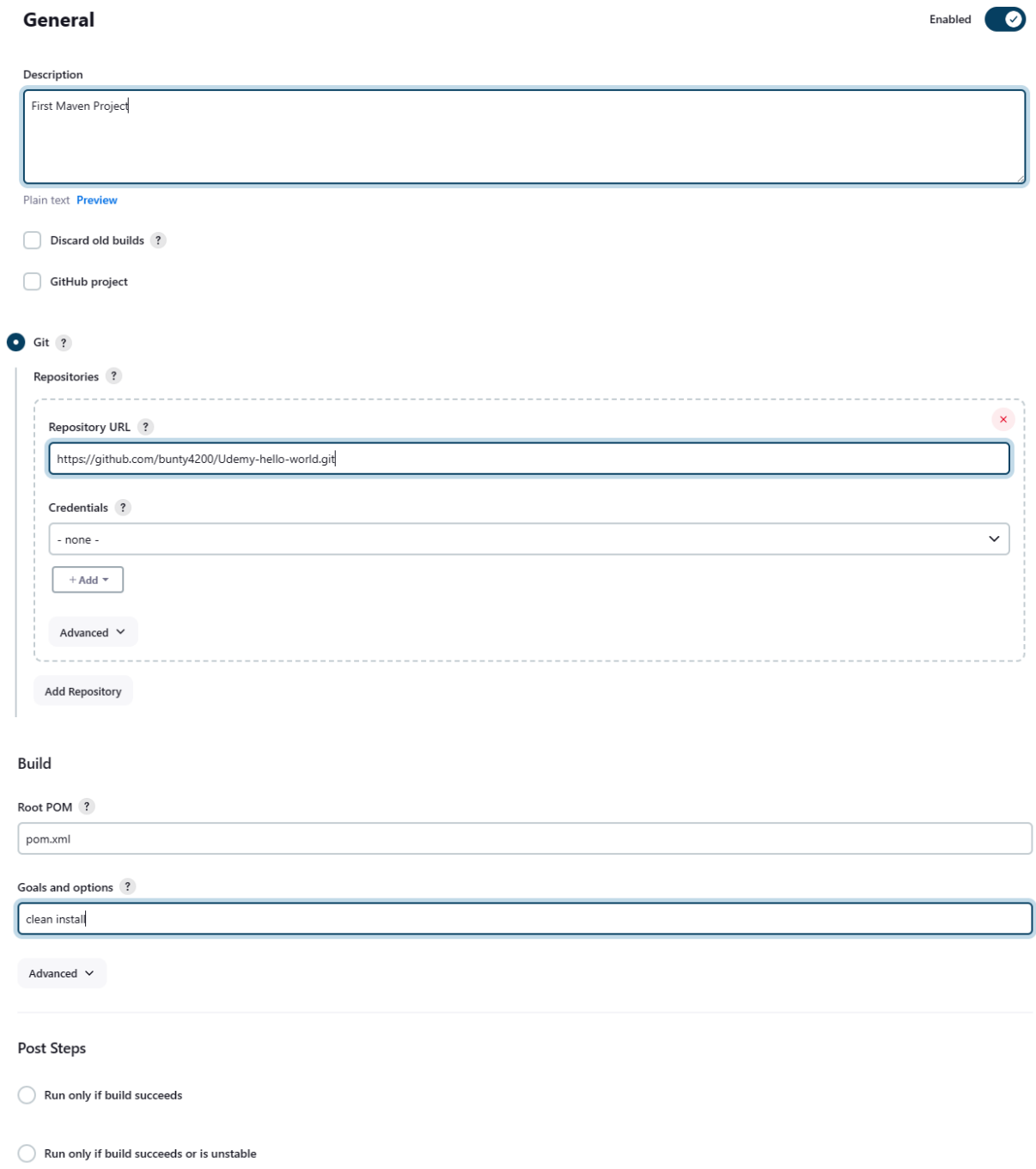


Maven path in tools



13. Build a java project using Jenkins



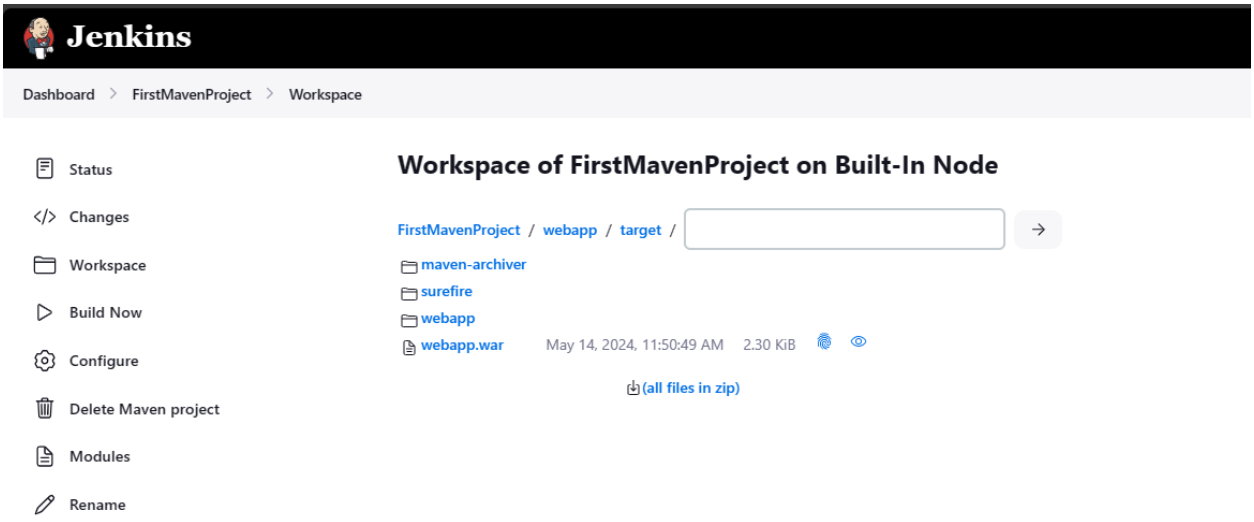


Save and Build

```
[JENKINS] Archiving /var/lib/jenkins/workspace/FirstMavenProject/webapp/pom.xml to com.example.maven-project/webapp/1.0-SNAPSHOT/webapp-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/FirstMavenProject/webapp/target/webapp.war to com.example.maven-project/webapp/1.0-SNAPSHOT/webapp-1.0-SNAPSHOT.war
[JENKINS] Archiving /var/lib/jenkins/workspace/FirstMavenProject/server/pom.xml to com.example.maven-project/server/1.0-SNAPSHOT/server-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/FirstMavenProject/server/target/server.jar to com.example.maven-project/server/1.0-SNAPSHOT/server-1.0-SNAPSHOT.jar
[JENKINS] Archiving /var/lib/jenkins/workspace/FirstMavenProject/pom.xml to com.example.maven-project/maven-project/1.0-SNAPSHOT/maven-project-1.0-SNAPSHOT.pom
channel stopped
Finished: SUCCESS
```

```
[INFO] Processing war project
[INFO] Copying webapp resources [/var/lib/jenkins/workspace/FirstMavenProject/webapp/src/main/webapp]
[INFO] Building war: /var/lib/jenkins/workspace/FirstMavenProject/webapp/target/webapp.war
[INFO]
[INFO] --- install:3.1.1:install (default-install) @ webapp ---
```

```
[root@jenkins-server ~]#
[root@jenkins-server ~]#
[root@jenkins-server ~]# cd /var/lib/jenkins/workspace/FirstMavenProject/webapp/target
[root@jenkins-server target]#
[root@jenkins-server target]# ls
maven-archiver  surefire  webapp  webapp.war
[root@jenkins-server target]# ll
total 4
drwxr-xr-x 2 jenkins jenkins   28 May 14 11:50 maven-archiver
drwxr-xr-x 2 jenkins jenkins    6 May 14 11:50 surefire
drwxr-xr-x 4 jenkins jenkins   54 May 14 11:50 webapp
-rw-r--r-- 1 jenkins jenkins 2353 May 14 11:50 webapp.war
[root@jenkins-server target]#
[root@jenkins-server target]#
```



So far we have created artifacts.