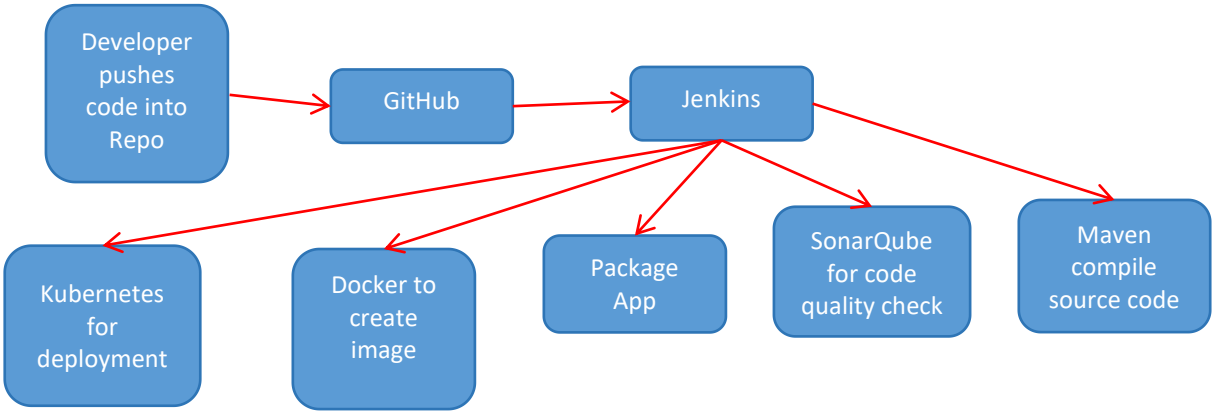
Jenkins Introduction:
SDLC: two major steps: development + build_deploy

Developer will write the code --> Developer pushes the code to GitHub repository --> code is available on GitHub --> Compile and Build the code (we have Maven tools) --> Code quality will be done (we have SonarQube to check the code quality) --> Packaging our application (Java Jar or War) --> Docker image will be created --> Application is deployed using Kubernetes. DevOps team's responsibility is to build that code and compile that code. We have to repeat this process in multiple environments. Also when there is a new commit into GitHub then the same process you got to follow. To avoid manual build and deployment, we have one tool called as Jenkins. Jenkins will take care of entire Build and Deployment. Jenkins will take code from Git, will use Maven for compilation (Compile sourceCode). Jenkins will talk to Maven tool



You could manually do the same process but it is error-prone. For every new commit, you have to follow the process again and again. To automate process of Build and Deployment, Jenkins comes into picture. Alternative for Jenkins are GitLab and GitHub actions.

Jenkins is CI/CD tool, CI refers to Continuous Integration, CD refers to Continuous Deployment.
It is free and open-source software/tool, which is developed using Java language. CI/CD is an approach to automate project: build & deployment process.
Using Jenkins, we can deploy any type of projects, regardless of tech stacks used (Java, Python, .Net, React)

Software development involves many steps out of which two major steps are writing code and pushing code into GitHub then building and deploying that application.

To automate Build and Deployment process of our application, we can use tools such as GitLab, Jenkins

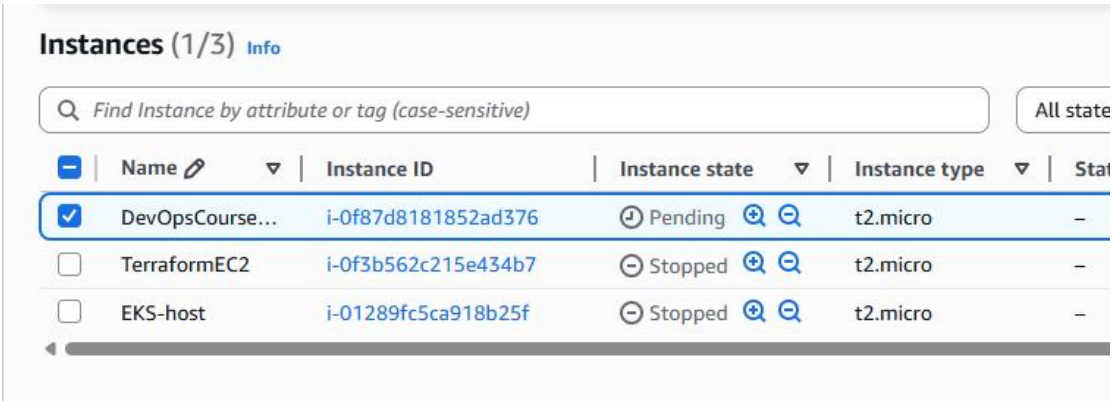
Build and Deployment process of an Application:
-> Taking latest code from Repo such as GitHub or BitBucket
-> Compile and Build source code using tools such as Maven
-> Perform code reviews using SonarQube
-> Upload project artifact using Nexus
-> Create a Docker image with Docker
-> Deploy Code/App into Server using K8s

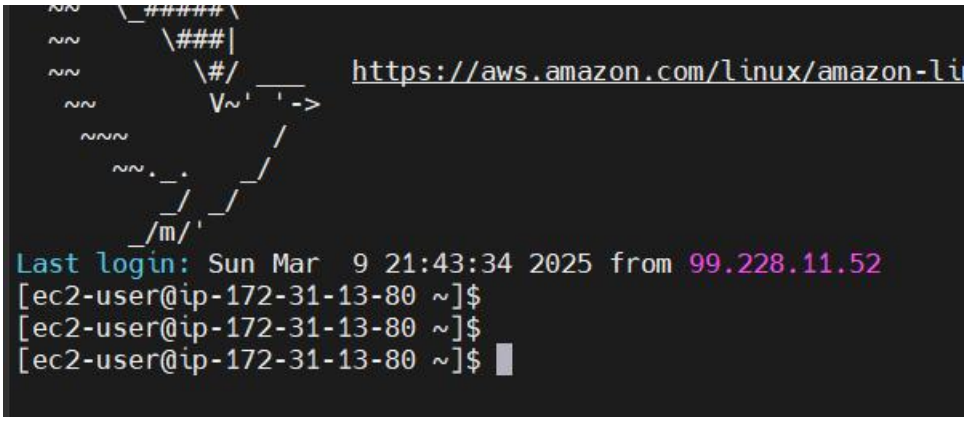
Note this process can be done manually, however it is a time-consuming process and manual process of build-deployment could lead to error hence to overcome limitation associated with manual build-deployment process we have tools such as Jenkins, GitLab.
To automate the Build-Deployment process of our application we can use tools such as GitLab, Jenkins

Jenkins for Windows follow this link: https://youtu.be/1LE1llhafOE?si=jvOZYSfcNLvK3lay

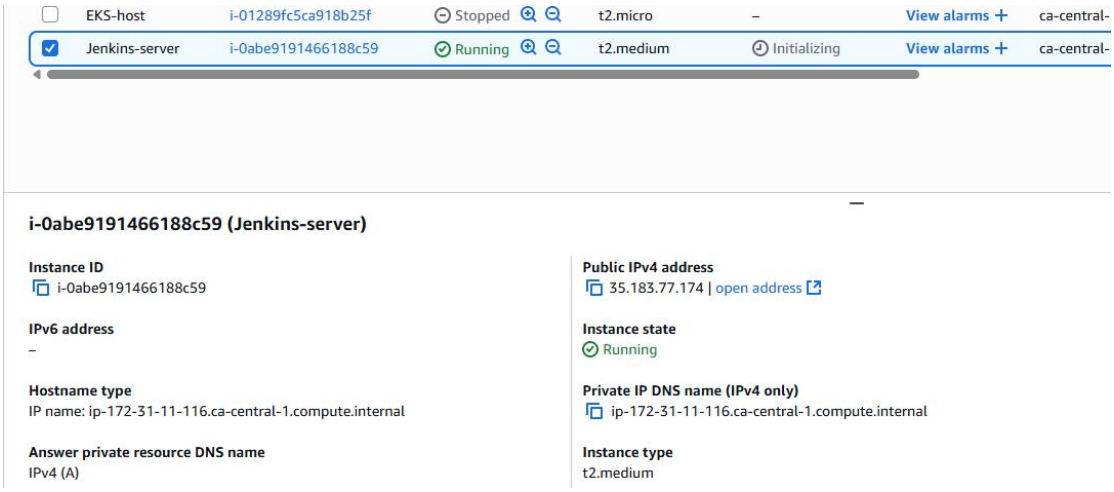
Jenkins installation setup in Linux VM

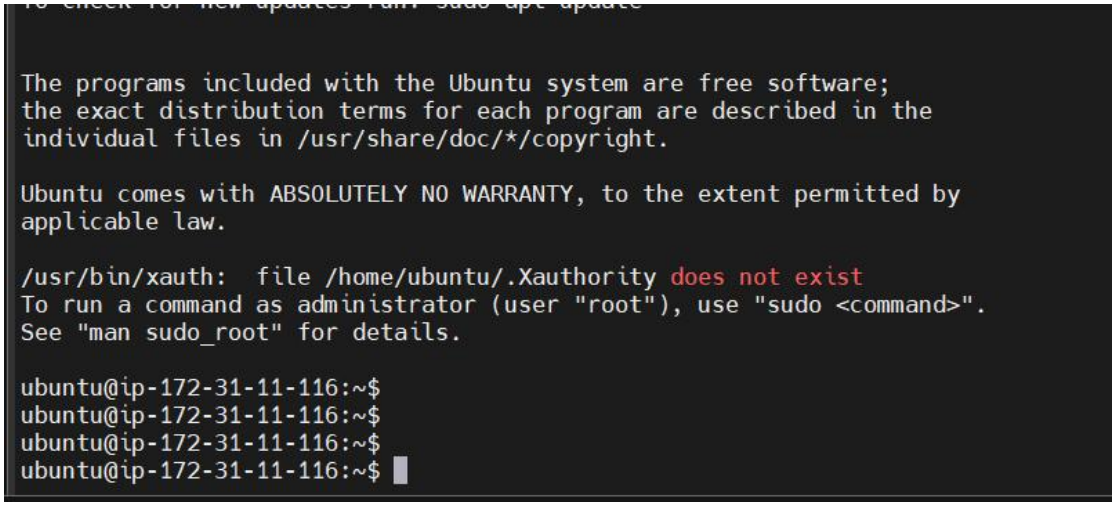
Get an instance



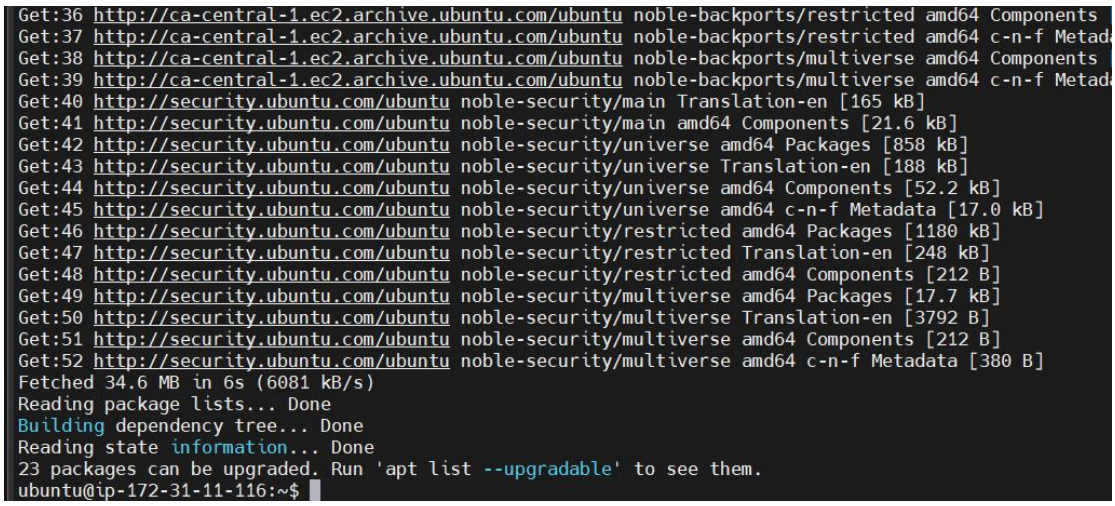


t2.medium is recommended for Jenkins



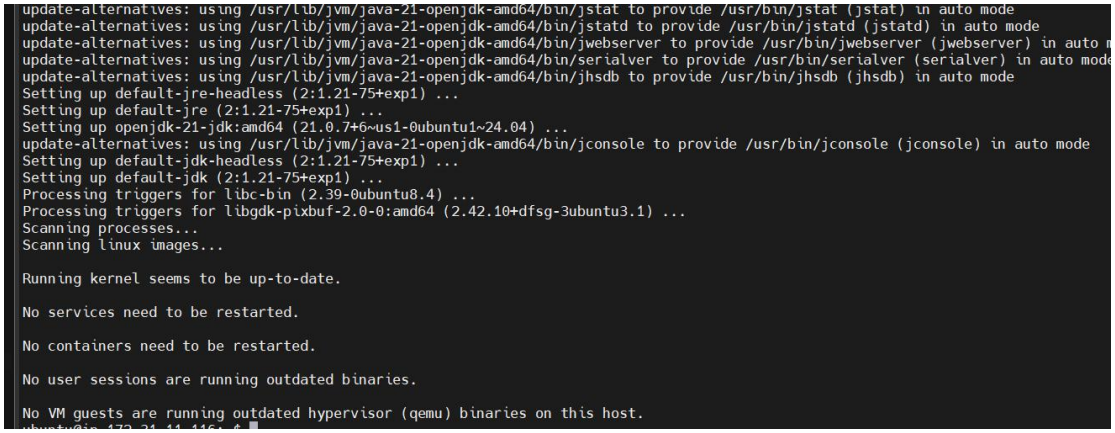


ubuntu@ip-172-31-11-116:~$ sudo apt update



To run Jenkins, which software is required: Java

ubuntu@ip-172-31-11-116:~$ sudo apt install default-jdk



ubuntu@ip-172-31-11-116:~$ java -version
openjdk version "21.0.7" 2025-04-15
OpenJDK Runtime Environment (build 21.0.7+6-Ubuntu-0ubuntu124.04)
OpenJDK 64-Bit Server VM (build 21.0.7+6-Ubuntu-0ubuntu124.04, mixed mode, sharing)

```
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$ java -version
openjdk version "21.0.7" 2025-04-15
OpenJDK Runtime Environment (build 21.0.7+6-Ubuntu-0ubuntu124.04)
OpenJDK 64-Bit Server VM (build 21.0.7+6-Ubuntu-0ubuntu124.04, mixed mode, sharing)
ubuntu@ip-172-31-11-116:~$
```

1. Create Linux VM on AWS Cloud - Ubuntu (preferred to use t2.medium as instance type)
Get connected to Linux VM using SSH Gitbash, Terminal or any medium
2. Install Java
    a) ubuntu@ip-172-31-11-116:~$ sudo apt update
    b) ubuntu@ip-172-31-11-116:~$ sudo apt install default-jdk
    c) ubuntu@ip-172-31-11-116:~$ java -version

Go to https://www.jenkins.io/
https://www.jenkins.io/download/
https://www.jenkins.io/doc/book/installing/linux/#debianubuntu

You need to choose either the Jenkins Long Term Support release or the Jenkins weekly release.

Long Term Support release

A LTS (Long-Term Support) release is chosen every 12 weeks from the stream of regular releases as the stable release for that time period. It can be installed from the debian-stable apt repository.

```
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
```

Weekly release

A new release is produced weekly to deliver bug fixes and features to users and plugin developers. It can be installed from the debian

3. Install Jenkins

```
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
```

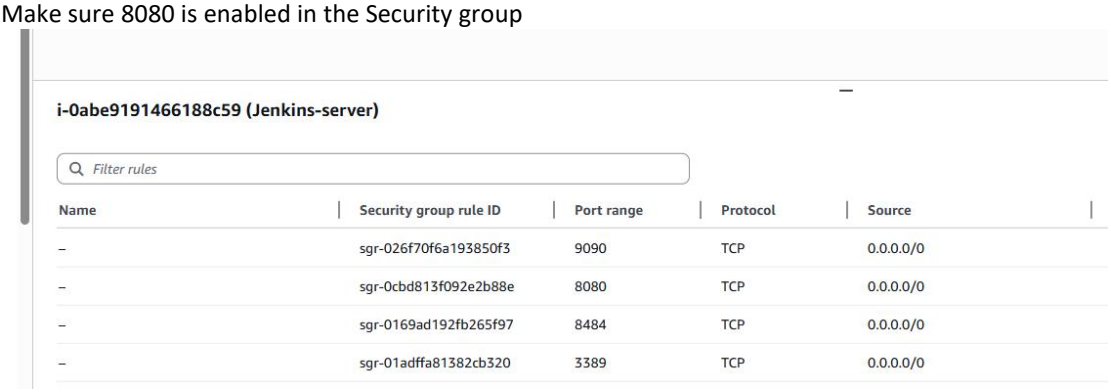
```
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$ sudo wget -O /etc/apt/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
echo "deb [signed-by=/etc/apt/keyrings/jenkins-keyring.asc]" \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install jenkins
--2025-06-22 00:23:53--  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.78.133, 2a04:4e42:83::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.78.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/etc/apt/keyrings/jenkins-keyring.asc'

/etc/apt/keyrings/jenkins-keyring.asc    100%[=============================================
```

4. Start and verify Jenkins
   sudo systemctl enable jenkins
   sudo systemctl start jenkins
5. Verify Jenkins
   sudo systemctl status jenkins
6. Open Jenkins server in browser (also make sure edit inbound rules and add 8080 in Security group)
   a) http://public-ip:8080/
7. Copy Jenkins admin password
   /var/lib/jenkins/secrets/initialAdminPassword

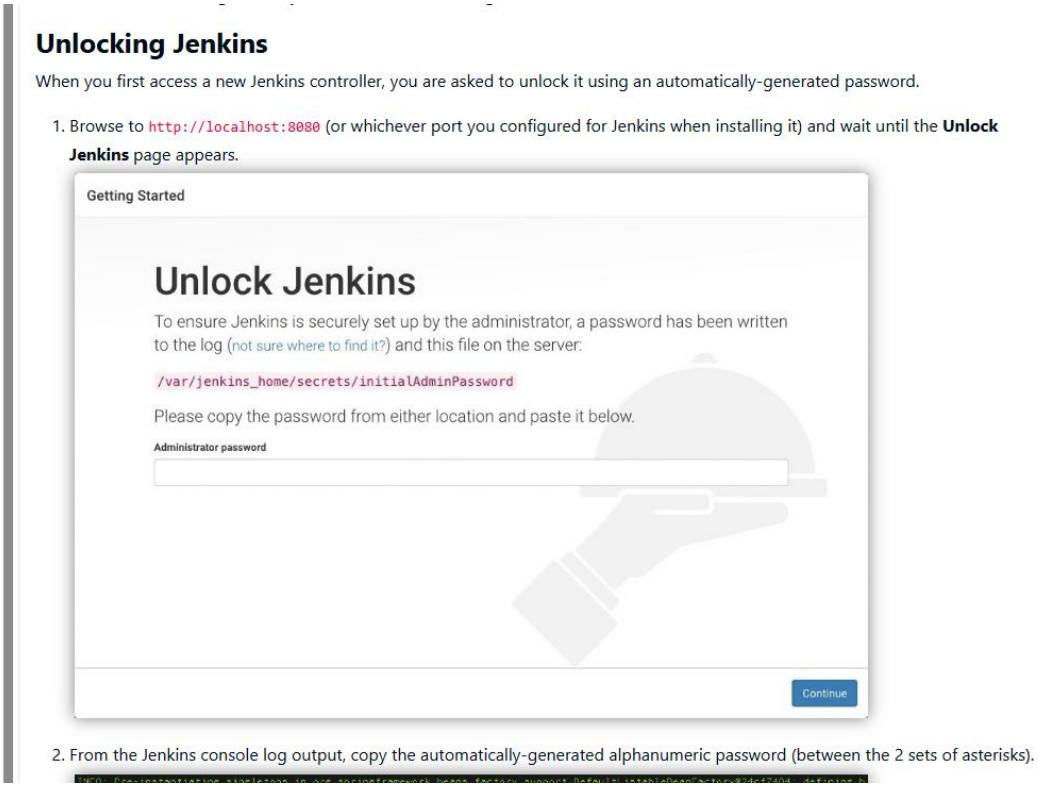
```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-11-116:~$      sudo systemctl enable jenkins
        sudo systemctl start jenkins
Synchronizing state of jenkins.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins
ubuntu@ip-172-31-11-116:~$
```

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-11-116:~$      sudo systemctl enable jenkins
        sudo systemctl start jenkins
Synchronizing state of jenkins.service with SysV service script with /usr/lib/systemd/systemd
Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins
ubuntu@ip-172-31-11-116:~$ sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; preset: enabled)
     Active: active (running) since Sun 2025-06-22 00:25:42 UTC; 1min 51s ago
   Main PID: 4546 (java)
      Tasks: 43 (limit: 4670)
     Memory: 587.5M (peak: 602.7M)
        CPU: 18.996s
     CGroup: /system.slice/jenkins.service
             └─4546 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --
```

Make sure 8080 is enabled in the Security group



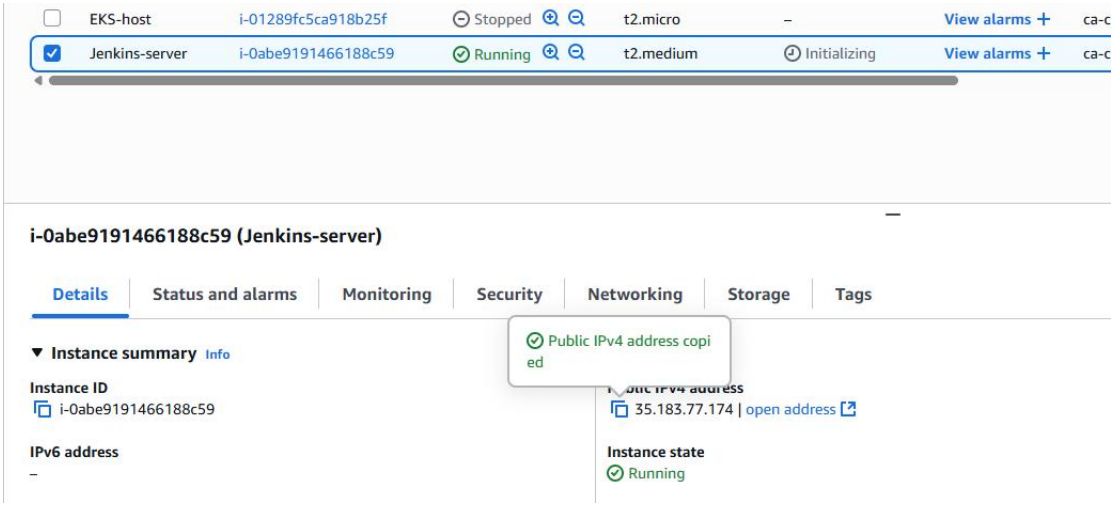
Scroll down copy the command



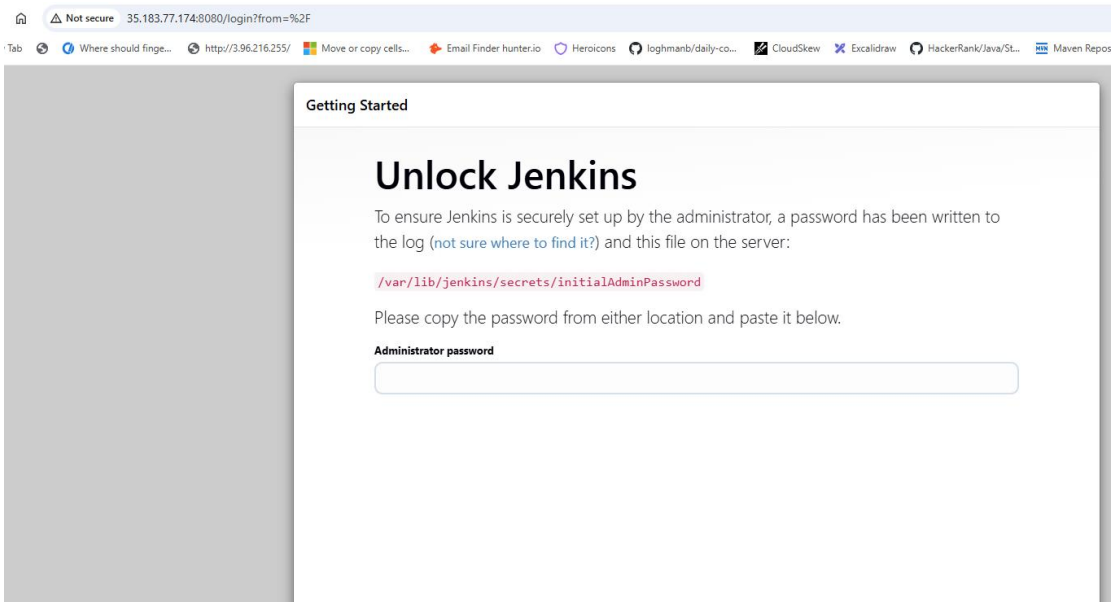
The command: `sudo cat /var/lib/jenkins/secrets/initialAdminPassword`

ubuntu@ip-172-31-11-116:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
cat: /var/lib/jenkins/secrets/initialAdminPassword : No such file or directory

ubuntu@ip-172-31-11-116:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
XXXXXXXXXXXXXXXXXXXXXXXXXXXX



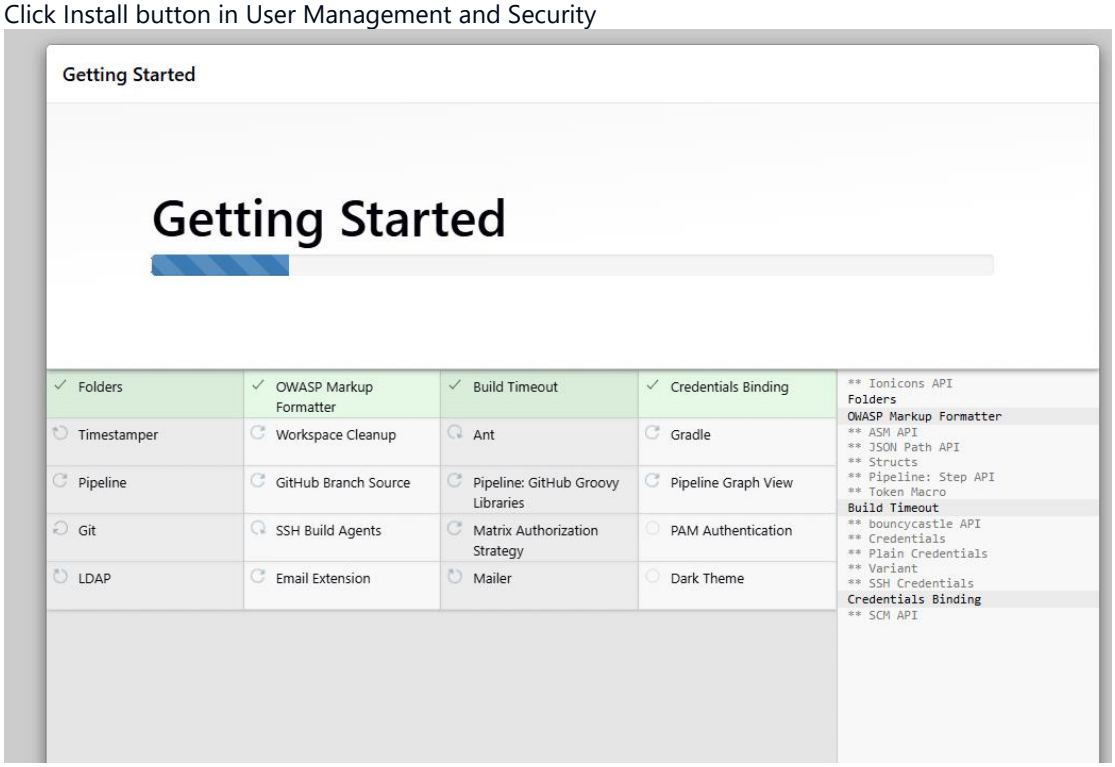
http://35.183.77.174:8080/login?from=%2F



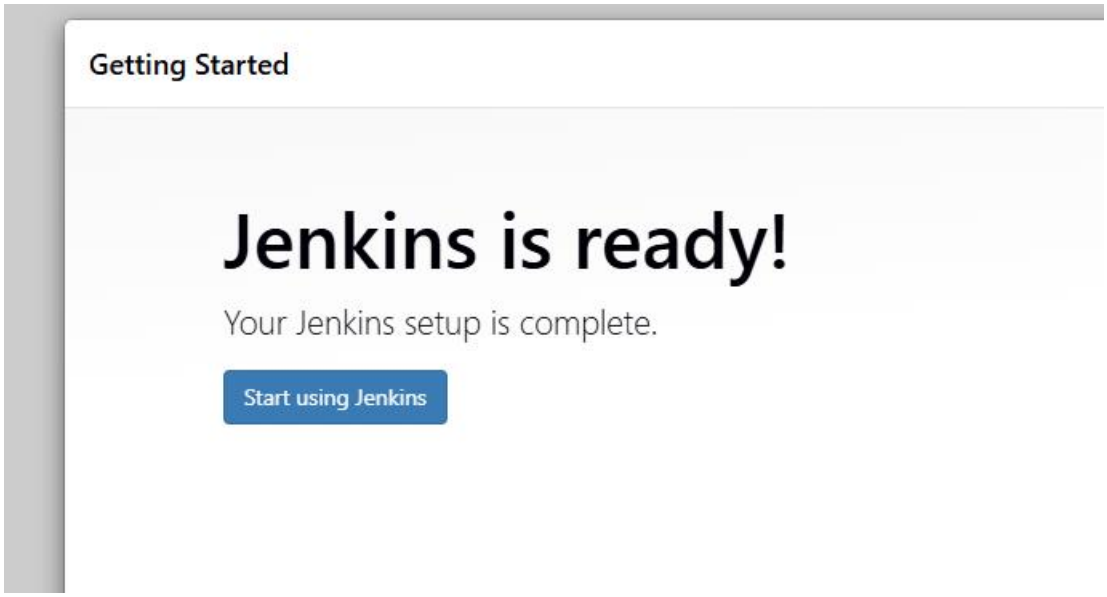
Copy paste password: XXXXXXXXXXXXXXXXXX

Select Install Plugins

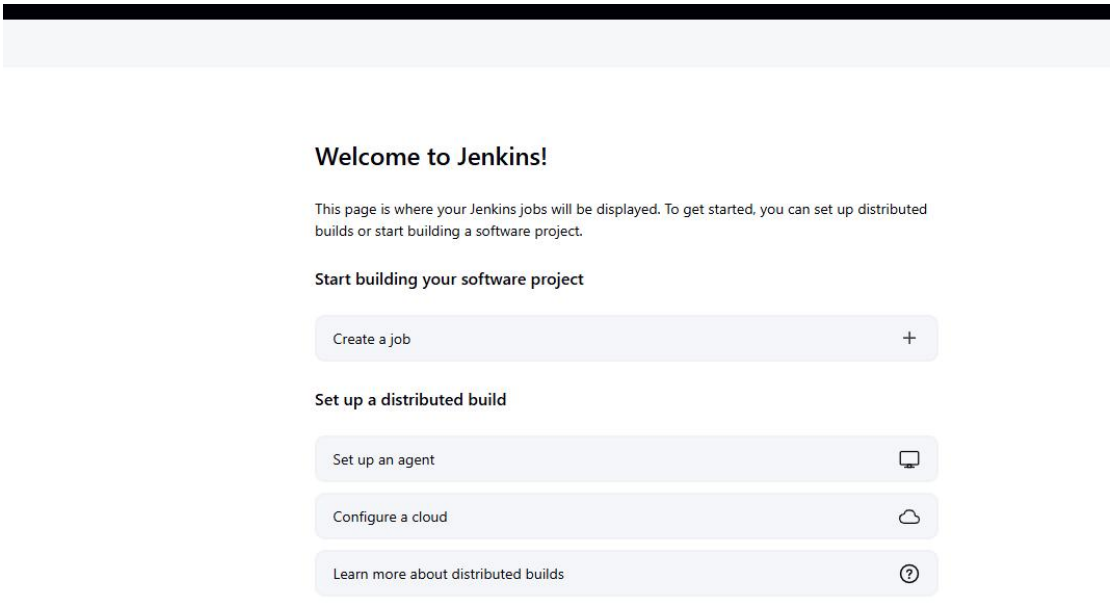
Click Install button in User Management and Security



Jenkins URL: http://35.183.77.174:8080/
Click Save and Finish

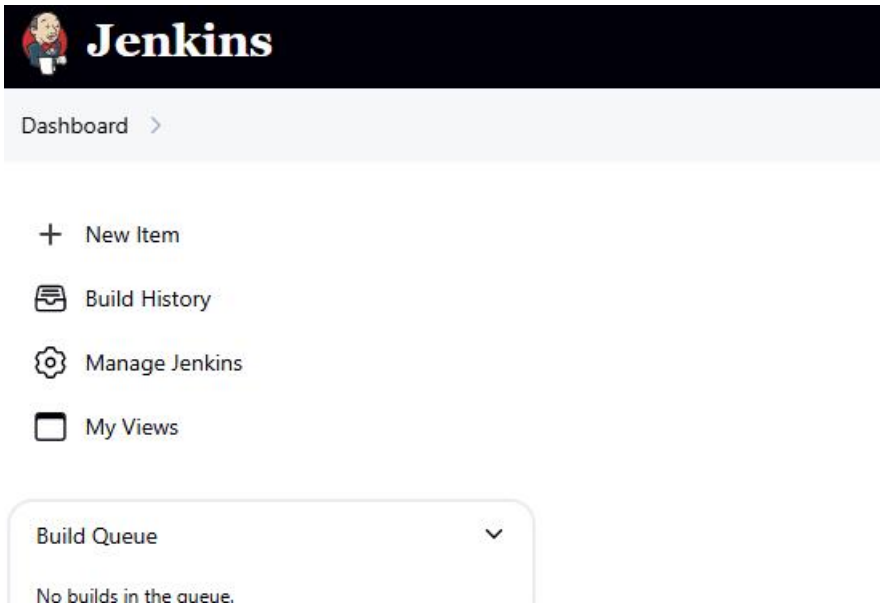


Start using Jenkins
Click Logout

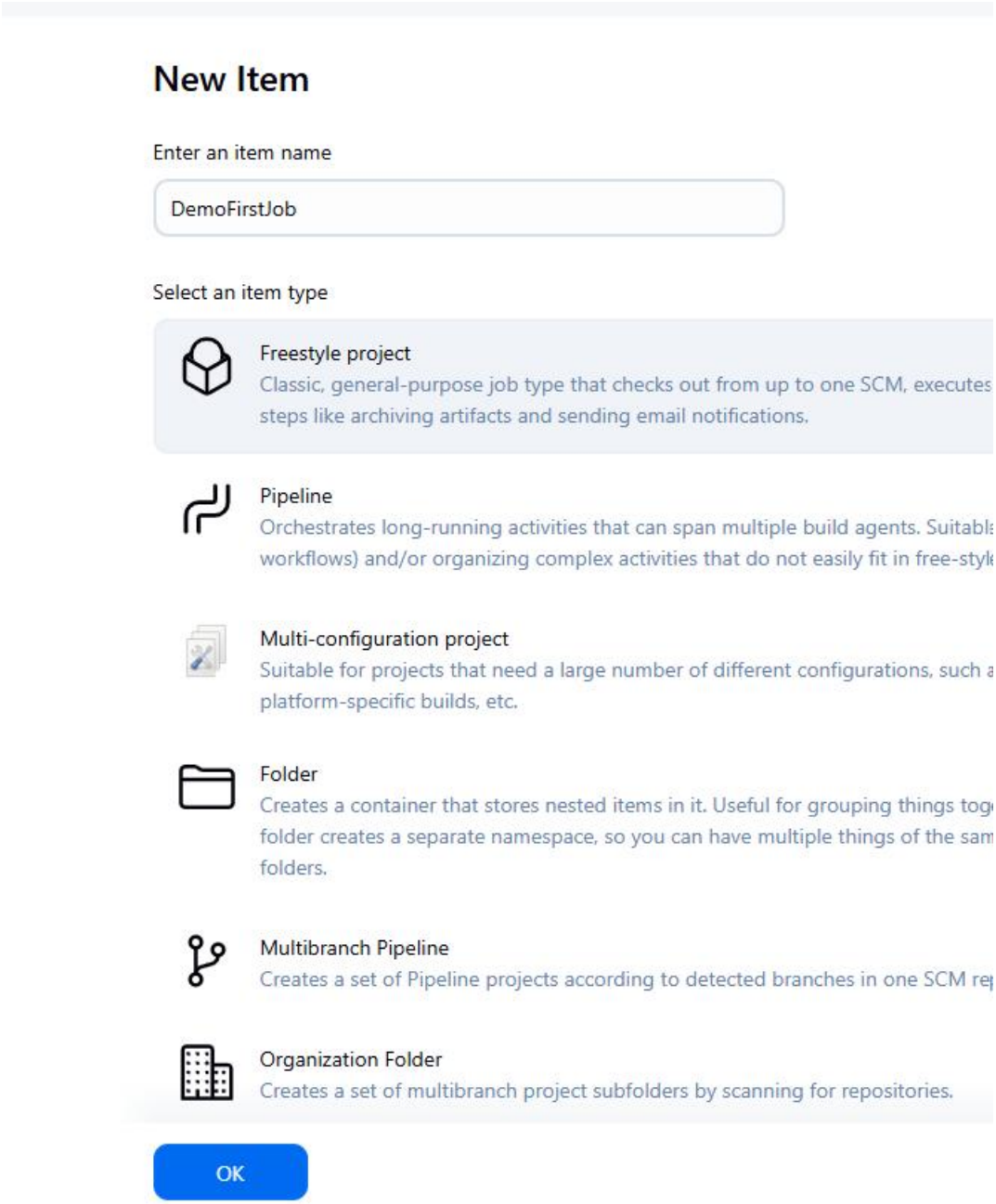


What's Jobs in Jenkins?
It refers to set of steps that are assigned to Jenkins to perform task
-> Taking code from Repo such as GitHub
-> Perform Maven build
-> Build Docker image
-> Deploy app/docker image in K8s cluster

Creating First Job
-> Go to Jenkins dashboard
-> Click on New Item -> Enter the Name -> Select Freestyle -> Enter some description --> add build step -> select execute shell -> enter shell script -> echo “Demo First Job” -> touch alien.txt -> echo “Demo first job completed”
-> Apply and Save
See the job in Dashboard and click that job --> Build now --> Console output to see the job execution details
-> cd /var/lib/jenkins/workspace/DemoFirstJob

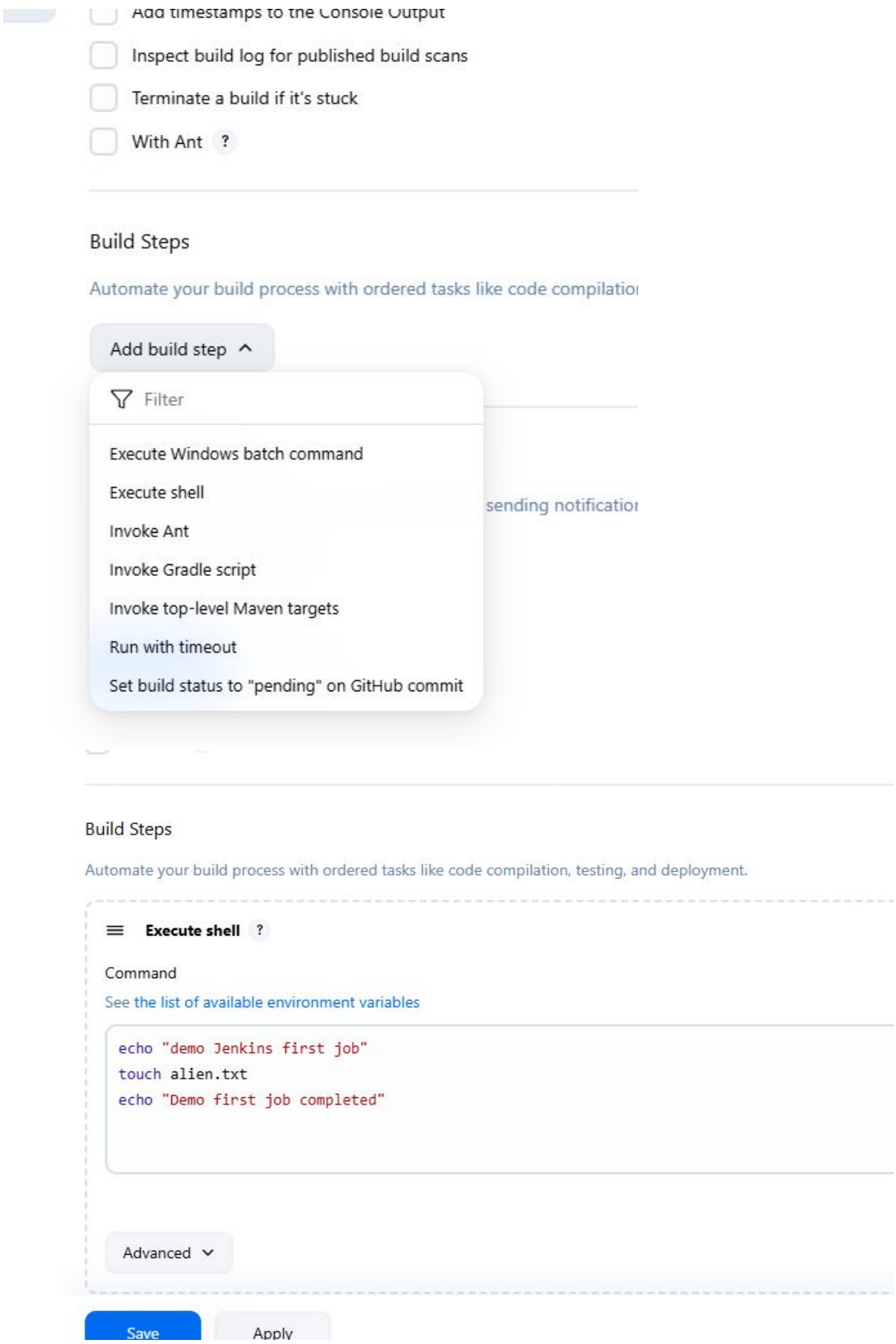


Click on New Item



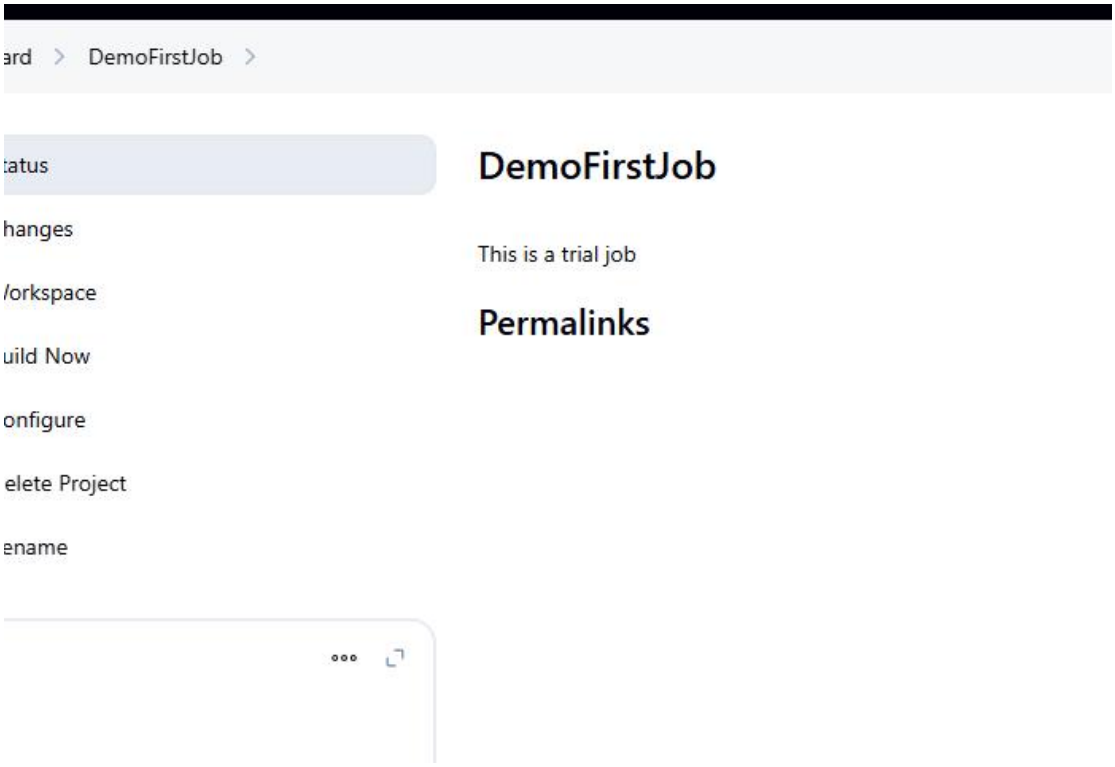
Click on Freestyle project then Ok

In Build steps click Execute shell

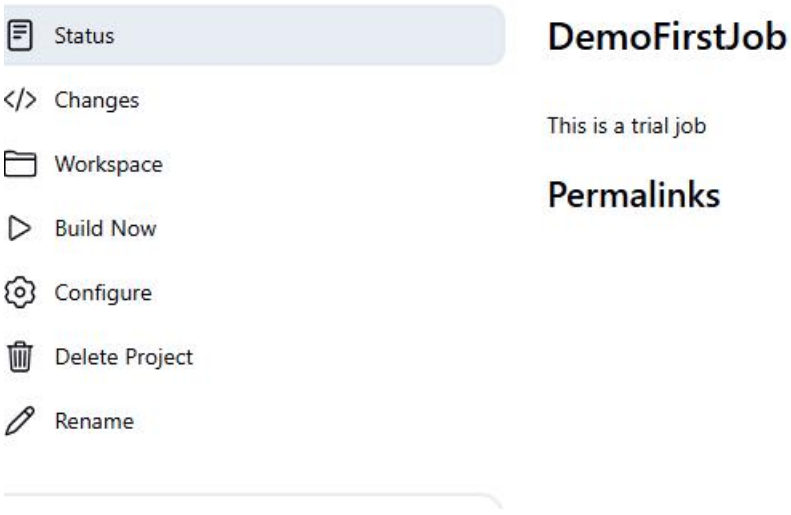


echo "demo Jenkins first job"
touch alien.txt
echo "Demo first job completed"

Click Apply then Save

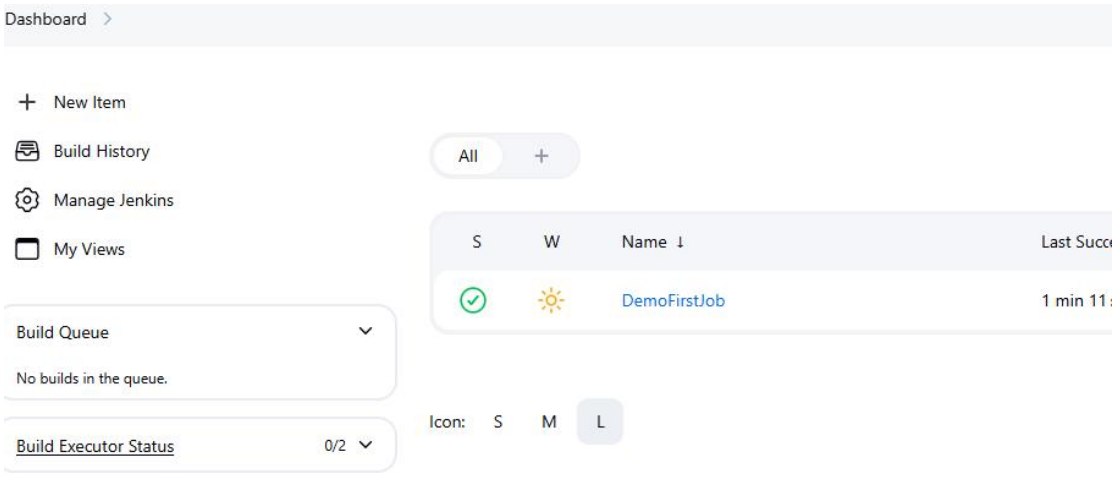


Click on Build Now

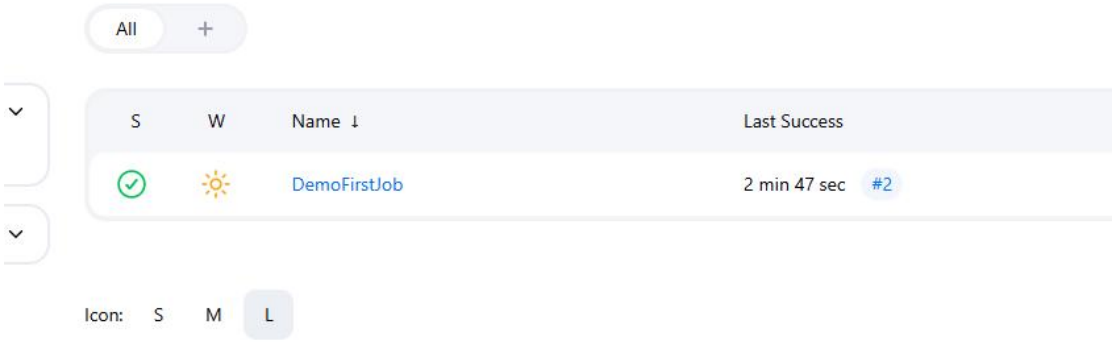


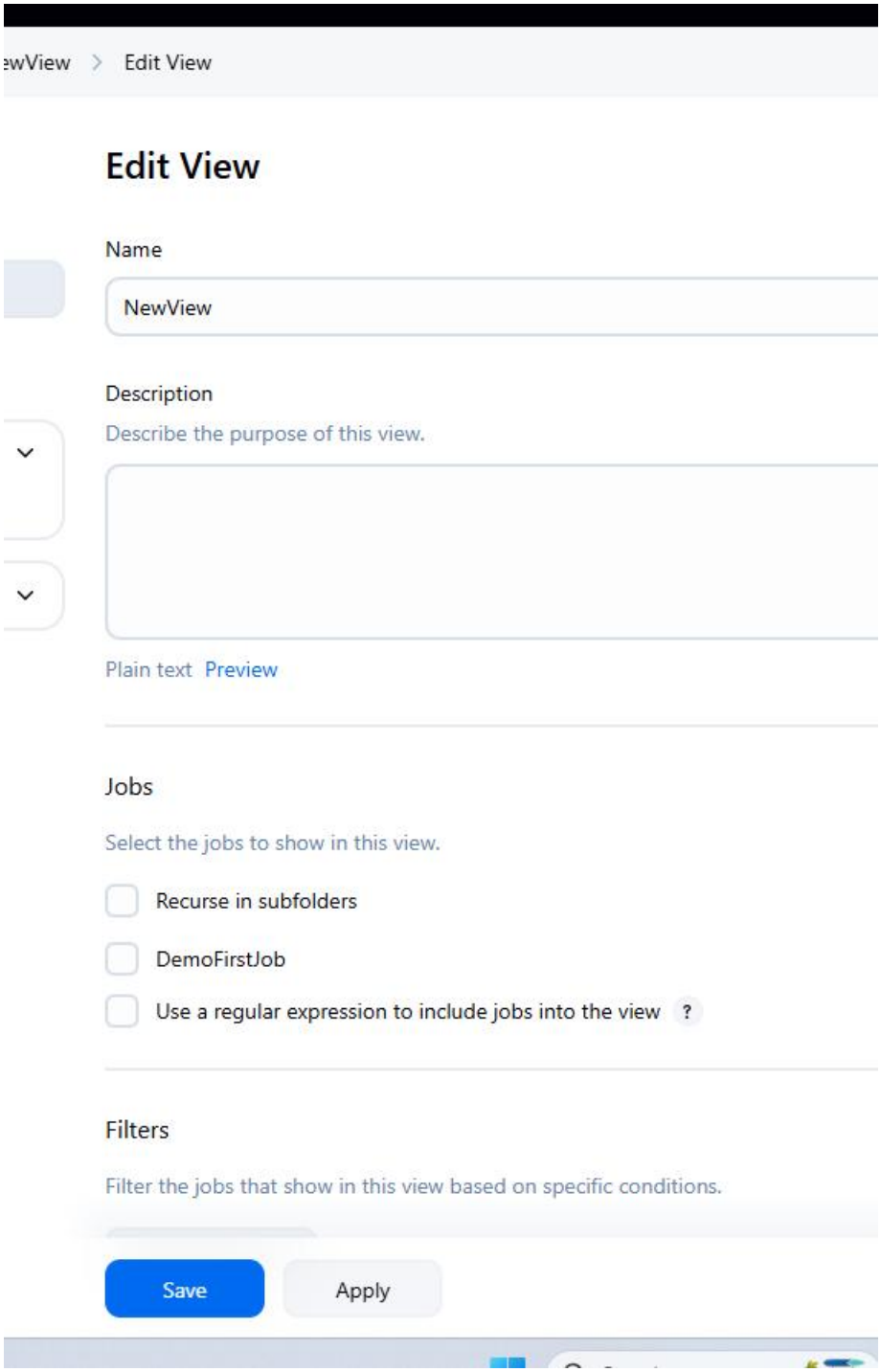
Click Build Now

In the Dashboard we have this



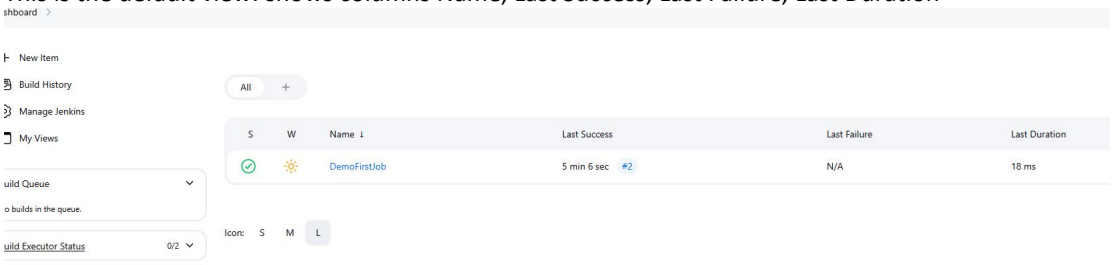
Click on the + button



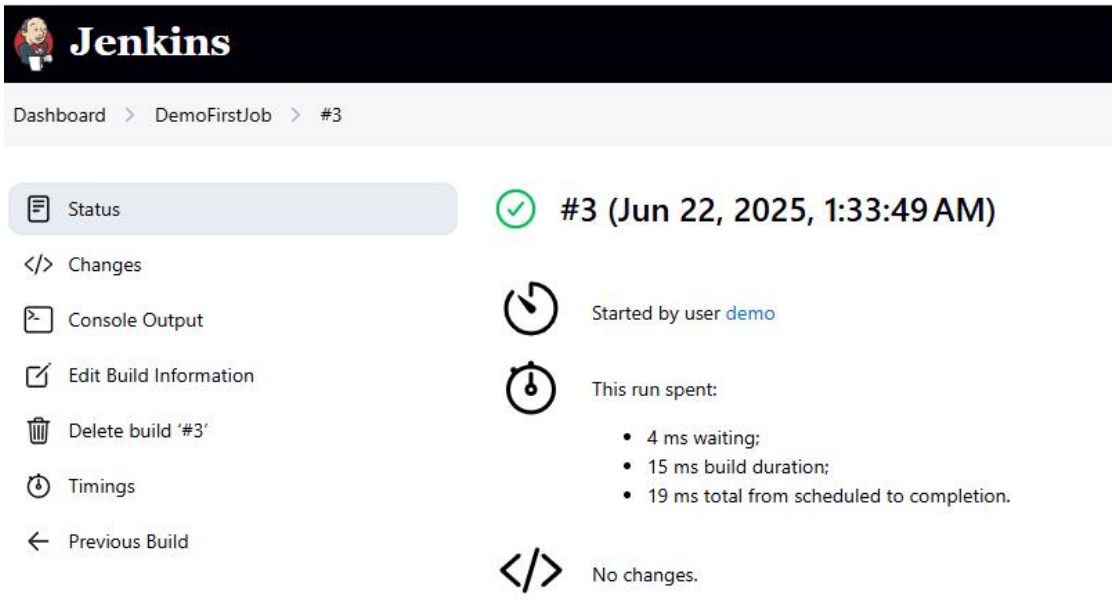


We can add new Columns also

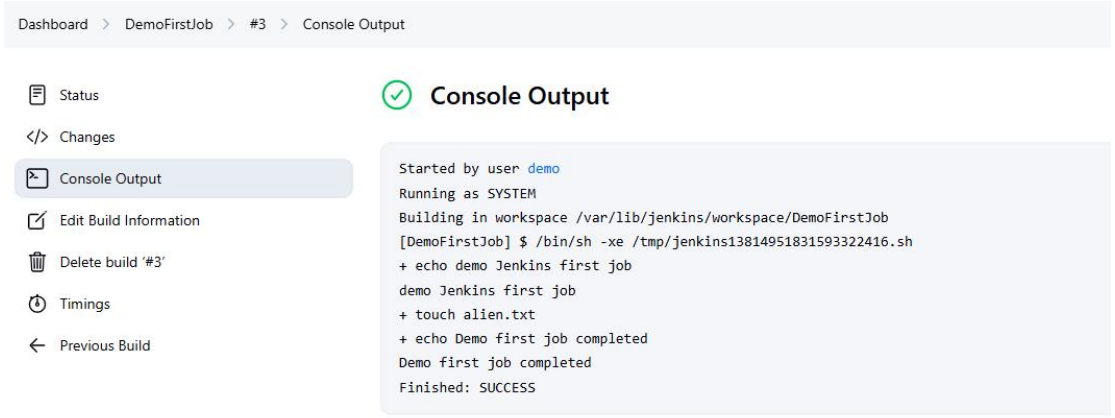
This is the default view: shows columns Name, Last Success, Last Failure, Last Duration



Once you click Build Now



Click on Console Output



We can see Demo first job completed
The file is also created in this workspace

```
Building in workspace /var/lib/jenkins/workspace/DemoFirstJob
```

Copy paste this location
ubuntu@ip-172-31-11-116:~$ ls -l /var/lib/jenkins/workspace/DemoFirstJob
total 0
-rw-r--r-- 1 jenkins jenkins 0 Jun 22 01:33 alien.txt

```
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$ ls -l /var/lib/jenkins/workspace/DemoFirstJob
total 0
-rw-r--r-- 1 jenkins jenkins 0 Jun 22 01:33 alien.txt
ubuntu@ip-172-31-11-116:~$
```

Jenkins job with GitHub repo + Maven
Jenkins job with GitHub repo + Maven + Tomcat server

Jenkins job with GitHub Repo + Maven
1. Install Git client in Jenkins server (a Linux VM where Jenkins is installed)
2. Configuring Maven tool (Jenkins dashboard -> Manage Jenkins -> Tools -> Add Maven
3. Create a Jenkins job
    a) New item : enter name -> select freestyle job -> enter description -> Select Git (source code management)
    b) Enter the GitHub project link (https://github.com/Haider7214/SpringApp.git) -> Build steps -> Invoke top level Maven target

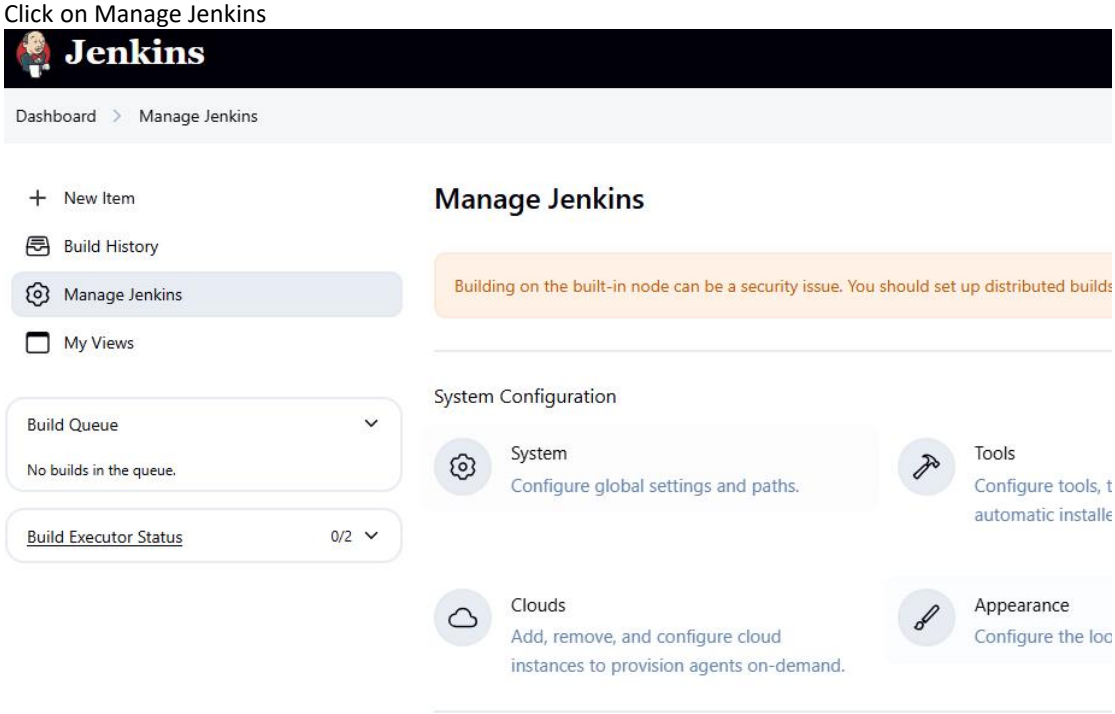
Maven Version
Goals
clean compile test package

--> apply and save
--> Jenkins Dashboard --> Get into job --> build now --> Jenkins home directory : cd /var/lib/Jenkins/workspace

Verify the target folder within the job and you can notice war file is created

sudo apt install git -y

Click on Manage Jenkins



Maven installations

Add Maven

Maven

Name

Required

Install automatically ?

Install from Apache

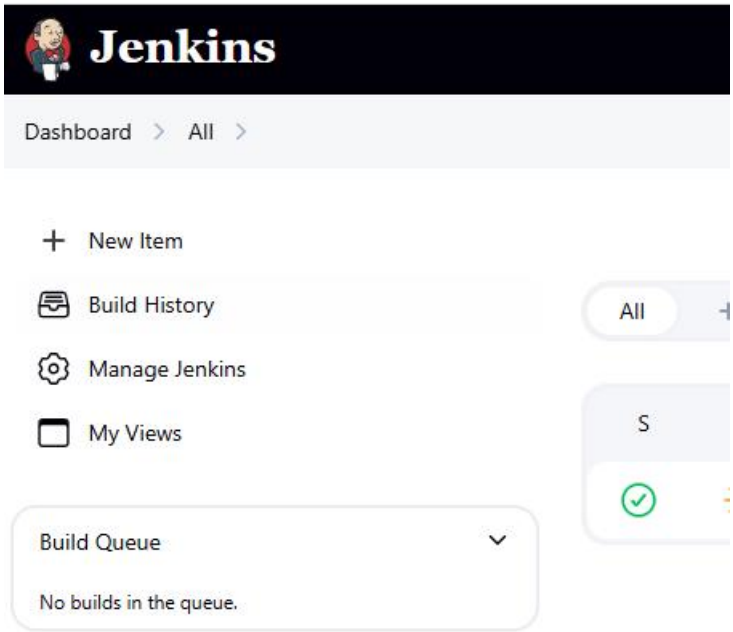
Version

3.9.10

Add Installer

Add Maven

Save Apply



New Item

Enter an item name

Maven-git-job

Select an item type

Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

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

Dashboard > Maven-git-job > Configuration

Configure

- General
- Source Code Management
- Triggers
- Environment
- Build Steps
- Post-build Actions

General

Description

This is Maven GitHub repository project

Plain text Preview

Discard old builds ?

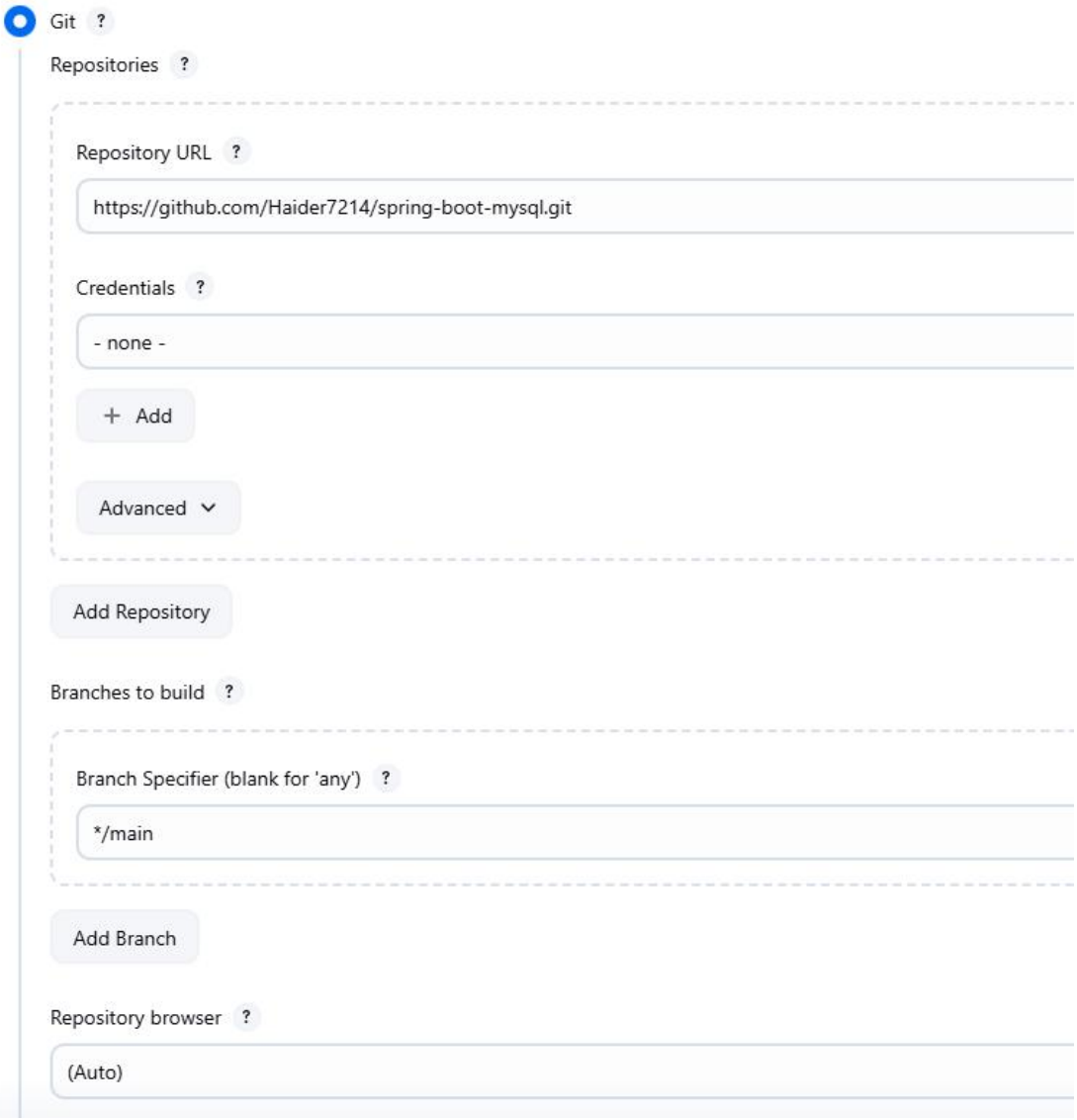
GitHub project

Project url ?

https://github.com/Haider7214/spring-boot-mysql.git

Advanced

This project is parameterized ?


Git
Repositories
Repository URL
https://github.com/Haider7214/spring-boot-mysql.git
Credentials
- none -
Add
Advanced
Add Repository
Branches to build
Branch Specifier (blank for 'any')
*/main
Add Branch
Repository browser
(Auto)

Build Steps

Automate your build process with ordered tasks like code compilation,

Add build step

Filter

- Execute Windows batch command
- Execute shell
- Invoke Ant
- Invoke Gradle script
- Invoke top-level Maven targets
- Run with timeout
- Set build status to "pending" on GitHub commit

sending notifications

Build Steps

Automate your build process with ordered tasks like code compilation, testing, and deployment.

Invoke top-level Maven targets

Maven Version

(Default)

Goals

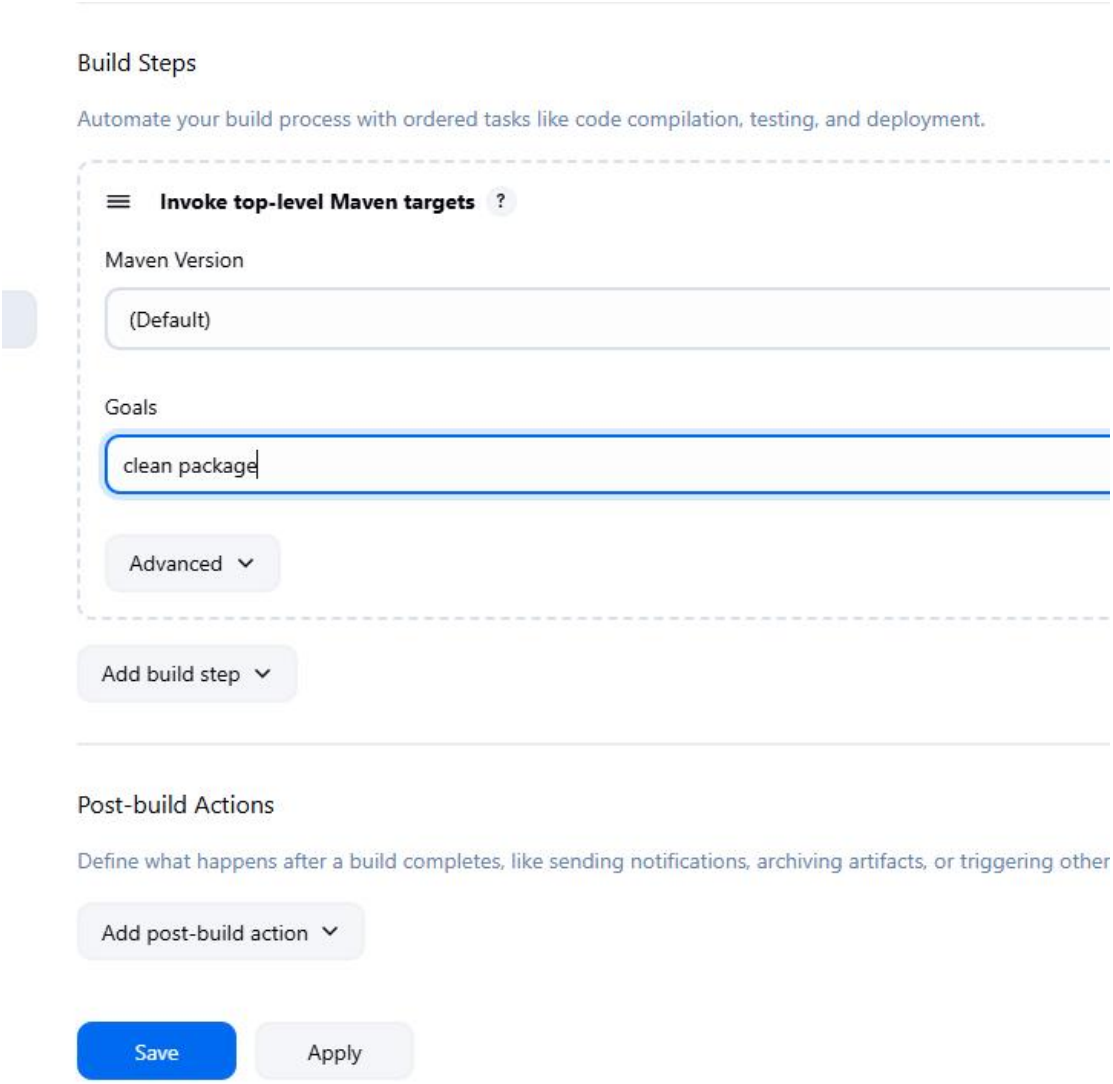
Advanced

Add build step

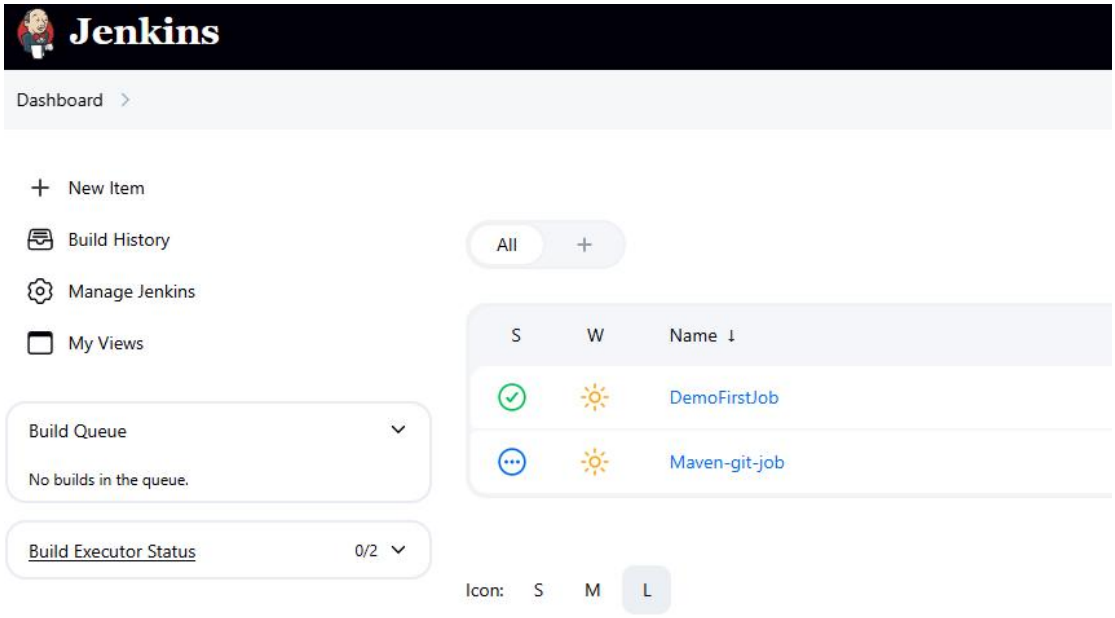
Post-build Actions

Define what happens after a build completes, like sending notifications, archiving artifacts, or triggering other jobs.

Add post-build action



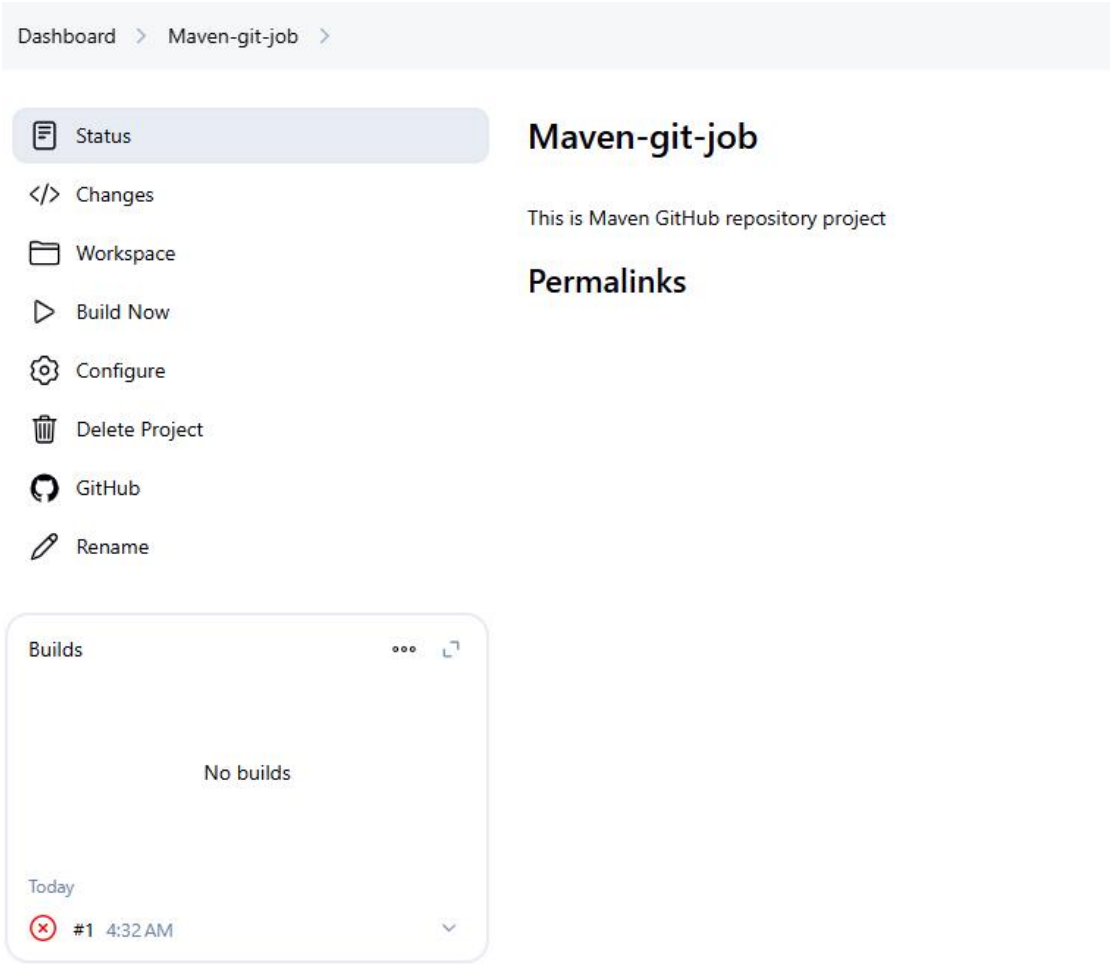
Click Apply and Save



ubuntu@ip-172-31-11-116:~$ cd /var/lib/jenkins/workspace/
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace$ ls
DemoFirstJob

Only one job we executed that's present here
1:30

We click Build Now and it failed



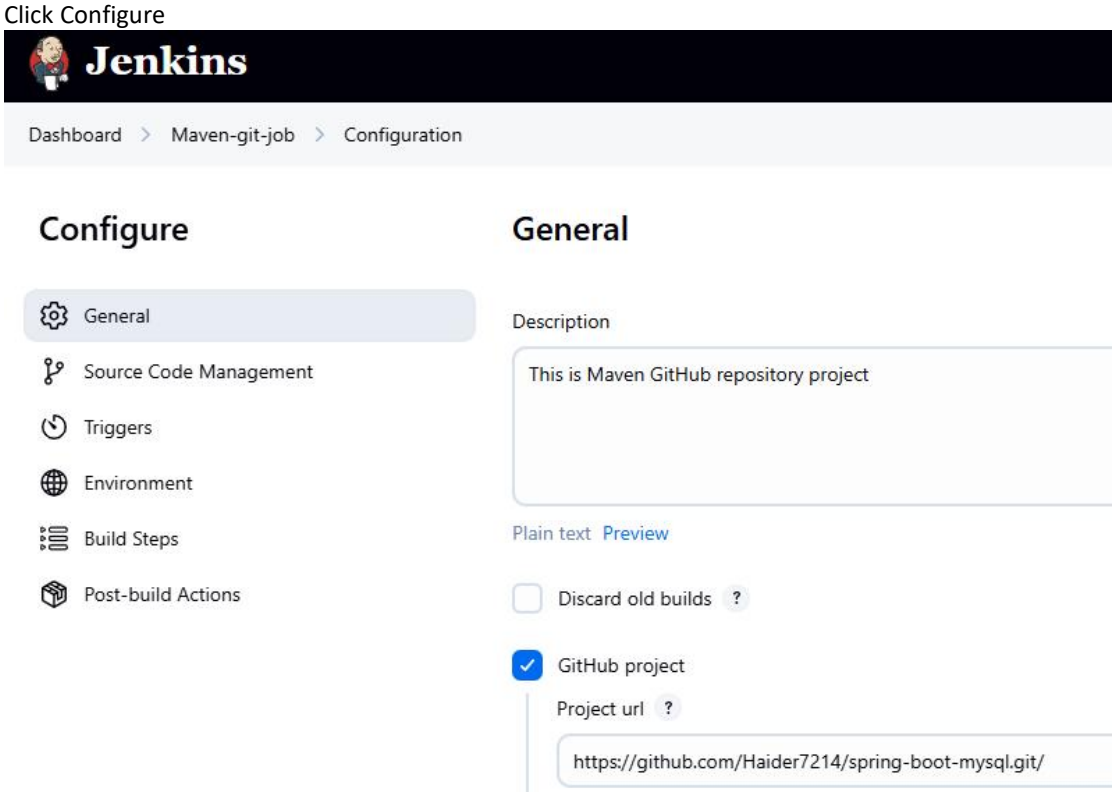
sudo systemctl enable jenkins
sudo systemctl start jenkins

http://3.99.132.101:8080/login?from=%2Fjob%2FMaven-git-job%2F

Console output

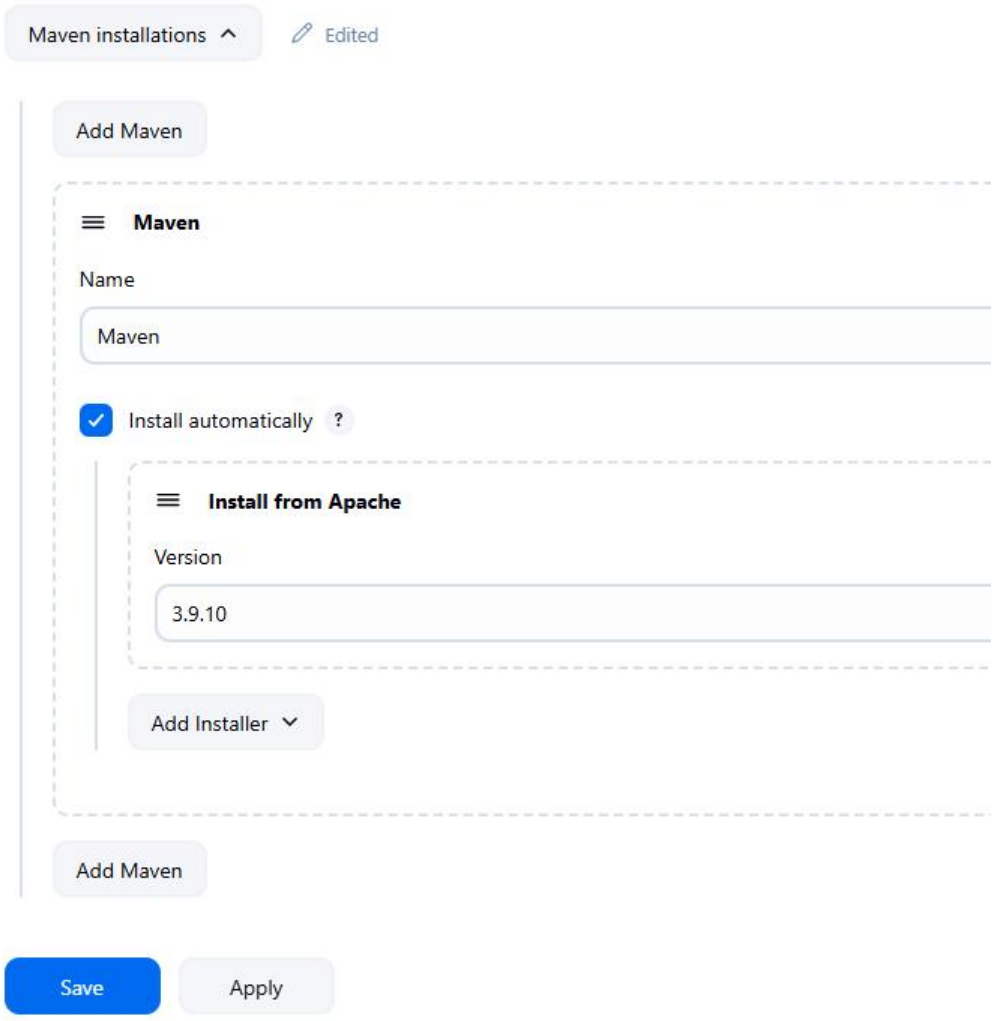
```
First time build. Skipping changelog.
[Maven-git-job] $ mvn clean package
FATAL: command execution failed
java.io.IOException: error=2, No such file or directory
        at java.base/java.lang.ProcessImpl.forkAndExec(Native Method)
        at java.base/java.lang.ProcessImpl.<init>(ProcessImpl.java:295)
        at java.base/java.lang.ProcessImpl.start(ProcessImpl.java:225)
        at java.base/java.lang.ProcessBuilder.start(ProcessBuilder.java:1126)
Caused: java.io.IOException: Cannot run program "mvn" (in directory "/var/lib/jenkins/workspace/Maven-git-job"): e
        at java.base/java.lang.ProcessBuilder.start(ProcessBuilder.java:1170)
        at java.base/java.lang.ProcessBuilder.start(ProcessBuilder.java:1089)
        at hudson.Proc$LocalProc.<init>(Proc.java:252)
        at hudson.Proc$LocalProc.<init>(Proc.java:221)
        at hudson.Launcher$LocalLauncher.launch(Launcher.java:995)
        at hudson.Launcher$ProcStarter.start(Launcher.java:507)
        at hudson.Launcher$ProcStarter.join(Launcher.java:518)
        at hudson.tasks.Maven.perform(Maven.java:369)
        at hudson.tasks.BuildStepMonitor$1.perform(BuildStepMonitor.java:20)
        at hudson.model.AbstractBuild$AbstractBuildExecution.perform(AbstractBuild.java:818)
        at hudson.model.Build$BuildExecution.build(Build.java:199)
        at hudson.model.Build$BuildExecution.doRun(Build.java:164)
        at hudson.model.AbstractBuild$AbstractBuildExecution.run(AbstractBuild.java:527)
        at hudson.model.Run.execute(Run.java:1840)
        at hudson.model.FreeStyleBuild.run(FreeStyleBuild.java:44)
        at hudson.model.ResourceController.execute(ResourceController.java:101)
        at hudson.model.Executor.run(Executor.java:446)
Build step 'Invoke top-level Maven targets' marked build as failure
Finished: FAILURE
```

Click Configure



http://3.99.132.101:8080/manage/configureTools/

Maven installations



Build Steps

Automate your build process with ordered tasks like code compilation, testing, a

Invoke top-level Maven targets ?

Maven Version

(Default)

Goals

clean compile test package

Advanced

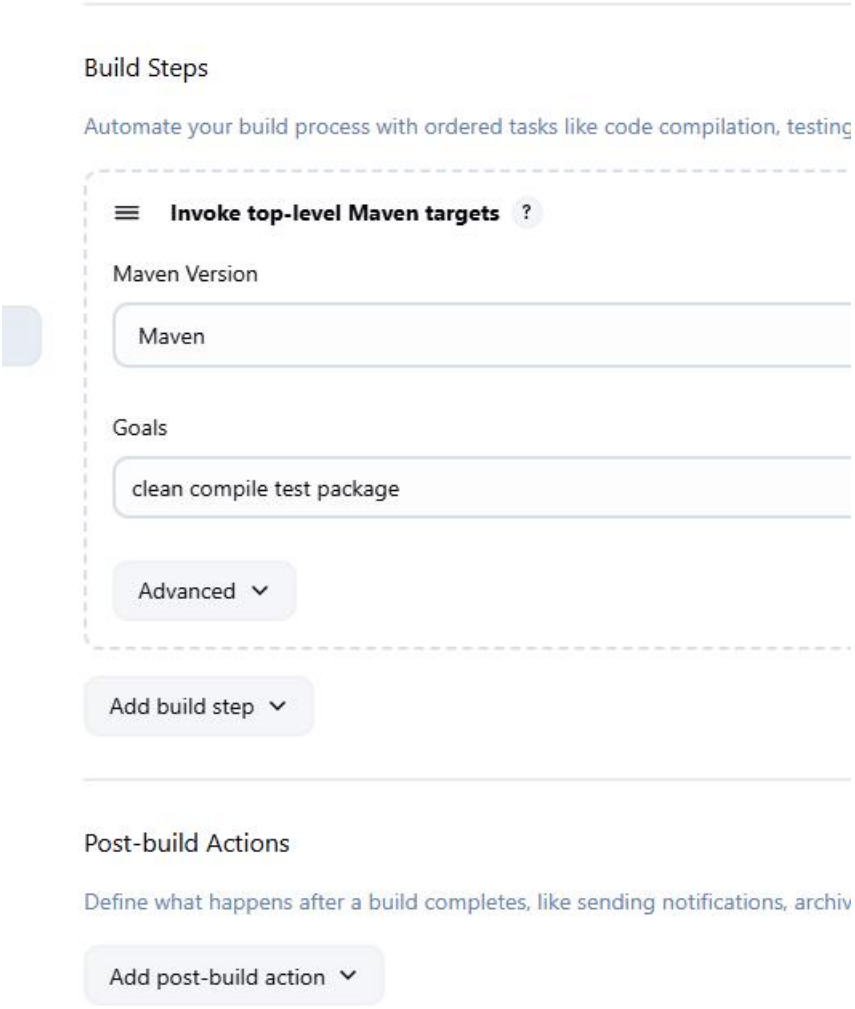
Add build step

Post-build Actions

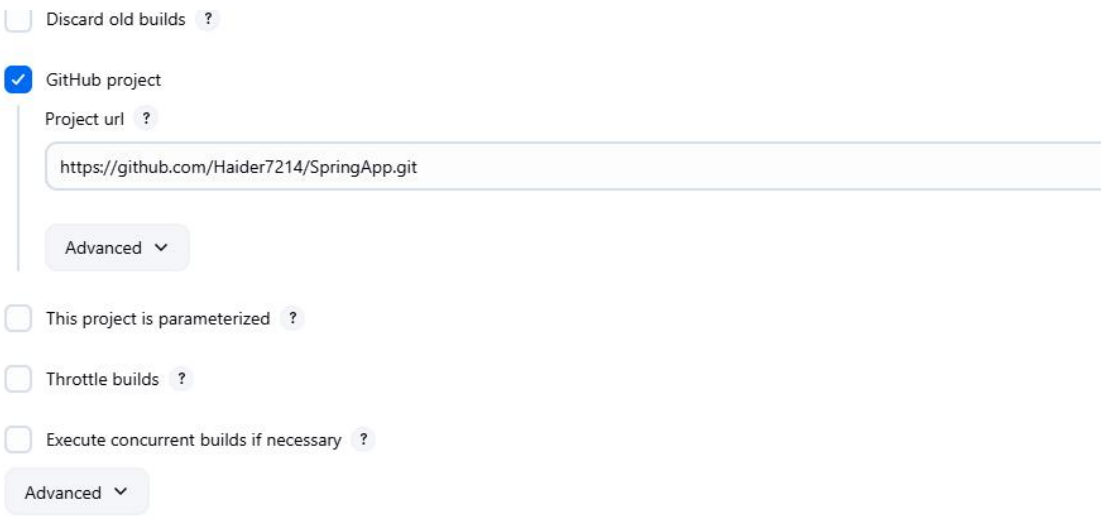
Define what happens after a build completes, like sending notifications, archivin

Add post-build action

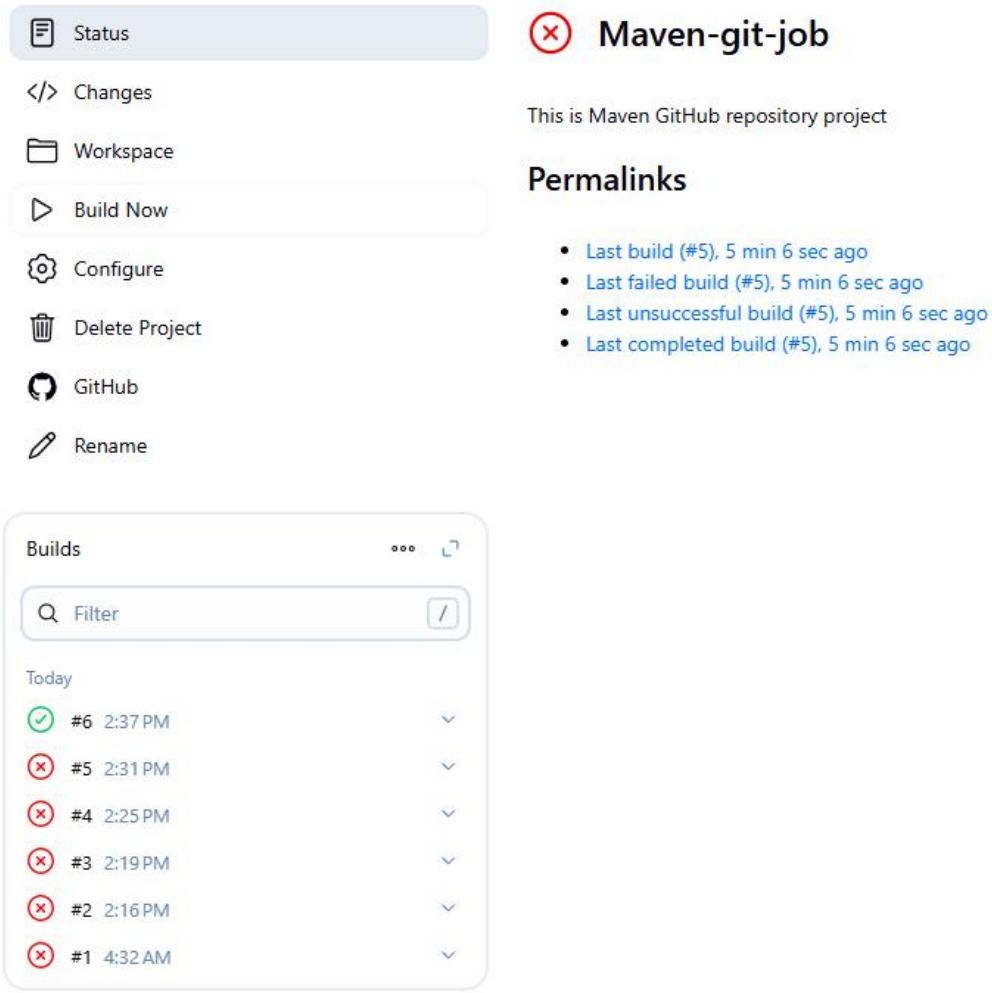
Save Apply



I am changing the git repo
https://github.com/Haider7214/SpringApp.git



This time it succeeded. Click Build Now



Click on Console Output

```
Progress (1): 1.9 MB

Downloaded from central: https://repo.maven.apache.org/maven2/net/java/dev/jna/jna/5.13.0/jna-5.13.0.jar (1.9 MB at 1.1 MB/s)
[INFO] Replacing main artifact /var/lib/jenkins/workspace/Maven-git-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war with repackaged archive, adding nested dependencies in BOOT-INF/.
[INFO] The original artifact has been renamed to /var/lib/jenkins/workspace/Maven-git-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war.original
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  35.451 s
[INFO] Finished at: 2025-06-22T14:38:11Z
[INFO] ------------------------------------------------------------------------
Finished: SUCCESS
```

See a war file is created

ubuntu@ip-172-31-11-116:~$ cd /var/lib/jenkins/workspace/Maven-git-job/target/

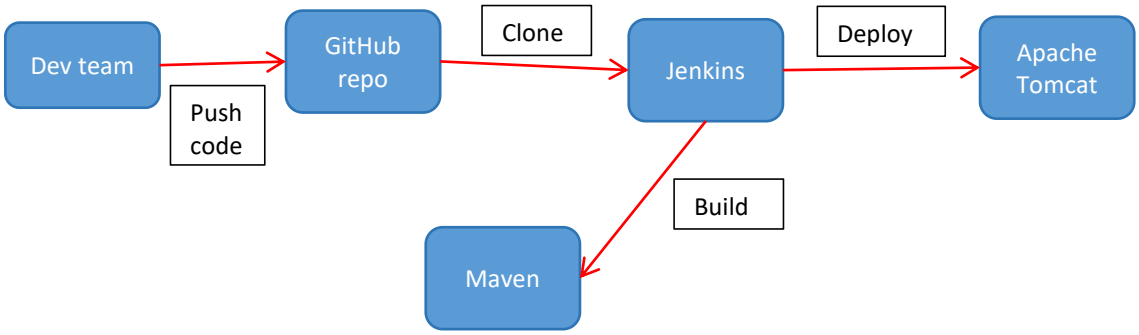
```
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$ cd /var/lib/jenkins/workspace/Maven-git-job/target/
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/Maven-git-job/target$ ls -l
total 51916
drwxr-xr-x 5 jenkins jenkins     4096 Jun 22 14:38 FirstSpringWebApp-0.0.1-SNAPSHOT
-rw-r--r-- 1 jenkins jenkins 28070167 Jun 22 14:38 FirstSpringWebApp-0.0.1-SNAPSHOT.war
-rw-r--r-- 1 jenkins jenkins 25051845 Jun 22 14:38 FirstSpringWebApp-0.0.1-SNAPSHOT.war.original
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 14:37 classes
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 14:37 generated-sources
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 14:37 generated-test-sources
drwxr-xr-x 2 jenkins jenkins     4096 Jun 22 14:38 maven-archiver
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 14:37 maven-status
drwxr-xr-x 2 jenkins jenkins     4096 Jun 22 14:37 surefire-reports
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 14:37 test-classes
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/Maven-git-job/target$
```

Task 3:
Create Jenkins job Git repo + Maven + Tomcat server
Installing Tomcat into Linux server is one extra step

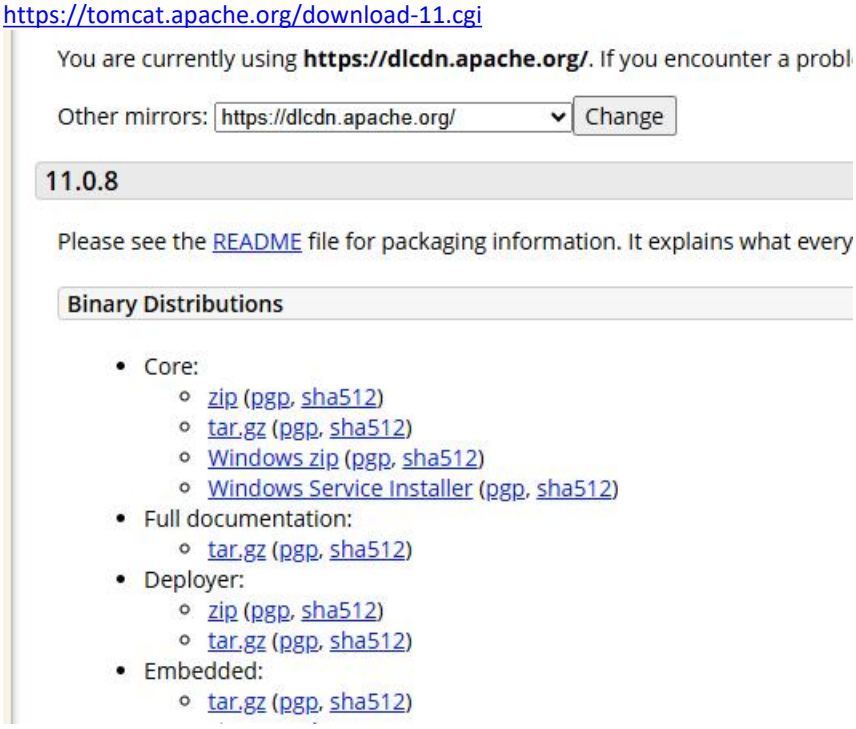
-> create new VM on EC2 --> Get connected to that Linux VM
-> Install Java
sudo apt update
sudo apt install openjdk-21-jdk

--> Install Tomcat
$ wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.tar.gz

Dev team -> Push code into --> GitHub repo --> Jenkins
Jenkins should clone with project



For Tomcat go to
https://tomcat.apache.org/download-11.cgi



Copy tar link address
https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.tar.gz

ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/Maven-git-job/target$ wget
https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.tar.gz

```
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$ wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.tar.gz
--2025-06-22 16:30:33--  https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.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: 14097830 (13M) [application/x-gzip]
Saving to: 'apache-tomcat-11.0.8.tar.gz'

apache-tomcat-11.0.8.tar.gz            100%[===========================================================================

2025-06-22 16:30:49 (943 KB/s) - 'apache-tomcat-11.0.8.tar.gz' saved [14097830/14097830]

ubuntu@ip-172-31-11-116:~$ ls -l
total 13768
-rw-rw-r-- 1 ubuntu ubuntu 14097830 Jun  5 18:36 apache-tomcat-11.0.8.tar.gz
ubuntu@ip-172-31-11-116:~$
```

ubuntu@ip-172-31-11-116:~$ tar -xvf apache-tomcat-11.0.8.tar.gz

startup.sh for Linux and startup.bat for Windows

```
apache-tomcat-11.0.8/webapps/manager/xform.xsl
apache-tomcat-11.0.8/bin/catalina.sh
apache-tomcat-11.0.8/bin/ciphers.sh
apache-tomcat-11.0.8/bin/configtest.sh
apache-tomcat-11.0.8/bin/daemon.sh
apache-tomcat-11.0.8/bin/digest.sh
apache-tomcat-11.0.8/bin/makebase.sh
apache-tomcat-11.0.8/bin/migrate.sh
apache-tomcat-11.0.8/bin/setclasspath.sh
apache-tomcat-11.0.8/bin/shutdown.sh
apache-tomcat-11.0.8/bin/startup.sh
apache-tomcat-11.0.8/bin/tool-wrapper.sh
apache-tomcat-11.0.8/bin/version.sh
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$
```

```
total 13772
drwxrwxr-x 9 ubuntu ubuntu     4096 Jun 22 16:31 apache-tomcat-11.0.8
-rw-rw-r-- 1 ubuntu ubuntu 14097830 Jun  5 18:36 apache-tomcat-11.0.8.tar.gz
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$
ubuntu@ip-172-31-11-116:~$ cd apache-tomcat-11.0.8/
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$ ls -l
total 152
-rw-r----- 1 ubuntu ubuntu 24262 Jun  5 17:49 BUILDING.txt
-rw-r----- 1 ubuntu ubuntu  6166 Jun  5 17:49 CONTRIBUTING.md
-rw-r----- 1 ubuntu ubuntu 60517 Jun  5 17:49 LICENSE
-rw-r----- 1 ubuntu ubuntu  2333 Jun  5 17:49 NOTICE
-rw-r----- 1 ubuntu ubuntu  3291 Jun  5 17:49 README.md
-rw-r----- 1 ubuntu ubuntu  6469 Jun  5 17:49 RELEASE-NOTES
-rw-r----- 1 ubuntu ubuntu 16109 Jun  5 17:49 RUNNING.txt
drwxr-x--- 2 ubuntu ubuntu  4096 Jun 22 16:31 bin
drwx------ 2 ubuntu ubuntu  4096 Jun  5 17:49 conf
drwxr-x--- 2 ubuntu ubuntu  4096 Jun 22 16:31 lib
drwxr-x--- 2 ubuntu ubuntu  4096 Jun  5 17:49 logs
drwxr-x--- 2 ubuntu ubuntu  4096 Jun 22 16:31 temp
drwxr-x--- 7 ubuntu ubuntu  4096 Jun  5 17:49 webapps
drwxr-x--- 2 ubuntu ubuntu  4096 Jun  5 17:49 work
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$
```

```
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps$ cd manager/
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps/manager$ ls -l
total 36
drwxr-x--- 2 ubuntu ubuntu 4096 Jun 22 16:31 META-INF
drwxr-x--- 3 ubuntu ubuntu 4096 Jun 22 16:31 WEB-INF
drwxr-x--- 2 ubuntu ubuntu 4096 Jun 22 16:31 css
drwxr-x--- 2 ubuntu ubuntu 4096 Jun 22 16:31 images
-rw-r----- 1 ubuntu ubuntu  913 Jun  5 17:49 index.jsp
-rw-r----- 1 ubuntu ubuntu 4374 Jun  5 17:49 status.xsd
-rw-r----- 1 ubuntu ubuntu 4709 Jun  5 17:49 xform.xsl
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps/manager$ cd WEB-INF/
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps/manager/WEB-INF$ cd ..
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps/manager$ cd META-INF/
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps/manager/META-INF$ ls -l
total 4
-rw-r----- 1 ubuntu ubuntu 1376 Jun  5 17:49 context.xml
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/webapps/manager/META-INF$
```

```
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" ignoreAnnotations="true">
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|Long|Number
ache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
```

```
-->
<Context antiResourceLocking="false" privileged="true" ignoreAnnotations="true">
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow=".*" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|Long|Nu
ache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
```

Change to ".*"

```
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$ ls -l
total 152
-rw-r----- 1 ubuntu ubuntu 24262 Jun  5 17:49 BUILDING.txt
-rw-r----- 1 ubuntu ubuntu  6166 Jun  5 17:49 CONTRIBUTING.md
-rw-r----- 1 ubuntu ubuntu 60517 Jun  5 17:49 LICENSE
-rw-r----- 1 ubuntu ubuntu  2333 Jun  5 17:49 NOTICE
-rw-r----- 1 ubuntu ubuntu  3291 Jun  5 17:49 README.md
-rw-r----- 1 ubuntu ubuntu  6469 Jun  5 17:49 RELEASE-NOTES
-rw-r----- 1 ubuntu ubuntu 16109 Jun  5 17:49 RUNNING.txt
drwxr-x--- 2 ubuntu ubuntu  4096 Jun 22 16:31 bin
drwx------ 2 ubuntu ubuntu  4096 Jun  5 17:49 conf
drwxr-x--- 2 ubuntu ubuntu  4096 Jun 22 16:31 lib
drwxr-x--- 2 ubuntu ubuntu  4096 Jun  5 17:49 logs
drwxr-x--- 2 ubuntu ubuntu  4096 Jun 22 16:31 temp
drwxr-x--- 7 ubuntu ubuntu  4096 Jun  5 17:49 webapps
drwxr-x--- 2 ubuntu ubuntu  4096 Jun  5 17:49 work
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$ cd conf
```

```
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/conf$ ls -l
total 212
-rw------- 1 ubuntu ubuntu   6636 Jun  5 17:49 catalina.properties
-rw------- 1 ubuntu ubuntu   1411 Jun  5 17:49 context.xml
-rw------- 1 ubuntu ubuntu   1149 Jun  5 17:49 jaspic-providers.xml
-rw------- 1 ubuntu ubuntu   2313 Jun  5 17:49 jaspic-providers.xsd
-rw------- 1 ubuntu ubuntu   4003 Jun  5 17:49 logging.properties
-rw------- 1 ubuntu ubuntu   6905 Jun  5 17:49 server.xml
-rw------- 1 ubuntu ubuntu   2756 Jun  5 17:49 tomcat-users.xml
-rw------- 1 ubuntu ubuntu   2558 Jun  5 17:49 tomcat-users.xsd
-rw------- 1 ubuntu ubuntu 172995 Jun  5 17:49 web.xml
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/conf$ vi tomcat-users.xml
```

```
 <role rolename="manager-gui"/>
 <role rolename="manager-script"/>
 <role rolename="admin-gui"/>

 <user username="tomcat" password="tomcat" roles="manager-gui"/>
 <user username="admin" password="admin" roles="manager-script, admin-gui"/>
```

```
-->
<!--
  <role rolename="tomcat"/>
  <role rolename="role1"/>
  <user username="tomcat" password="<must-be-changed>" roles="tomcat"/>
  <user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
  <user username="role1" password="<must-be-changed>" roles="role1"/>
-->

  <role rolename="manager-gui"/>
  <role rolename="manager-script"/>
  <role rolename="admin-gui"/>

  <user username="tomcat" password="tomcat" roles="manager-gui"/>
  <user username="admin" password="admin" roles="manager-script, admin-gui"/>

</tomcat-users>
~
```

```
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/conf$ cd ..
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$ cd bin/
```

Lets launch a new EC2 instance for Tomcat-server due to some port availability issue
t2.medium is not needed

```
      ~~._.   _/
         _/ _/
       _/m/'
Last login: Sat Jun 21 23:51:19 2025 from 136.56.236.206
[ec2-user@ip-172-31-13-80 ~]$
[ec2-user@ip-172-31-13-80 ~]$
[ec2-user@ip-172-31-13-80 ~]$
```

wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.tar.gz

[ec2-user@ip-172-31-13-80 ~]$ wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.8/bin/apache-tomcat-11.0.8.tar.gz

[ec2-user@ip-172-31-13-80 ~]$ tar -xvf apache-tomcat-11.0.8.tar.gz

```
[ec2-user@ip-172-31-13-80 ~]$
[ec2-user@ip-172-31-13-80 ~]$ cd apache-tomcat-11.0.8/
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ ls -l
total 172
-rw-r-----. 1 ec2-user ec2-user 24262 Jun  5 17:49 BUILDING.txt
-rw-r-----. 1 ec2-user ec2-user  6166 Jun  5 17:49 CONTRIBUTING.md
-rw-r-----. 1 ec2-user ec2-user 60517 Jun  5 17:49 LICENSE
-rw-r-----. 1 ec2-user ec2-user  2333 Jun  5 17:49 NOTICE
-rw-r-----. 1 ec2-user ec2-user  3291 Jun  5 17:49 README.md
-rw-r-----. 1 ec2-user ec2-user  6469 Jun  5 17:49 RELEASE-NOTES
-rw-r-----. 1 ec2-user ec2-user 16109 Jun  5 17:49 RUNNING.txt
drwxr-x---. 2 ec2-user ec2-user 16384 Jun 22 18:30 bin
drwx------. 2 ec2-user ec2-user 16384 Jun  5 17:49 conf
drwxr-x---. 2 ec2-user ec2-user 16384 Jun 22 18:30 lib
drwxr-x---. 2 ec2-user ec2-user     6 Jun  5 17:49 logs
drwxr-x---. 2 ec2-user ec2-user    30 Jun 22 18:30 temp
drwxr-x---. 7 ec2-user ec2-user    81 Jun  5 17:49 webapps
drwxr-x---. 2 ec2-user ec2-user     6 Jun  5 17:49 work
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd webapps/
[ec2-user@ip-172-31-13-80 webapps]$ ls -l
total 32
drwxr-x---.  3 ec2-user ec2-user 16384 Jun 22 18:30 ROOT
drwxr-x---. 16 ec2-user ec2-user 16384 Jun 22 18:30 docs
drwxr-x---.  7 ec2-user ec2-user    99 Jun 22 18:30 examples
drwxr-x---.  6 ec2-user ec2-user    79 Jun 22 18:30 host-manager
drwxr-x---.  6 ec2-user ec2-user   114 Jun 22 18:30 manager
[ec2-user@ip-172-31-13-80 webapps]$ cd ..
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ ls -l
total 172
-rw-r-----. 1 ec2-user ec2-user 24262 Jun  5 17:49 BUILDING.txt
-rw-r-----. 1 ec2-user ec2-user  6166 Jun  5 17:49 CONTRIBUTING.md
-rw-r-----. 1 ec2-user ec2-user 60517 Jun  5 17:49 LICENSE
-rw-r-----. 1 ec2-user ec2-user  2333 Jun  5 17:49 NOTICE
-rw-r-----. 1 ec2-user ec2-user  3291 Jun  5 17:49 README.md
-rw-r-----. 1 ec2-user ec2-user  6469 Jun  5 17:49 RELEASE-NOTES
-rw-r-----. 1 ec2-user ec2-user 16109 Jun  5 17:49 RUNNING.txt
drwxr-x---. 2 ec2-user ec2-user 16384 Jun 22 18:30 bin
drwx------. 2 ec2-user ec2-user 16384 Jun  5 17:49 conf
drwxr-x---. 2 ec2-user ec2-user 16384 Jun 22 18:30 lib
drwxr-x---. 2 ec2-user ec2-user     6 Jun  5 17:49 logs
```

```
[ec2-user@ip-172-31-13-80 webapps]$ cd ..
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ ls -l
total 172
-rw-r-----. 1 ec2-user ec2-user 24262 Jun  5 17:49 BUILDING.txt
-rw-r-----. 1 ec2-user ec2-user  6166 Jun  5 17:49 CONTRIBUTING.md
-rw-r-----. 1 ec2-user ec2-user 60517 Jun  5 17:49 LICENSE
-rw-r-----. 1 ec2-user ec2-user  2333 Jun  5 17:49 NOTICE
-rw-r-----. 1 ec2-user ec2-user  3291 Jun  5 17:49 README.md
-rw-r-----. 1 ec2-user ec2-user  6469 Jun  5 17:49 RELEASE-NOTES
-rw-r-----. 1 ec2-user ec2-user 16109 Jun  5 17:49 RUNNING.txt
drwxr-x---. 2 ec2-user ec2-user 16384 Jun 22 18:30 bin
drwx------. 2 ec2-user ec2-user 16384 Jun  5 17:49 conf
drwxr-x---. 2 ec2-user ec2-user 16384 Jun 22 18:30 lib
drwxr-x---. 2 ec2-user ec2-user     6 Jun  5 17:49 logs
drwxr-x---. 2 ec2-user ec2-user    30 Jun 22 18:30 temp
drwxr-x---. 7 ec2-user ec2-user    81 Jun  5 17:49 webapps
drwxr-x---. 2 ec2-user ec2-user     6 Jun  5 17:49 work
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd webapps/
[ec2-user@ip-172-31-13-80 webapps]$ cd manager/
[ec2-user@ip-172-31-13-80 manager]$ ls -l
total 20
drwxr-x---. 2 ec2-user ec2-user   25 Jun 22 18:30 META-INF
drwxr-x---. 3 ec2-user ec2-user   32 Jun 22 18:30 WEB-INF
drwxr-x---. 2 ec2-user ec2-user   25 Jun 22 18:30 css
drwxr-x---. 2 ec2-user ec2-user   44 Jun 22 18:30 images
-rw-r-----. 1 ec2-user ec2-user  913 Jun  5 17:49 index.jsp
-rw-r-----. 1 ec2-user ec2-user 4374 Jun  5 17:49 status.xsd
-rw-r-----. 1 ec2-user ec2-user 4709 Jun  5 17:49 xform.xsl
[ec2-user@ip-172-31-13-80 manager]$ cd META-INF/
[ec2-user@ip-172-31-13-80 META-INF]$ ls -l
total 4
-rw-r-----. 1 ec2-user ec2-user 1376 Jun  5 17:49 context.xml
```

```
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" ignoreAnnotations="true">
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow="127\.\d+\.\d+\.\d+|::1|0:0:0:0:0:0:0:1" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer|Long|Number|String)|org\.ap
ache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
~
~
~
~
```

```
  limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" ignoreAnnotations="true"
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcesso
                   sameSiteCookies="strict" />
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
         allow=".*" />
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?:Boolean|Integer
ache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>
~
```

[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd conf

```
[ec2-user@ip-172-31-13-80 conf]$ ls -l
total 212
-rw-------. 1 ec2-user ec2-user   6636 Jun  5 17:49 catalina.properties
-rw-------. 1 ec2-user ec2-user   1411 Jun  5 17:49 context.xml
-rw-------. 1 ec2-user ec2-user   1149 Jun  5 17:49 jaspic-providers.xml
-rw-------. 1 ec2-user ec2-user   2313 Jun  5 17:49 jaspic-providers.xsd
-rw-------. 1 ec2-user ec2-user   4003 Jun  5 17:49 logging.properties
-rw-------. 1 ec2-user ec2-user   6905 Jun  5 17:49 server.xml
-rw-------. 1 ec2-user ec2-user   2756 Jun  5 17:49 tomcat-users.xml
-rw-------. 1 ec2-user ec2-user   2558 Jun  5 17:49 tomcat-users.xsd
-rw-------. 1 ec2-user ec2-user 172995 Jun  5 17:49 web.xml
```

```
[ec2-user@ip-172-31-13-80 webapps]$
[ec2-user@ip-172-31-13-80 webapps]$ cd ..
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd conf
[ec2-user@ip-172-31-13-80 conf]$ ls -l
total 212
-rw-------. 1 ec2-user ec2-user   6636 Jun  5 17:49 catalina.properties
-rw-------. 1 ec2-user ec2-user   1411 Jun  5 17:49 context.xml
-rw-------. 1 ec2-user ec2-user   1149 Jun  5 17:49 jaspic-providers.xml
-rw-------. 1 ec2-user ec2-user   2313 Jun  5 17:49 jaspic-providers.xsd
-rw-------. 1 ec2-user ec2-user   4003 Jun  5 17:49 logging.properties
-rw-------. 1 ec2-user ec2-user   6905 Jun  5 17:49 server.xml
-rw-------. 1 ec2-user ec2-user   2756 Jun  5 17:49 tomcat-users.xml
-rw-------. 1 ec2-user ec2-user   2558 Jun  5 17:49 tomcat-users.xsd
-rw-------. 1 ec2-user ec2-user 172995 Jun  5 17:49 web.xml
[ec2-user@ip-172-31-13-80 conf]$
```

```
 <role rolename="manager-gui"/>
 <role rolename="manager-script"/>
 <role rolename="admin-gui"/>

 <user username="tomcat" password="tomcat" roles="manager-gui"/>
 <user username="admin" password="admin" roles="manager-script, admin-gui"/>
```

```
  <user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
  <user username="role1" password="<must-be-changed>" roles="role1"/>
-->

  <role rolename="manager-gui"/>
  <role rolename="manager-script"/>
  <role rolename="admin-gui"/>

  <user username="tomcat" password="tomcat" roles="manager-gui"/>
  <user username="admin" password="admin" roles="manager-script, admin-gui"/>

</tomcat-users>
```

```
[ec2-user@ip-172-31-13-80 bin]$ sh startup.sh
```

```
[ec2-user@ip-172-31-13-80 bin]$ sh startup.sh
Neither the JAVA_HOME nor the JRE_HOME environment variable is defined
At least one of these environment variable is needed to run this program
```

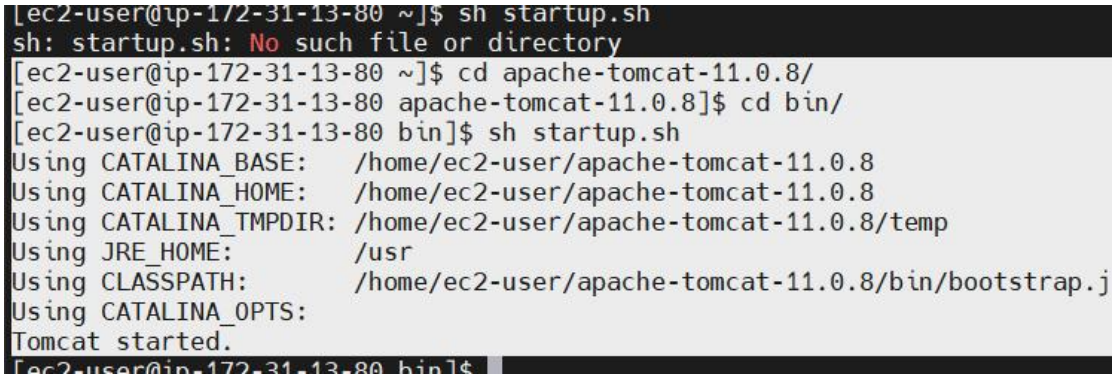
We have to install Java

```
[ec2-user@ip-172-31-13-80 ~]$ sudo apt install openjdk-21-jdk
```

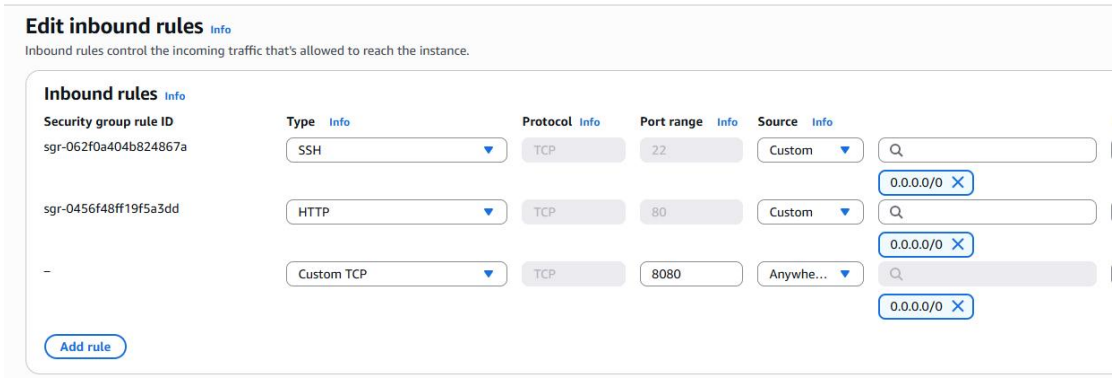
```
sudo rpm --import https://yum.corretto.aws/corretto.key
sudo curl -Lo /etc/yum.repos.d/corretto.repo https://yum.corretto.aws/corretto.repo
sudo yum install -y java-21-amazon-corretto-devel
```

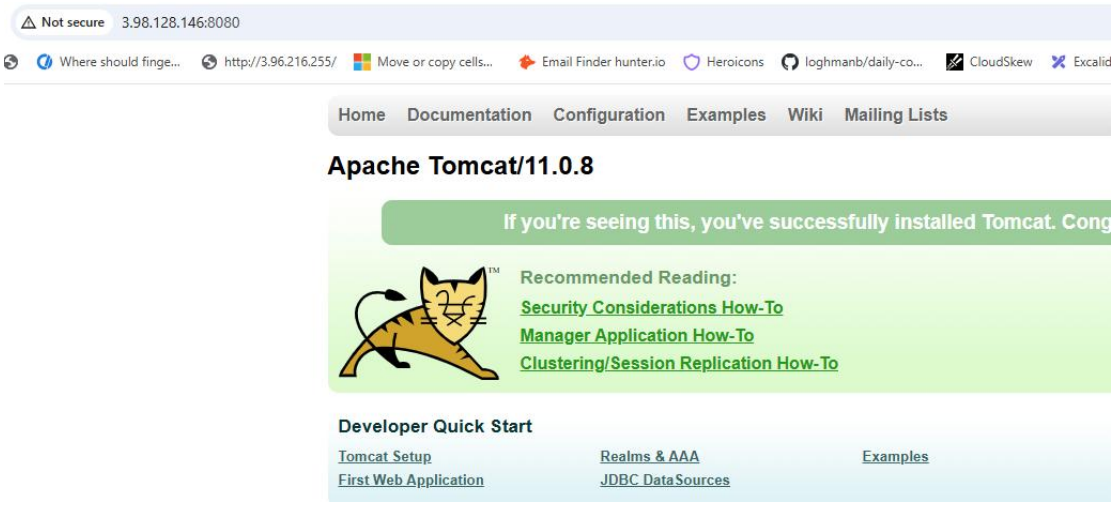
java -version

[ec2-user@ip-172-31-13-80 ~]$ cd apache-tomcat-11.0.8/
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd bin/
[ec2-user@ip-172-31-13-80 bin]$ sh startup.sh
Using CATALINA_BASE: /home/ec2-user/apache-tomcat-11.0.8
Using CATALINA_HOME: /home/ec2-user/apache-tomcat-11.0.8
Using CATALINA_TMPDIR: /home/ec2-user/apache-tomcat-11.0.8/temp
Using JRE_HOME: /usr
Using CLASSPATH: /home/ec2-user/apache-tomcat-11.0.8/bin/bootstrap.jar:/home/ec2-user/apache-tomcat-11.0.8/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.



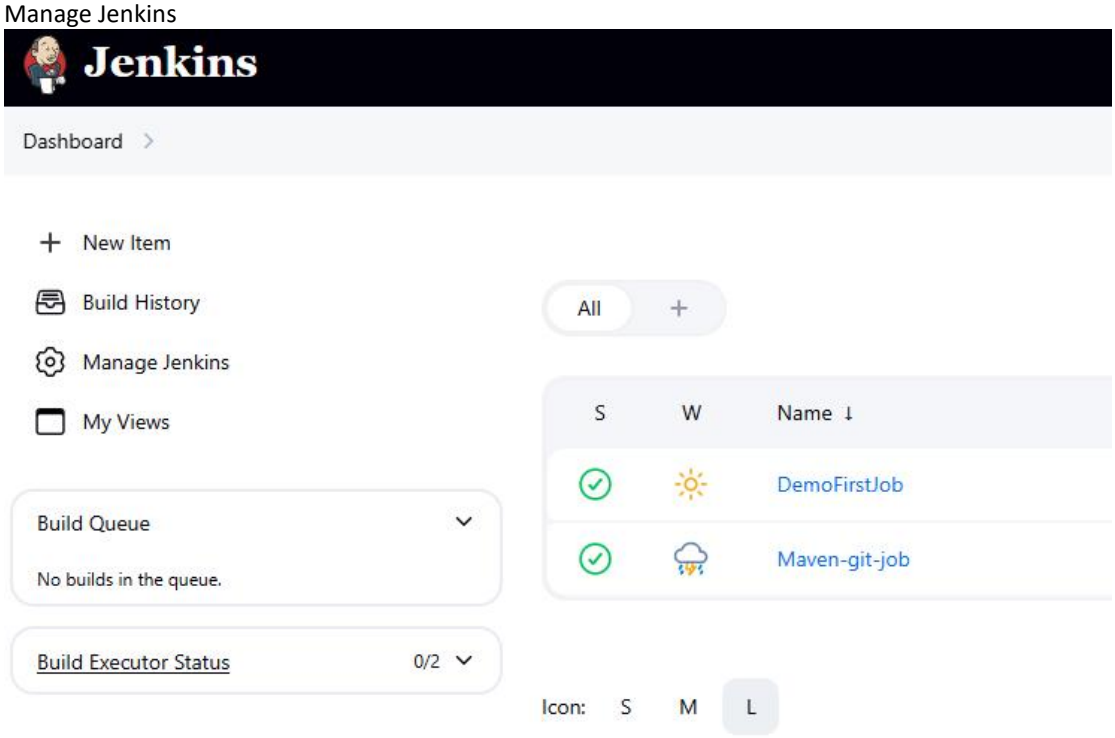
http://3.98.128.146:8080/





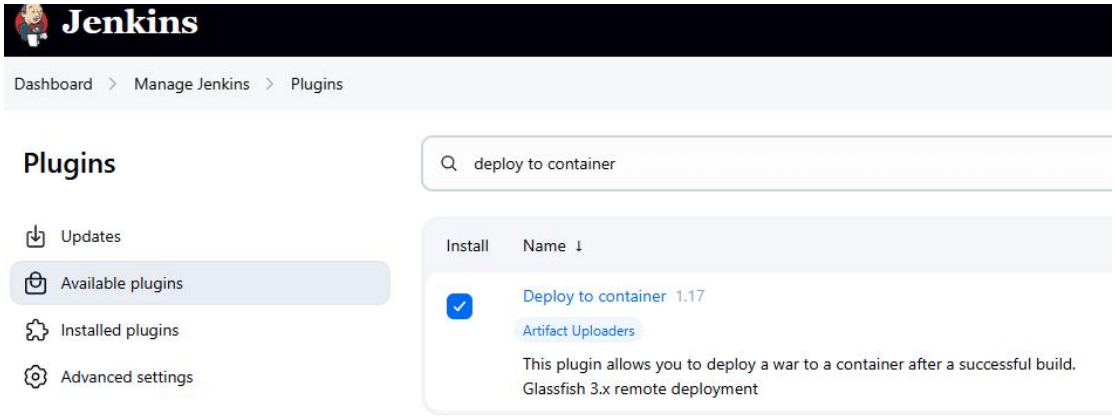
Go back to Jenkins
http://3.99.132.101:8080/login?from=%2Fjob%2FMaven-git-job%2F6%2F

Manage Jenkins

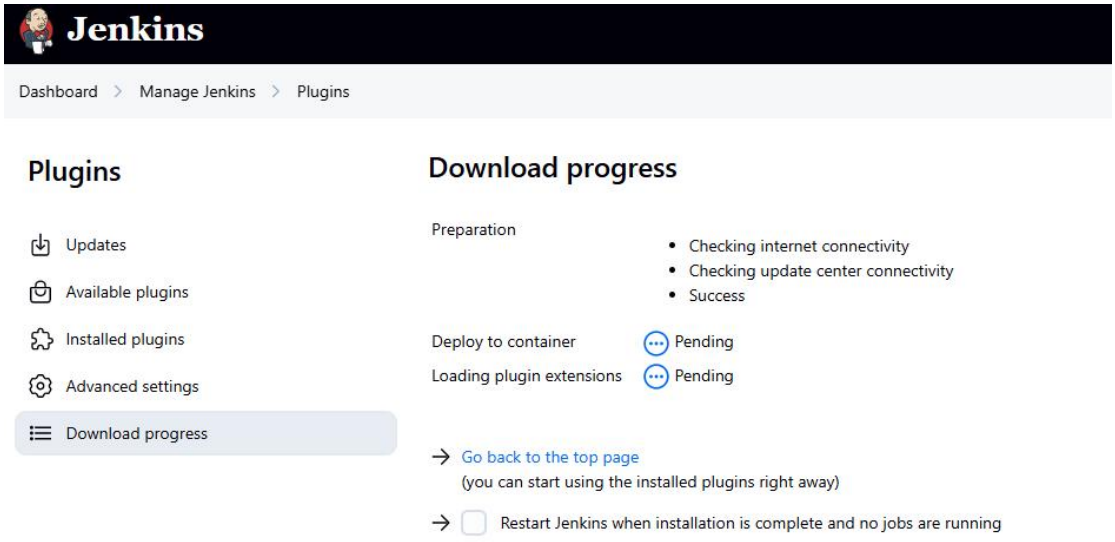


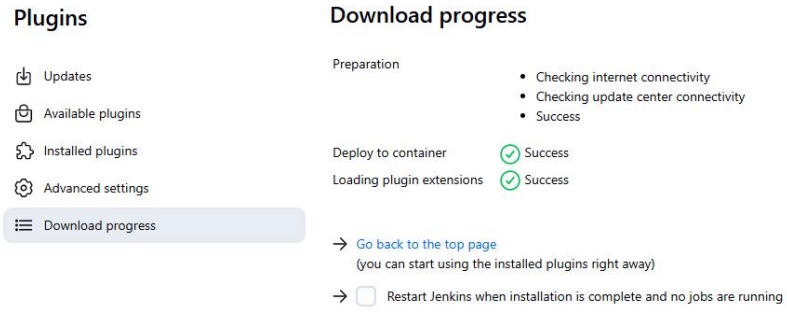
Click Plugins

Available Plugins --> Search “Deploy to container”

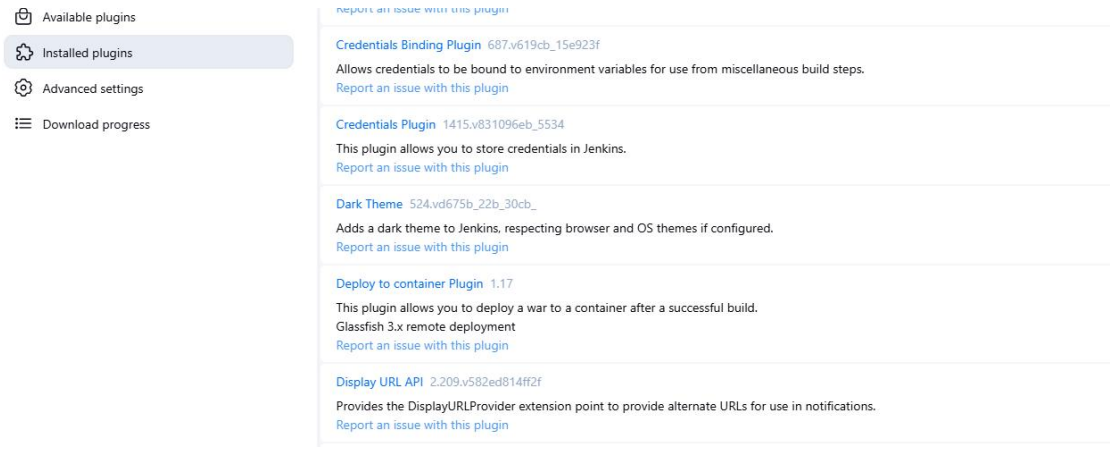


Click Install

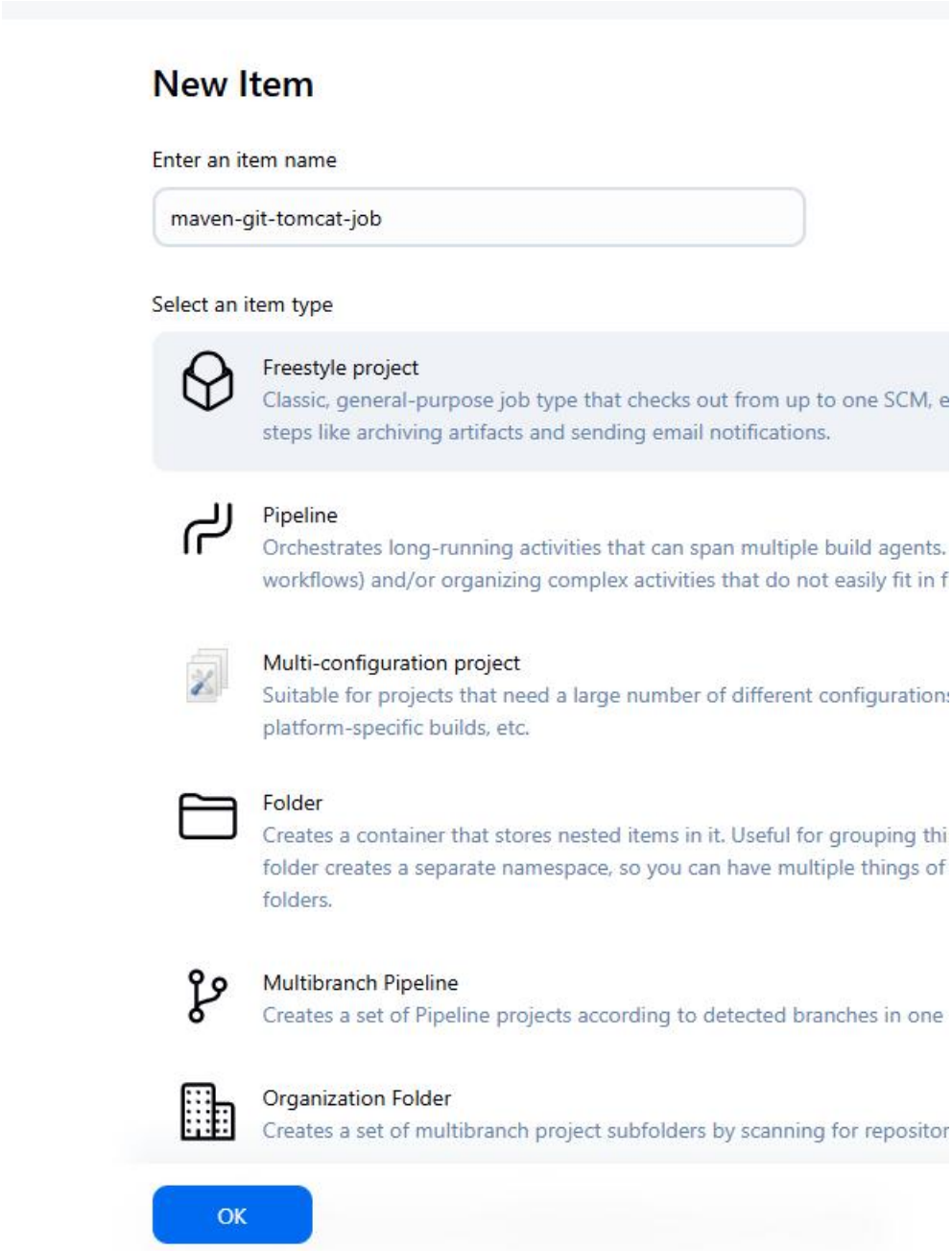




Installed Plugin



Dashboard --> New Item



General

Description

Maven git tomcat job

Plain text Preview

- [ ] Discard old builds ?
- [x] GitHub project
  - Project url ?
    - https://github.com/Haider7214/SpringApp.git
  - Advanced
- [ ] This project is parameterized ?
- [ ] Throttle builds ?
- [ ] Execute concurrent builds if necessary ?

Advanced

Source Code Management

Connect and manage your code repository to automatically pull the latest code for your builds.

- None
- Git ?

Repositories ?

Repository URL ?

https://github.com/Haider7214/SpringApp.git

Credentials ?

- none -

+ Add

Advanced

Add Repository

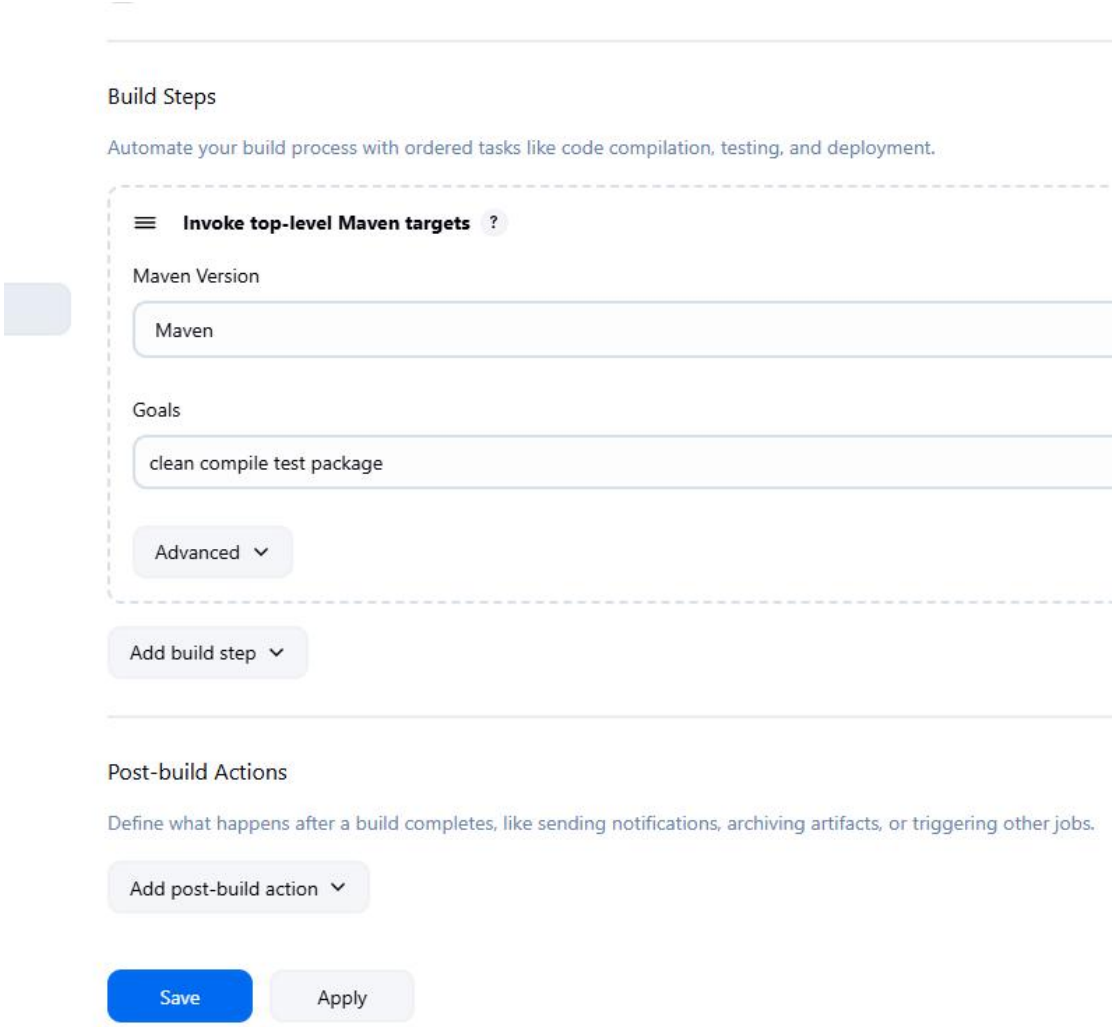
Branches to build ?

Branch Specifier (blank for 'any') ?

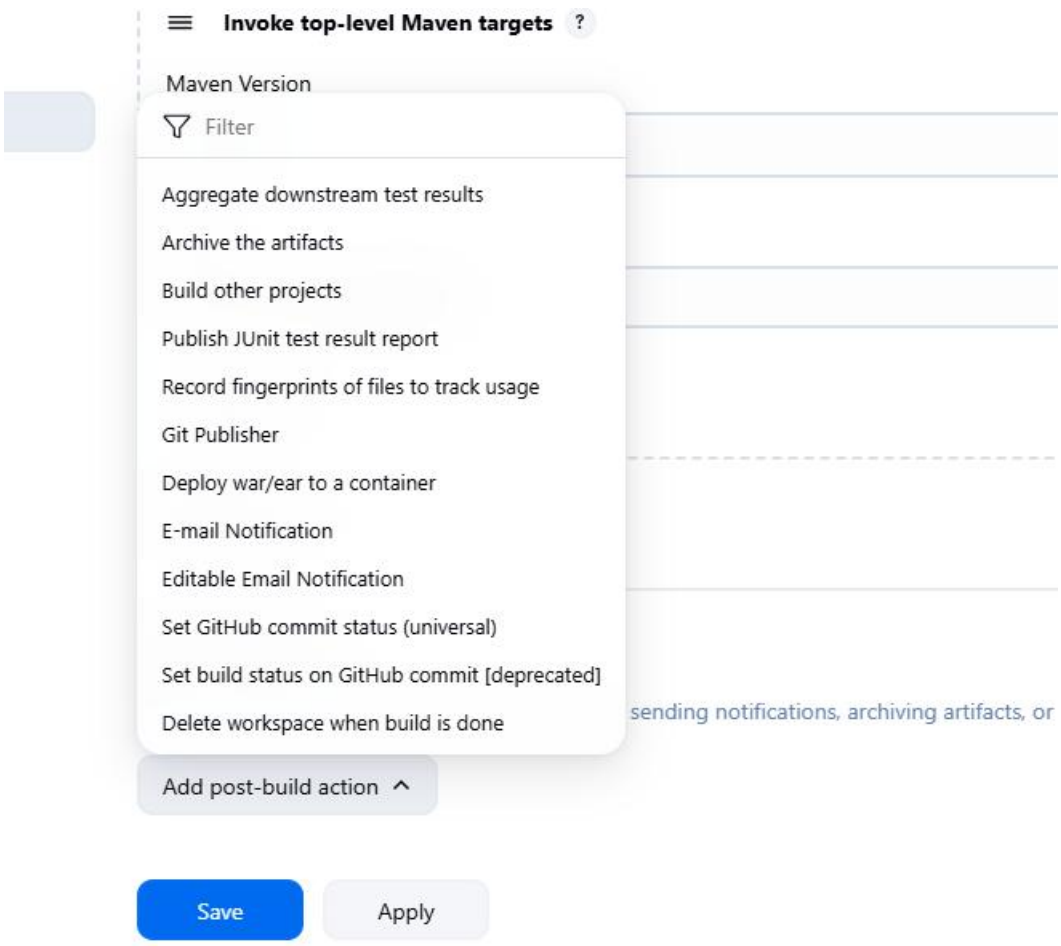
*/main

Add Branch

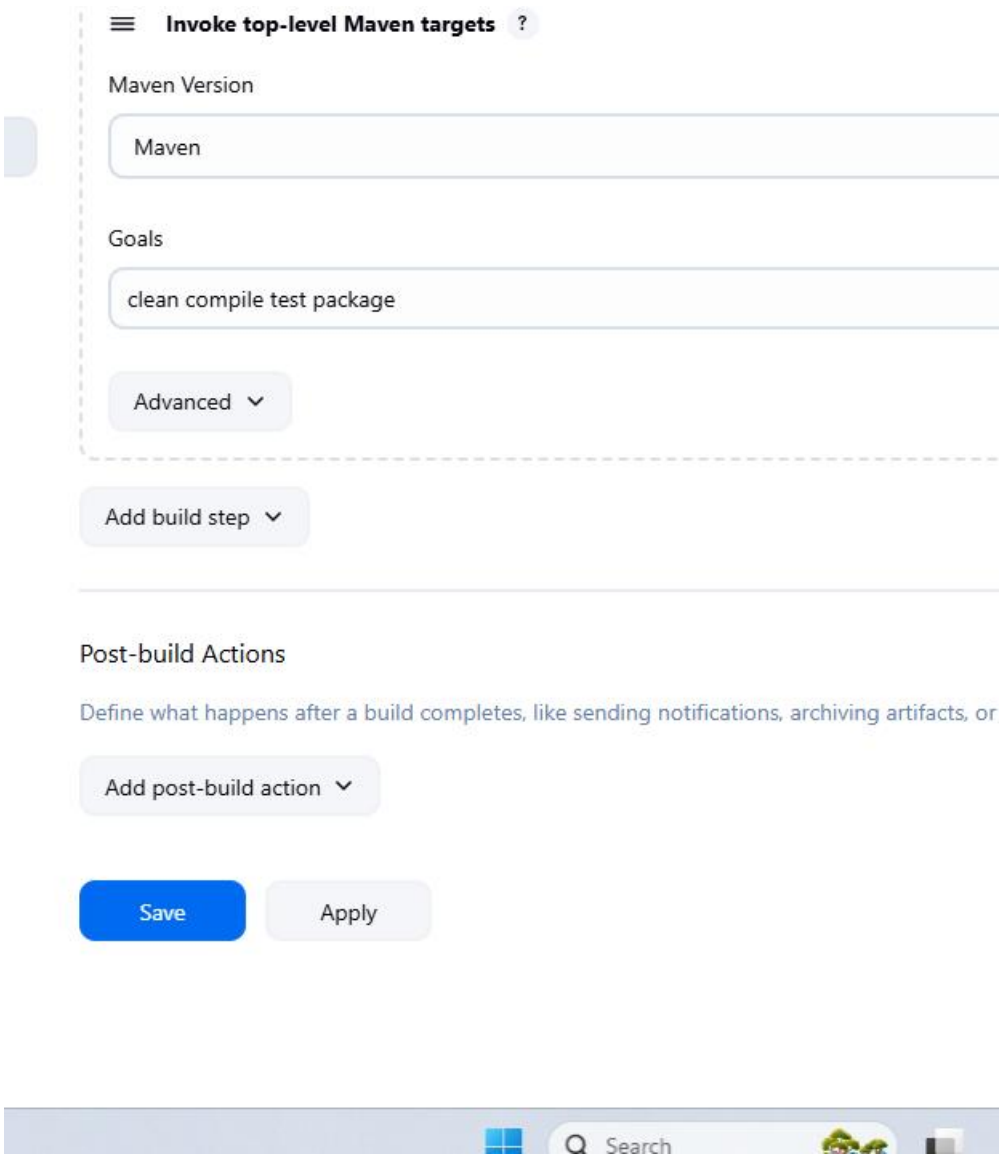
Save Apply

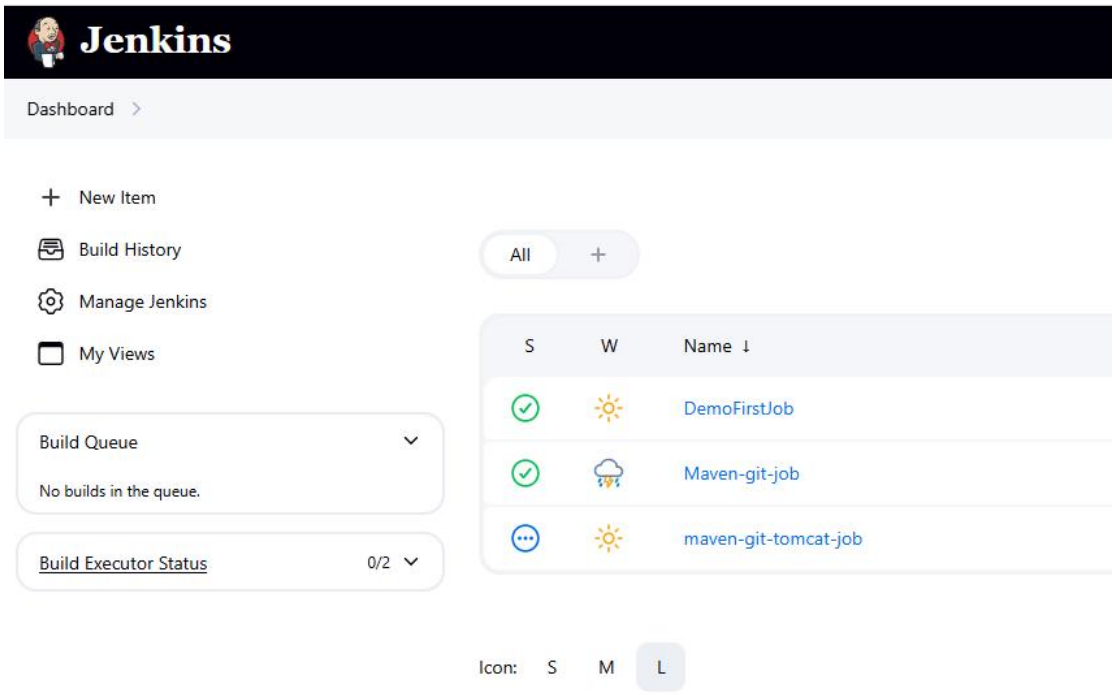


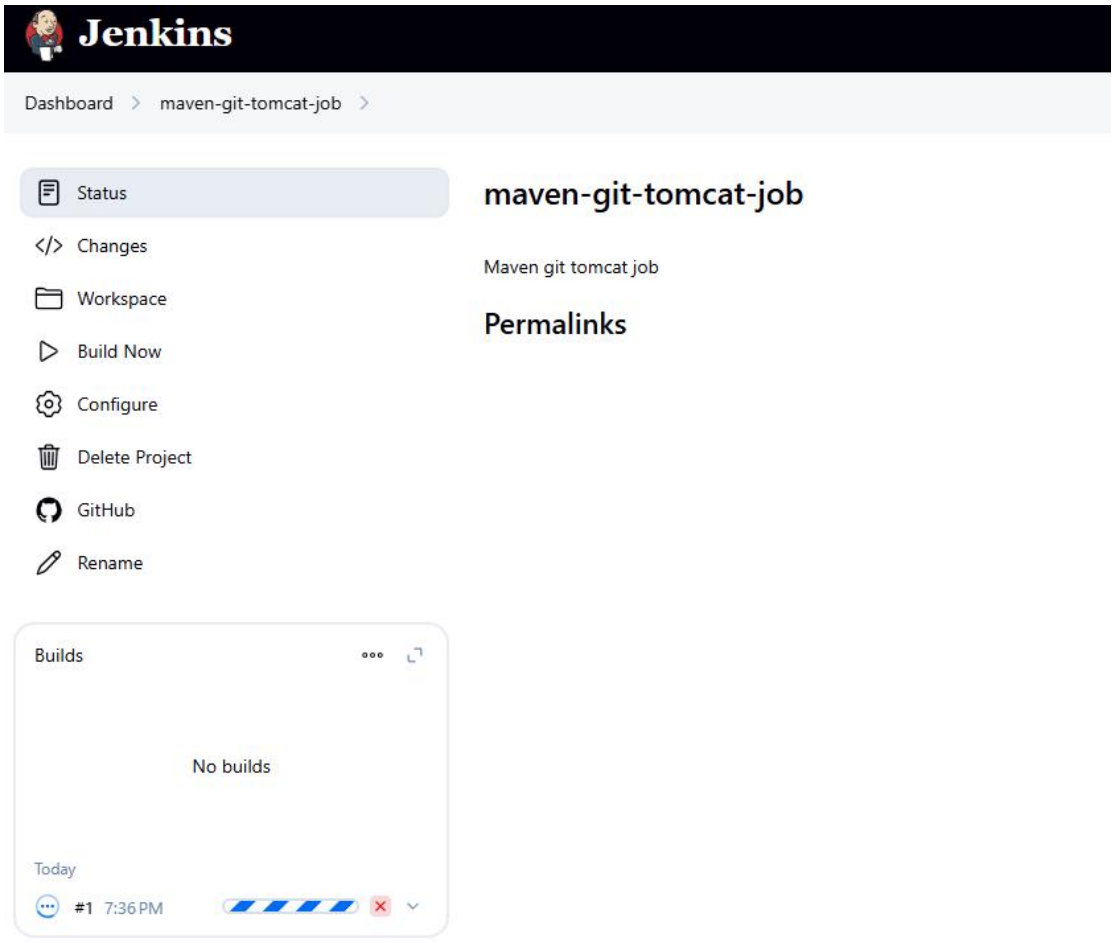
Deploy war to a container

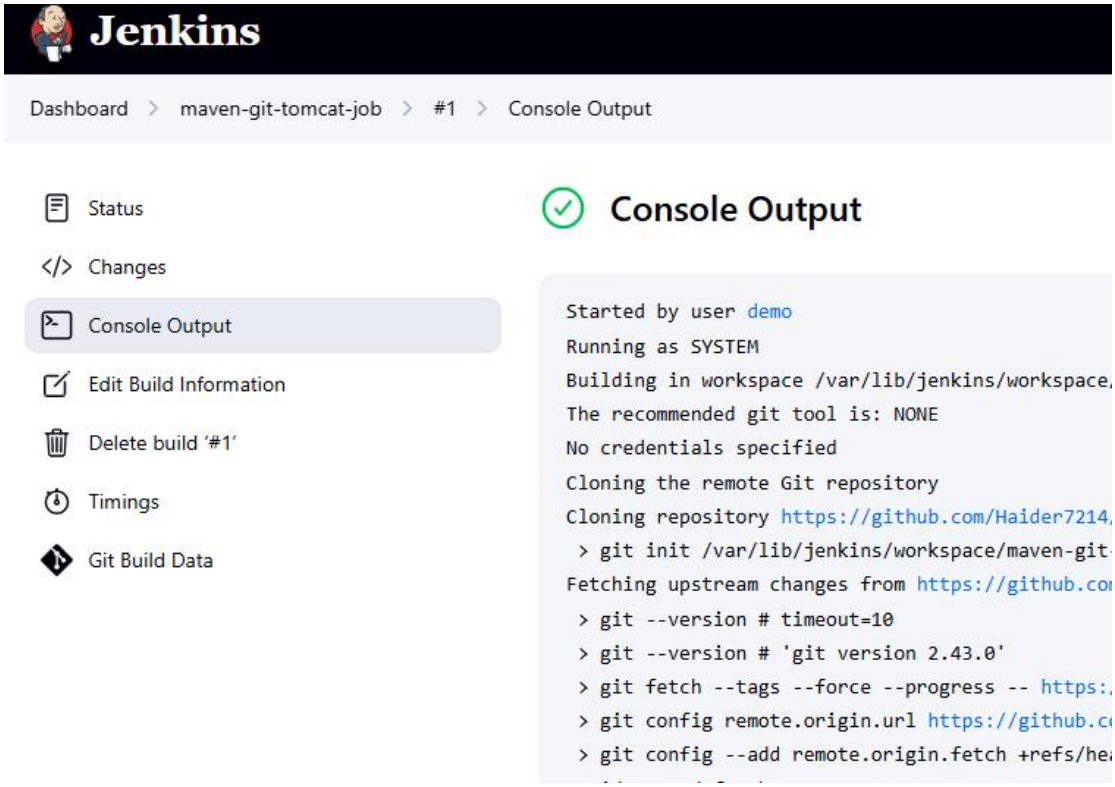


No we are not doing Deploy war to container


Invoke top-level Maven targets
Maven Version
Maven
Goals
clean compile test package
Advanced
Add build step
Post-build Actions
Define what happens after a build completes, like sending notifications, archiving artifacts, or
Add post-build action
Save
Apply
Search


Jenkins
Dashboard
New Item
Build History
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status 0/2
All
S
W
Name ↓
DemoFirstJob
Maven-git-job
maven-git-tomcat-job
Icon: S M L


Jenkins
Dashboard
maven-git-tomcat-job
Status
Changes
Workspace
Build Now
Configure
Delete Project
GitHub
Rename
Builds
No builds
Today
#1 7:36 PM
maven-git-tomcat-job
Maven git tomcat job
Permalinks



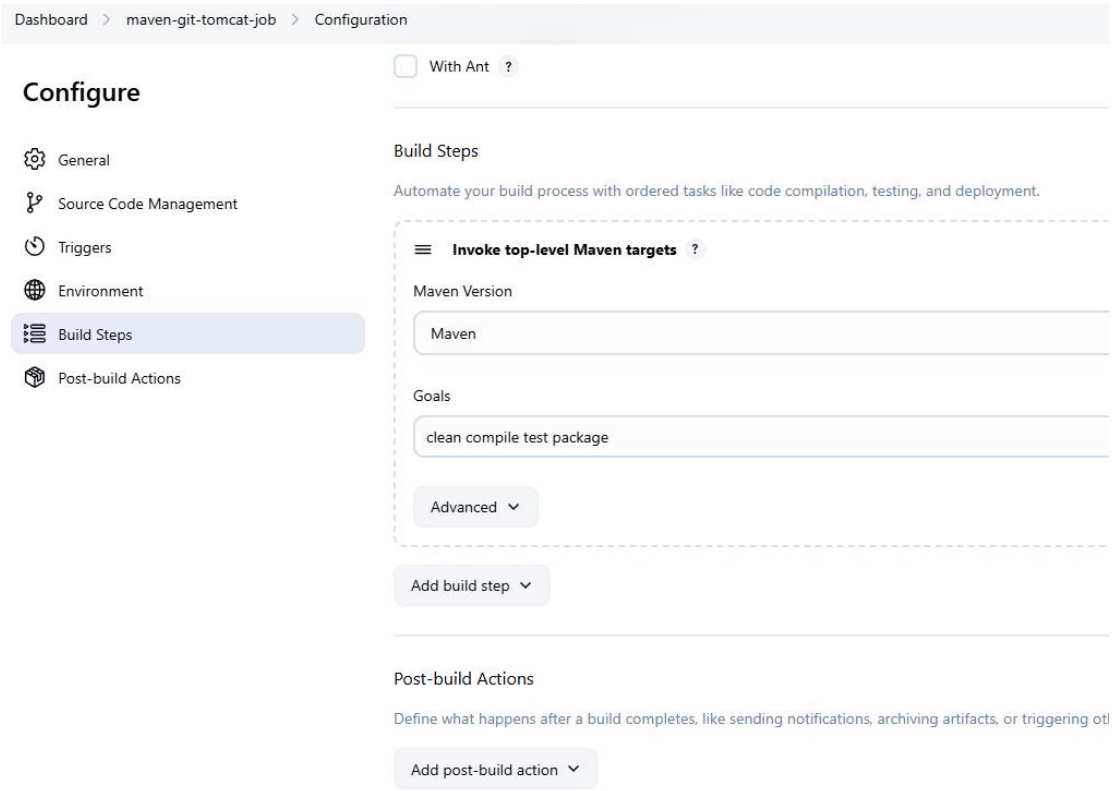

```
[INFO] Building war: /var/lib/jenkins/workspace/maven-git-tomcat-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war
[INFO]
[INFO] --- spring-boot:3.3.5:repackage (repackage) @ FirstSpringWebApp ---
[INFO] Replacing main artifact /var/lib/jenkins/workspace/maven-git-tomcat-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war with repackaged archive, adding neste
[INFO] The original artifact has been renamed to /var/lib/jenkins/workspace/maven-git-tomcat-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war.original
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  9.696 s
[INFO] Finished at: 2025-06-22T19:36:48Z
[INFO] ------------------------------------------------------------------------
Finished: SUCCESS
```

```
[INFO] The original artifact has been renamed to /var/lib/jenkins/workspace/maven-git-tomcat-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war.original
```

ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/bin$ cd /var/lib/jenkins/workspace/maven-git-tomcat-job/target/
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/maven-git-tomcat-job/target$

```
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/maven-git-tomcat-job/target$
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/maven-git-tomcat-job/target$
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/maven-git-tomcat-job/target$ ls -l
total 51916
drwxr-xr-x 5 jenkins jenkins     4096 Jun 22 19:36 FirstSpringWebApp-0.0.1-SNAPSHOT
-rw-r--r-- 1 jenkins jenkins 28070167 Jun 22 19:36 FirstSpringWebApp-0.0.1-SNAPSHOT.war
-rw-r--r-- 1 jenkins jenkins 25051845 Jun 22 19:36 FirstSpringWebApp-0.0.1-SNAPSHOT.war.original
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 19:36 classes
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 19:36 generated-sources
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 19:36 generated-test-sources
drwxr-xr-x 2 jenkins jenkins     4096 Jun 22 19:36 maven-archiver
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 19:36 maven-status
drwxr-xr-x 2 jenkins jenkins     4096 Jun 22 19:36 surefire-reports
drwxr-xr-x 3 jenkins jenkins     4096 Jun 22 19:36 test-classes
ubuntu@ip-172-31-11-116:/var/lib/jenkins/workspace/maven-git-tomcat-job/target$
```

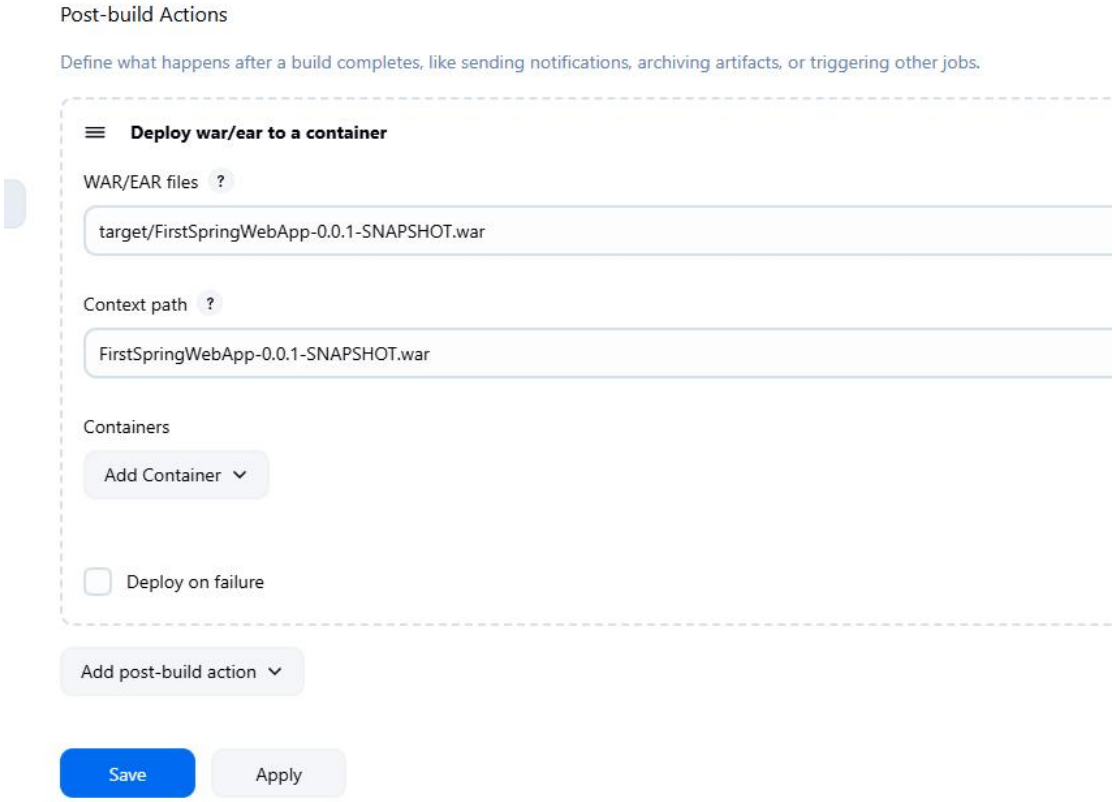
Go back to the Job on Jenkins
Configure



Copy war filename name from Console log

```
[INFO] Replacing main artifact /var/lib/jenkins/workspace/maven-git-tomcat-job/target/FirstSpringWebApp-0.0.1-SNAPSHOT.war
```

```
FirstSpringWebApp-0.0.1-SNAPSHOT.war
```



Add Container
We have installed Tomcat 11 in the other VM but only tomcat 9.x is available here

Containers

Tomcat 9.x Remote

Credentials

- none -

+ Add

Tomcat URL ?

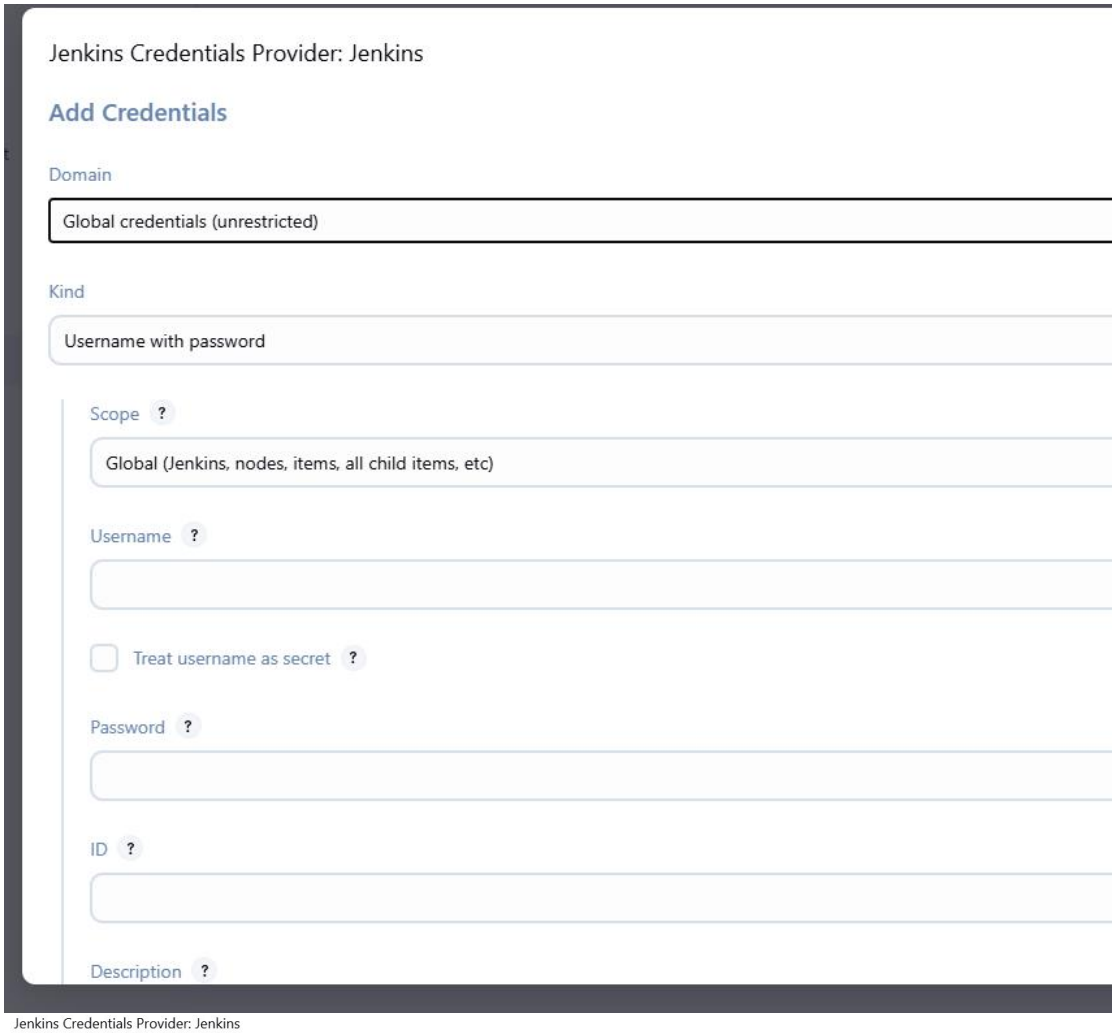
Advanced

Add Container

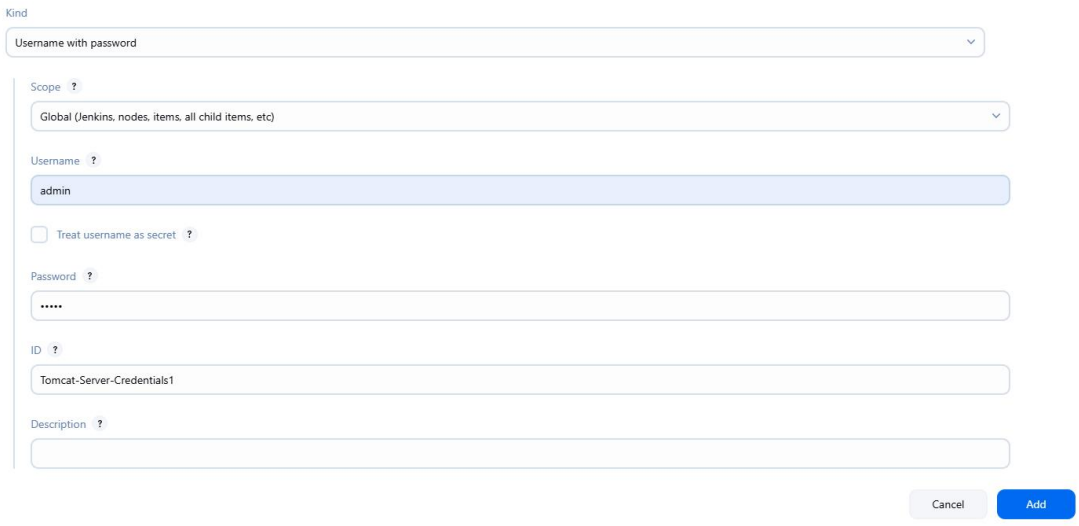
Deploy on failure

Add post-build action

Save Apply

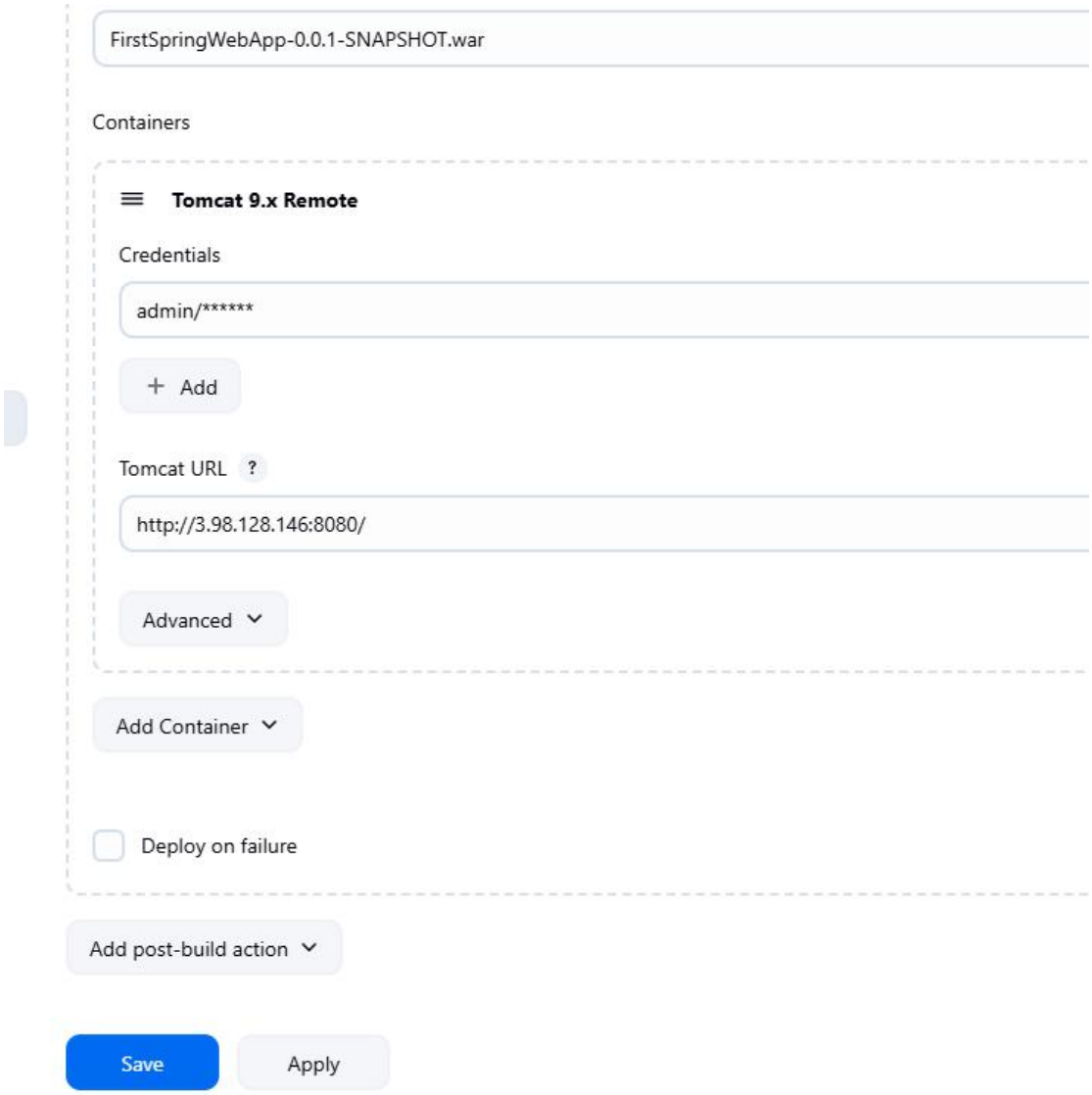


Jenkins Credentials Provider: Jenkins



Click Add

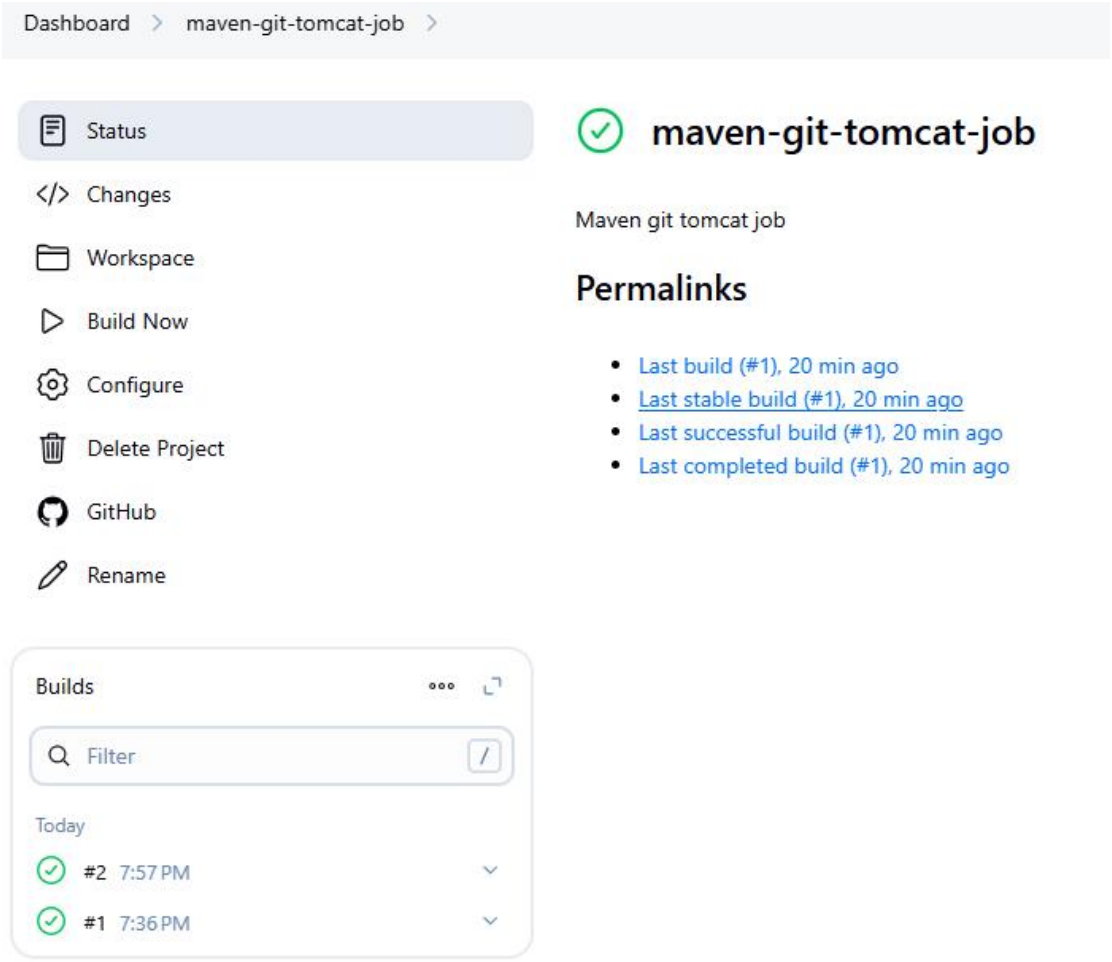
Copy Tomcat URL from the other VM
http://3.98.128.146:8080/



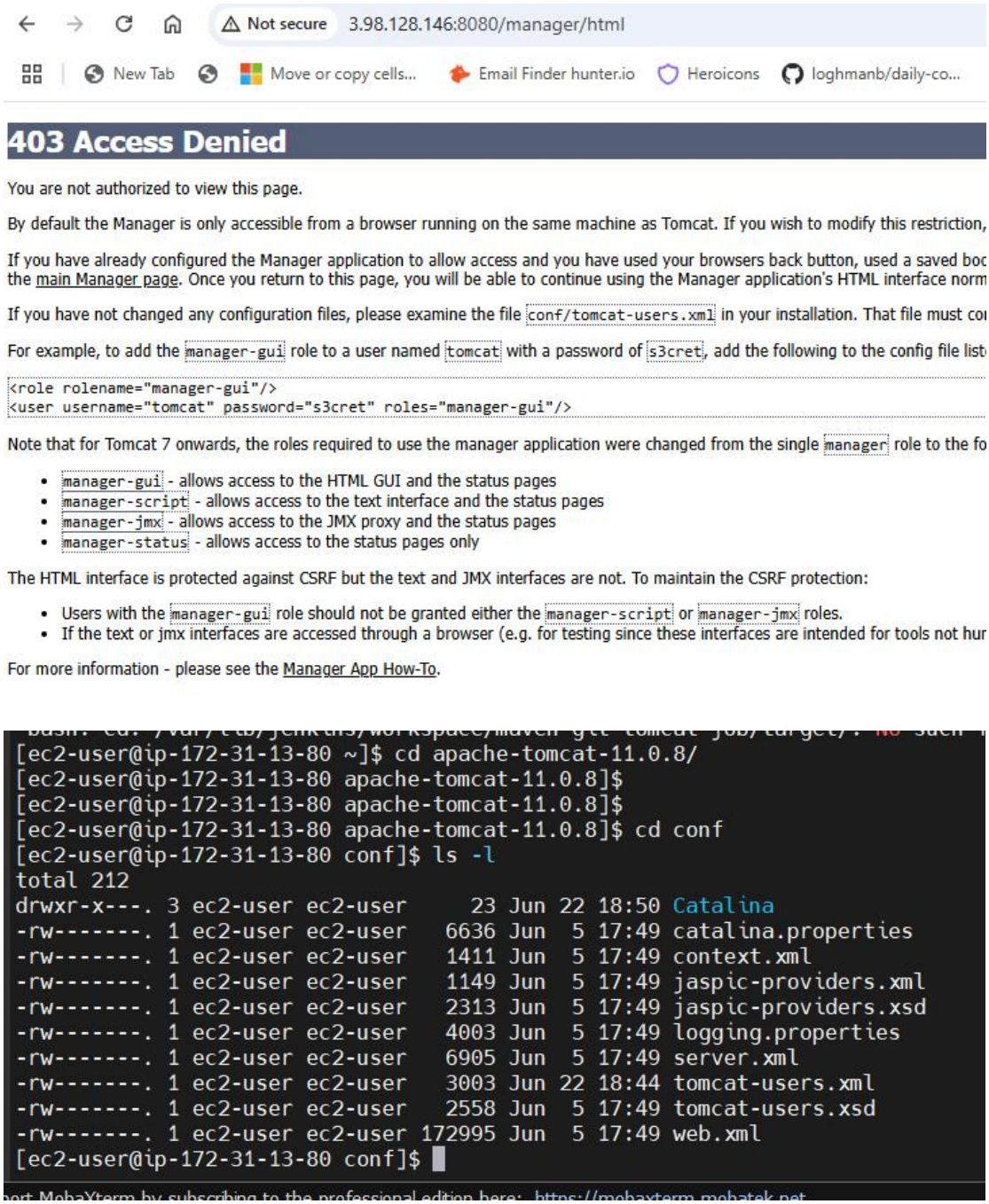
Click Apply then Save

Click Build Now

It built successfully



Go back to Tomcat IP
Click on Manager App
For some reasons it is not opening


Not secure 3.98.128.146:8080/manager/html
New Tab
Move or copy cells...
Email Finder hunter.io
Heroicons
loghmanb/daily-co...
403 Access Denied
You are not authorized to view this page.
By default the Manager is only accessible from a browser running on the same machine as Tomcat. If you wish to modify this restriction,
If you have already configured the Manager application to allow access and you have used your browsers back button, used a saved boc
the main Manager page. Once you return to this page, you will be able to continue using the Manager application's HTML interface norm
If you have not changed any configuration files, please examine the file conf/tomcat-users.xml in your installation. That file must co
For example, to add the manager-gui role to a user named tomcat with a password of s3cret, add the following to the config file list
<role rolename="manager-gui"/>
<user username="tomcat" password="s3cret" roles="manager-gui"/>
Note that for Tomcat 7 onwards, the roles required to use the manager application were changed from the single manager role to the fo
manager-gui - allows access to the HTML GUI and the status pages
manager-script - allows access to the text interface and the status pages
manager-jmx - allows access to the JMX proxy and the status pages
manager-status - allows access to the status pages only
The HTML interface is protected against CSRF but the text and JMX interfaces are not. To maintain the CSRF protection:
Users with the manager-gui role should not be granted either the manager-script or manager-jmx roles.
If the text or jmx interfaces are accessed through a browser (e.g. for testing since these interfaces are intended for tools not hur
For more information - please see the Manager App How-To.

[ec2-user@ip-172-31-13-80 ~]$ cd apache-tomcat-11.0.8/
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd conf
[ec2-user@ip-172-31-13-80 conf]$ ls -l
total 212
drwxr-x---. 3 ec2-user ec2-user 23 Jun 22 18:50 Catalina
-rw-------. 1 ec2-user ec2-user 6636 Jun 5 17:49 catalina.properties
-rw-------. 1 ec2-user ec2-user 1411 Jun 5 17:49 context.xml
-rw-------. 1 ec2-user ec2-user 1149 Jun 5 17:49 jaspic-providers.xml
-rw-------. 1 ec2-user ec2-user 2313 Jun 5 17:49 jaspic-providers.xsd
-rw-------. 1 ec2-user ec2-user 4003 Jun 5 17:49 logging.properties
-rw-------. 1 ec2-user ec2-user 6905 Jun 5 17:49 server.xml
-rw-------. 1 ec2-user ec2-user 3003 Jun 22 18:44 tomcat-users.xml
-rw-------. 1 ec2-user ec2-user 2558 Jun 5 17:49 tomcat-users.xsd
-rw-------. 1 ec2-user ec2-user 172995 Jun 5 17:49 web.xml
[ec2-user@ip-172-31-13-80 conf]$

Checking


<user username="tomcat" password="<must-be-changed>" roles="tomcat"/>
<user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
<user username="role1" password="<must-be-changed>" roles="role1"/>
-->
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="admin-gui"/>
<user username="tomcat" password="tomcat" roles="manager-gui"/>
<user username="admin" password="admin" roles="manager-script, admin-gui"/>
</tomcat-users>
"tomcat-users.xml" 64L, 3003B

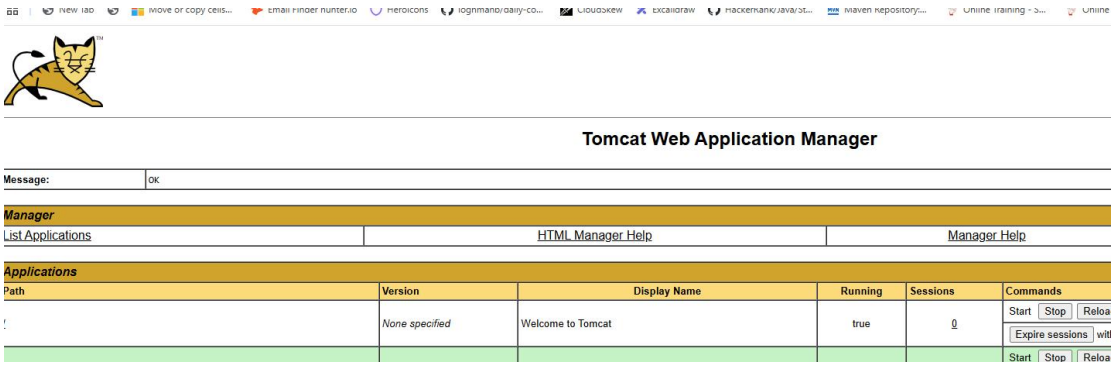
```
[ec2-user@ip-172-31-13-80 conf]$ ls -l
total 216
-rw-r--r--. 1 ec2-user ec2-user   3003 Jun 22 20:10 21
drwxr-x---. 3 ec2-user ec2-user     23 Jun 22 18:50 Catalina
-rw-------. 1 ec2-user ec2-user   6636 Jun  5 17:49 catalina.properties
-rw-------. 1 ec2-user ec2-user   1411 Jun 22 20:17 context.xml
-rw-------. 1 ec2-user ec2-user   1149 Jun  5 17:49 jaspic-providers.xml
-rw-------. 1 ec2-user ec2-user   2313 Jun  5 17:49 jaspic-providers.xsd
-rw-------. 1 ec2-user ec2-user   4003 Jun  5 17:49 logging.properties
-rw-------. 1 ec2-user ec2-user   6905 Jun  5 17:49 server.xml
-rw-------. 1 ec2-user ec2-user   3003 Jun 22 20:10 tomcat-users.xml
-rw-------. 1 ec2-user ec2-user   2558 Jun  5 17:49 tomcat-users.xsd
-rw-------. 1 ec2-user ec2-user 172995 Jun  5 17:49 web.xml
[ec2-user@ip-172-31-13-80 conf]$ vi tomcat-users.xml
```



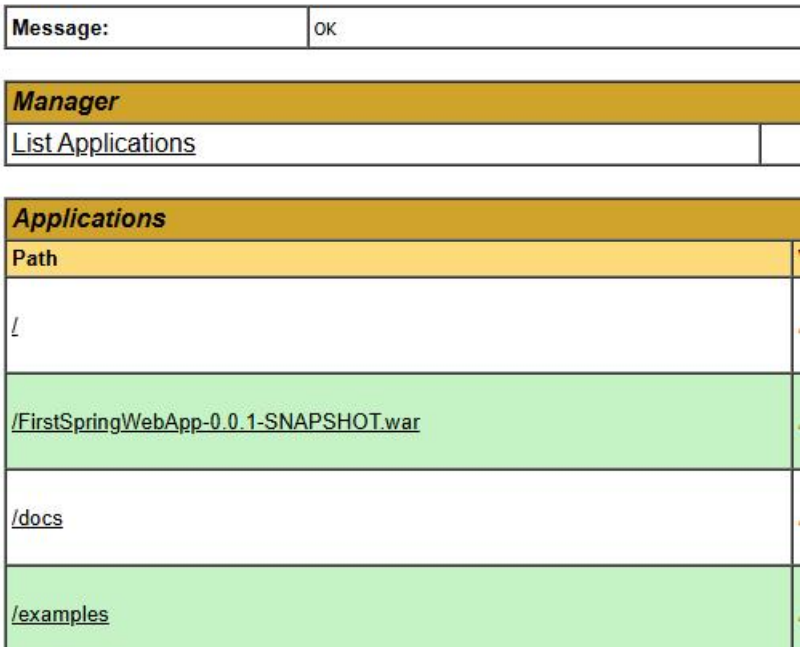
```
-->

  <role rolename="manager-gui"/>
  <role rolename="manager-script"/>
  <role rolename="admin-gui"/>

  <user username="tomcat" password="tomcat" roles="manager-gui"/>
  <user username="admin" password="admin" roles="manager-script, admin-gui, manager-gui"/>

</tomcat-users>
-- INSERT --
```

```
sh: startup.sh: No such file or directory
[ec2-user@ip-172-31-13-80 apache-tomcat-11.0.8]$ cd  bin/
[ec2-user@ip-172-31-13-80 bin]$ sh startup.sh
Using CATALINA_BASE:   /home/ec2-user/apache-tomcat-11.0.8
Using CATALINA_HOME:   /home/ec2-user/apache-tomcat-11.0.8
Using CATALINA_TMPDIR: /home/ec2-user/apache-tomcat-11.0.8/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /home/ec2-user/apache-tomcat-11.0.8/bin/bootstrap.j
Using CATALINA_OPTS:
Tomcat started.
[ec2-user@ip-172-31-13-80 bin]$
```

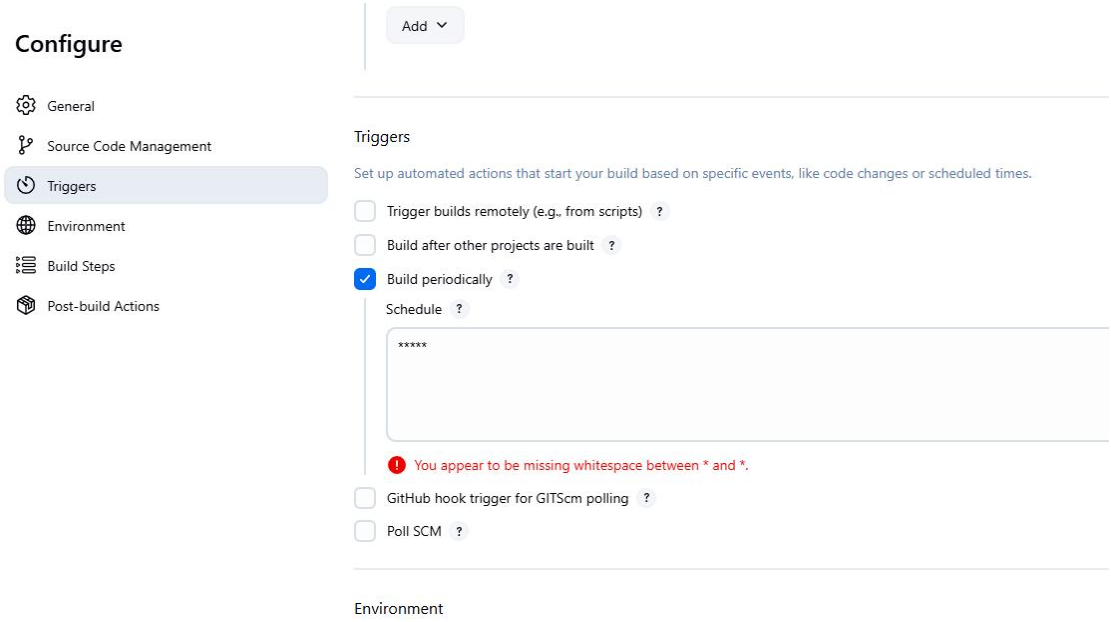
Click on Manager App



First Web Application is deployed



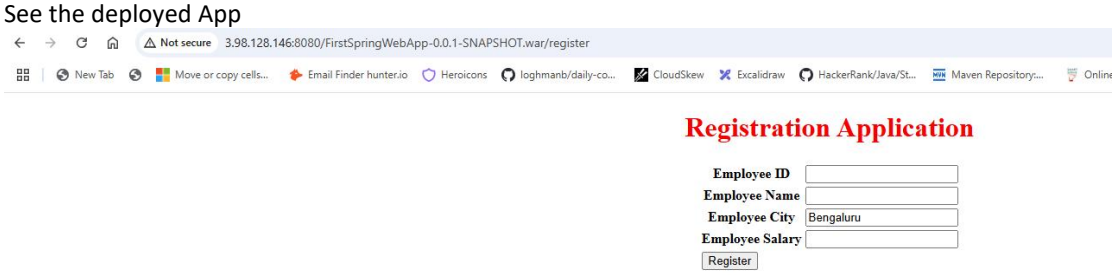
See our application is deployed



Triggers 5 stars means every 1 minute this job will be triggered

```
# Every fifteen minutes (perhaps at :07, :22, :37, :52):
H/15 * * * *
# Every ten minutes in the first half of every hour (three times, perhaps at :04, :14, :24):
H(0-29)/10 * * * *
# Once every two hours at 45 minutes past the hour starting at 9:45 AM and finishing at 3:45 PM every weekday:
45 9-16/2 * * 1-5
# Once in every two hour slot between 8 AM and 4 PM every weekday (perhaps at 9:38 AM, 11:38 AM, 1:38 PM, 3:38 PM):
H H(8-15)/2 * * 1-5
# Once a day on the 1st and 15th of every month except December:
H H 1,15 1-11 *
```

http://3.98.128.146:8080/FirstSpringWebApp-0.0.1-SNAPSHOT.war/register
See the deployed App



In Triggers, Poll SCM will start only if there is a new re-build