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JENKINS + GITHUB + MAVEN + TOMCAT – Integration Project

Overview

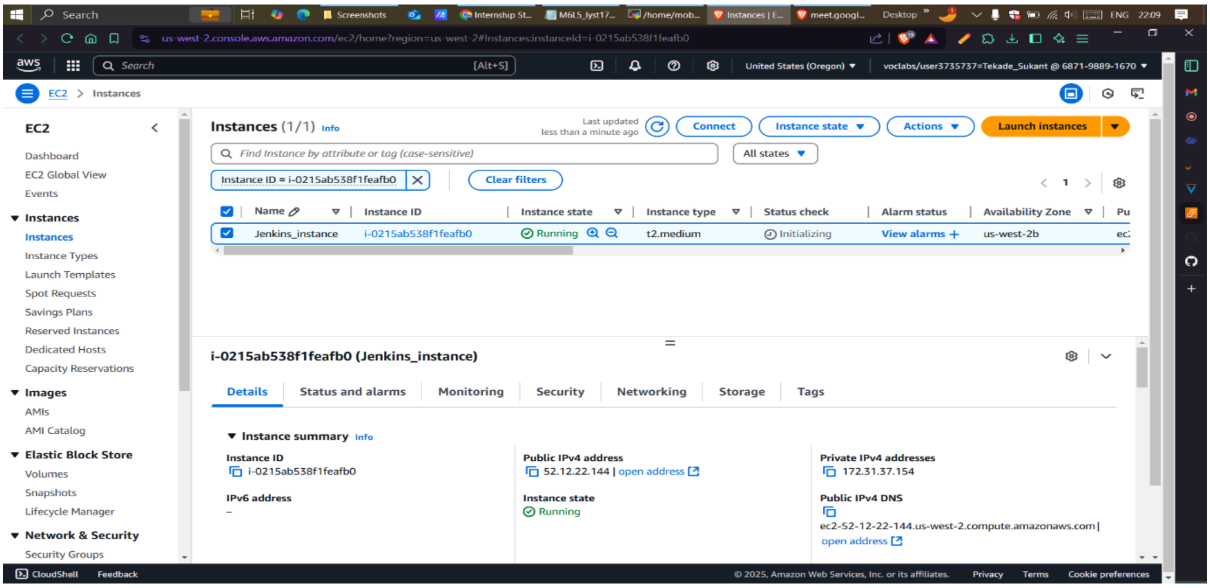
This project involves setting up a Jenkins job that pulls code from a GitHub repository, compiles and packages it using Maven, and deploys the generated WAR file to an Apache Tomcat webserver. The deployment should be automated whenever changes are pushed to the GitHub repository.

Key Points:

- Jenkins should automatically build and deploy the application upon code changes.
- Jenkins will run on **port 8080**, and Tomcat will run on **port 9090**.
- All installations and configurations will be performed on an **EC2 instance**.

Step: Create an EC2 Instance

- Launch an **EC2 instance** (Amazon Linux 2023).
- Connect to the instance using **MobaXTerm** or an SSH client.



Instances (1/1) Info

Last updated less than a minute ago

Instance ID = i-0215ab538f1feafb0

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Pu
☑	Jenkins_instance	i-0215ab538f1feafb0	Running	t2.medium	Initializing	View alarms +	us-west-2b	ec

i-0215ab538f1feafb0 (Jenkins_instance)

Instance summary Info

Instance ID: i-0215ab538f1feafb0

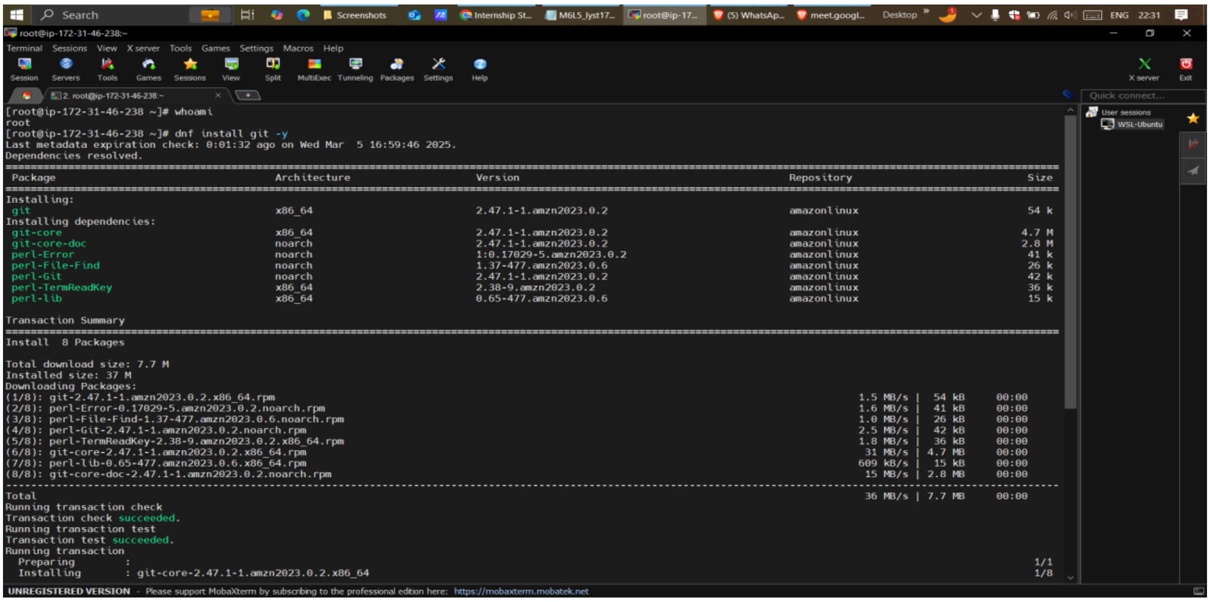
IPv6 address: –

Public IPv4 address: 52.12.22.144 | open address

Instance state: Running

Private IPv4 addresses: 172.31.37.154

Public IPv4 DNS: ec2-52-12-22-144.us-west-2.compute.amazonaws.com | open address



```
[root@ip-172-31-46-238 ~]# whoami
root
[root@ip-172-31-46-238 ~]# dnf install git -y
Last metadata expiration check: 0:01:32 ago on Wed Mar  5 16:59:46 2025.
Dependencies resolved.
================================================================================================================
 Package               Architecture       Version                          Repository                  Size
================================================================================================================
Installing:
 git                   x86_64             2.47.1-1.amzn2023.0.2            amazonlinux                 54 k
Installing dependencies:
 git-core              x86_64             2.47.1-1.amzn2023.0.2            amazonlinux                4.7 M
 git-core-doc          noarch             2.47.1-1.amzn2023.0.2            amazonlinux                2.8 M
 perl-Error            noarch             1:0.17029-5.amzn2023.0.2         amazonlinux                 41 k
 perl-File-Find        noarch             1.37-477.amzn2023.0.6            amazonlinux                 26 k
 perl-Git              noarch             2.47.1-1.amzn2023.0.2            amazonlinux                 42 k
 perl-TermReadKey      x86_64             2.38-9.amzn2023.0.2              amazonlinux                 36 k
 perl-lib              x86_64             0.65-477.amzn2023.0.6            amazonlinux                 15 k

Transaction Summary
================================================================================================================
Install  8 Packages

Total download size: 7.7 M
Installed size: 37 M
Downloading Packages:
(1/8): git-2.47.1-1.amzn2023.0.2.x86_64.rpm                                      1.5 MB/s |  54 kB     00:00
(2/8): perl-Error-0.17029-5.amzn2023.0.2.noarch.rpm                              1.6 MB/s |  41 kB     00:00
(3/8): perl-File-Find-1.37-477.amzn2023.0.6.noarch.rpm                           1.0 MB/s |  26 kB     00:00
(4/8): perl-Git-2.47.1-1.amzn2023.0.2.noarch.rpm                                 2.5 MB/s |  42 kB     00:00
(5/8): perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64.rpm                           1.8 MB/s |  36 kB     00:00
(6/8): git-core-2.47.1-1.amzn2023.0.2.x86_64.rpm                                  31 MB/s | 4.7 MB     00:00
(7/8): perl-lib-0.65-477.amzn2023.0.6.x86_64.rpm                                 609 kB/s |  15 kB     00:00
(8/8): git-core-doc-2.47.1-1.amzn2023.0.2.noarch.rpm                              15 MB/s | 2.8 MB     00:00
----------------------------------------------------------------------------------------------------------------
Total                                                                             36 MB/s | 7.7 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                                        1/1
  Installing       : git-core-2.47.1-1.amzn2023.0.2.x86_64                                                  1/8
```

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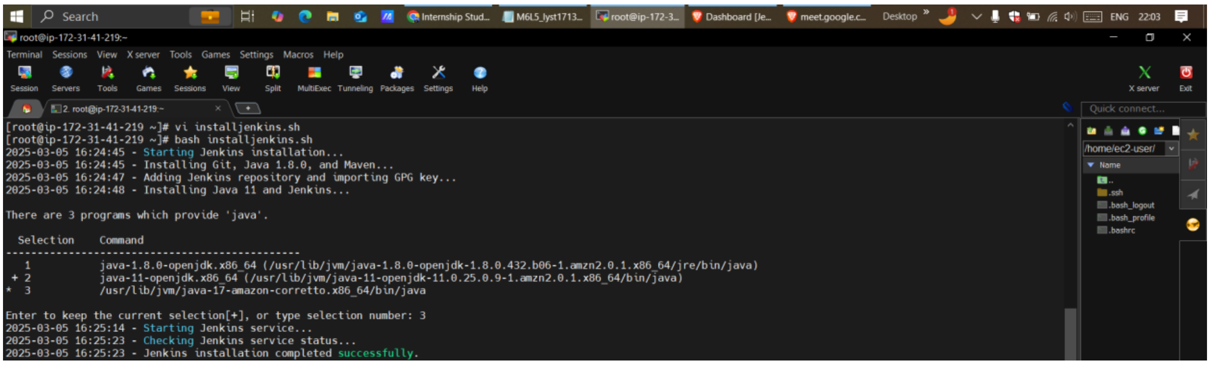
Step: Install and Configure Jenkins using Script

```
#!/bin/bash

# Update system packages
sudo dnf update -y

# Install Java 17 (Jenkins requires Java to run)
sudo dnf install java-17-amazon-corretto -y

# Verify Java installation
java -version

# Add Jenkins repository
sudo wget -O /etc/yum.repos.d/jenkins.repo \
  https://pkg.jenkins.io/redhat-stable/jenkins.repo

# Import Jenkins key
sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key

# Install Jenkins
sudo dnf install jenkins -y

# Enable and start Jenkins service
sudo systemctl enable jenkins
sudo systemctl start Jenkins
```

- Ensure Jenkins is **Active & Running**.



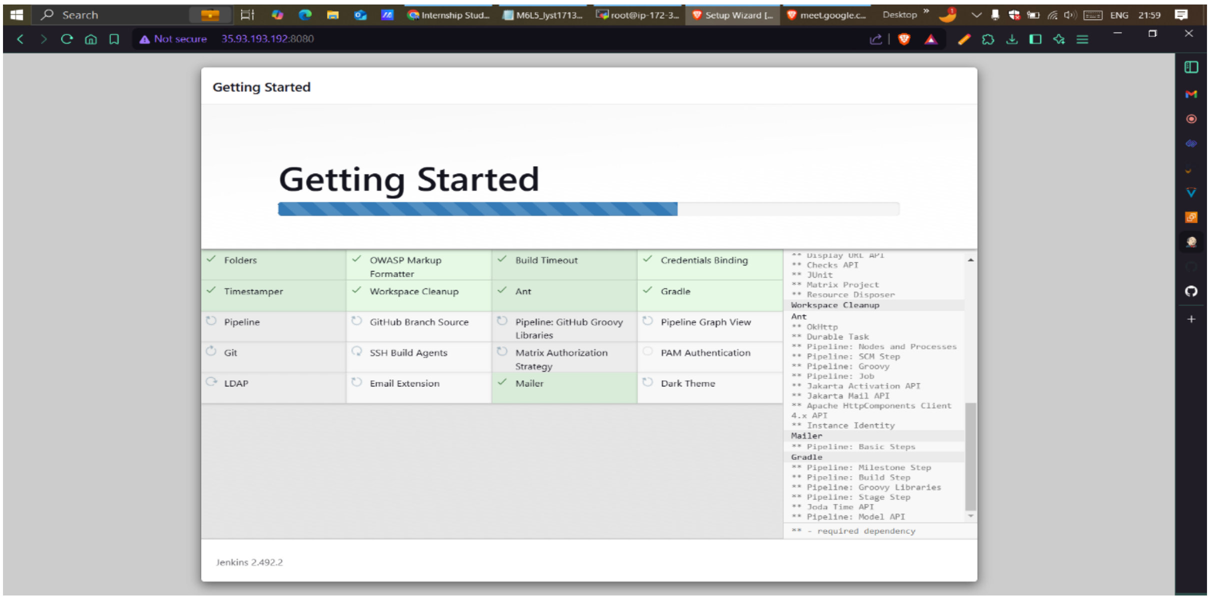
```
[root@ip-172-31-41-219 ~]# vi installjenkins.sh
[root@ip-172-31-41-219 ~]# bash installjenkins.sh
2025-03-05 16:24:45 - Starting Jenkins installation...
2025-03-05 16:24:45 - Installing Git, Java 1.8.0, and Maven...
2025-03-05 16:24:47 - Adding Jenkins repository and importing GPG key...
2025-03-05 16:24:48 - Installing Java 11 and Jenkins...

There are 3 programs which provide 'java'.

  Selection    Command
-----------------------------------------------
   1           java-1.8.0-openjdk.x86_64 (/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.432.b06-1.amzn2.0.1.x86_64/jre/bin/java)
 + 2           java-11-openjdk.x86_64 (/usr/lib/jvm/java-11-openjdk-11.0.25.0.9-1.amzn2.0.1.x86_64/bin/java)
*  3           /usr/lib/jvm/java-17-amazon-corretto.x86_64/bin/java

Enter to keep the current selection[+], or type selection number: 3
2025-03-05 16:25:14 - Starting Jenkins service...
2025-03-05 16:25:23 - Checking Jenkins service status...
2025-03-05 16:25:23 - Jenkins installation completed successfully.
```

Step: Open Jenkins Port (8080) in Security Group

- Go to **EC2 Instance → Security → Security Groups**.
- Click on **Inbound Rules → Edit**.
- Add a new rule:
  - **Type:** Custom TCP
  - **Port Range:** 8080
  - **Source:** Anywhere (0.0.0.0/0)

Step: Unlock Jenkins

- Open a browser and enter: **http://<Public-IP>:8080**.



Getting Started

Getting Started

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	✓ Credentials Binding
✓ Timestamper	✓ Workspace Cleanup	✓ Ant	✓ Gradle
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline Graph View
Git	SSH Build Agents	Matrix Authorization Strategy	PAM Authentication
LDAP	Email Extension	✓ Mailer	Dark Theme

```
** Display URL API
** Checks API
** JUnit
** Matrix Project
** Resource Disposer
Workspace Cleanup
Ant
** OkHttp
** Durable Task
** Pipeline: Nodes and Processes
** Pipeline: SCM Step
** Pipeline: Groovy
** Pipeline: Job
** Jakarta Activation API
** Jakarta Mail API
** Apache HttpComponents Client 4.x API
** Instance Identity
Mailer
** Pipeline: Basic Steps
Gradle
** Pipeline: Milestone Step
** Pipeline: Build Step
** Pipeline: Groovy Libraries
** Pipeline: Stage Step
** Joda Time API
** Pipeline: Model API
** - required dependency
```

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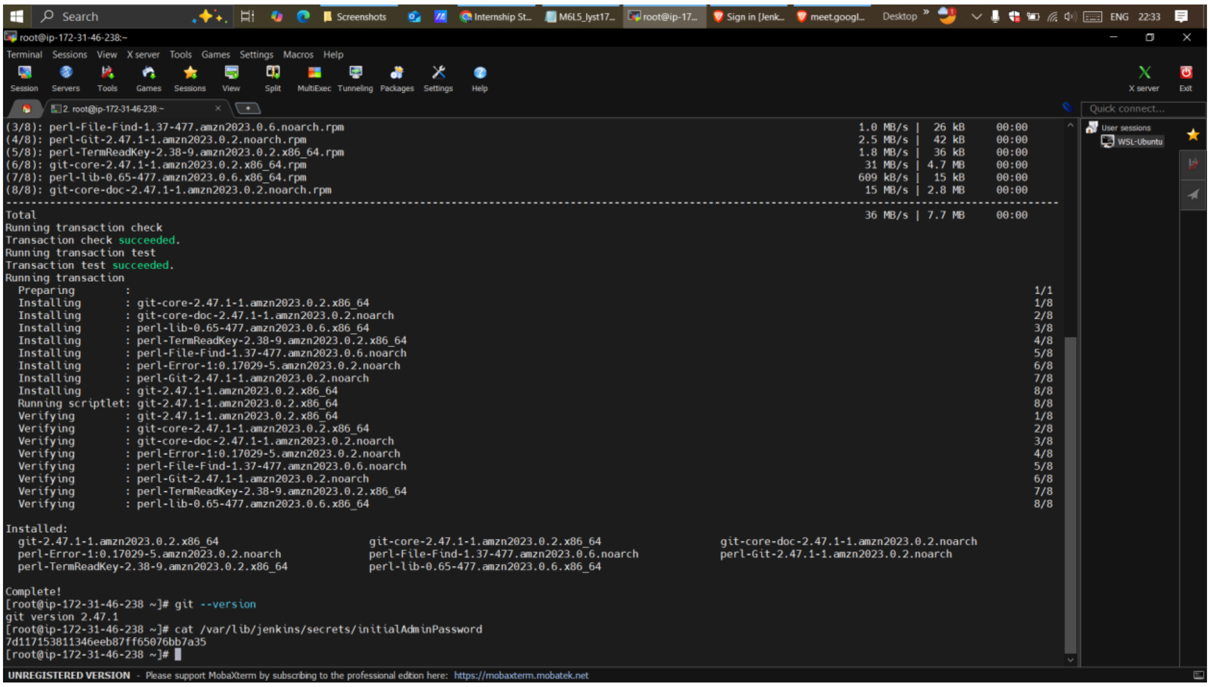
- Copy the **red-colored code** displayed.
- Retrieve the password using:
  - sudo cat /var/lib/jenkins/secrets/initialAdminPassword

- Paste the password in Jenkins UI.
- Install **Suggested Plugins** and create an **Admin User**.



root@ip-172-31-46-238:~
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
2. root@ip-172-31-46-238:~

```
(3/8): perl-File-Find-1.37-477.amzn2023.0.6.noarch.rpm                          1.0 MB/s |  26 kB     00:00
(4/8): perl-Git-2.47.1-1.amzn2023.0.2.noarch.rpm                                2.5 MB/s |  42 kB     00:00
(5/8): perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64.rpm                          1.8 MB/s |  36 kB     00:00
(6/8): git-core-2.47.1-1.amzn2023.0.2.x86_64.rpm                                 31 MB/s | 4.7 MB     00:00
(7/8): perl-lib-0.65-477.amzn2023.0.6.x86_64.rpm                                609 kB/s |  15 kB     00:00
(8/8): git-core-doc-2.47.1-1.amzn2023.0.2.noarch.rpm                             15 MB/s | 2.8 MB     00:00
--------------------------------------------------------------------------------------------------------------------
Total                                                                            36 MB/s | 7.7 MB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                                          1/1
  Installing       : git-core-2.47.1-1.amzn2023.0.2.x86_64                                                    1/8
  Installing       : git-core-doc-2.47.1-1.amzn2023.0.2.noarch                                                2/8
  Installing       : perl-lib-0.65-477.amzn2023.0.6.x86_64                                                    3/8
  Installing       : perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64                                              4/8
  Installing       : perl-File-Find-1.37-477.amzn2023.0.6.noarch                                              5/8
  Installing       : perl-Error-1:0.17029-5.amzn2023.0.2.noarch                                               6/8
  Installing       : perl-Git-2.47.1-1.amzn2023.0.2.noarch                                                    7/8
  Installing       : git-2.47.1-1.amzn2023.0.2.x86_64                                                         8/8
  Running scriptlet: git-2.47.1-1.amzn2023.0.2.x86_64                                                         8/8
  Verifying        : git-2.47.1-1.amzn2023.0.2.x86_64                                                         1/8
  Verifying        : git-core-2.47.1-1.amzn2023.0.2.x86_64                                                    2/8
  Verifying        : git-core-doc-2.47.1-1.amzn2023.0.2.noarch                                                3/8
  Verifying        : perl-Error-1:0.17029-5.amzn2023.0.2.noarch                                               4/8
  Verifying        : perl-File-Find-1.37-477.amzn2023.0.6.noarch                                              5/8
  Verifying        : perl-Git-2.47.1-1.amzn2023.0.2.noarch                                                    6/8
  Verifying        : perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64                                              7/8
  Verifying        : perl-lib-0.65-477.amzn2023.0.6.x86_64                                                    8/8

Installed:
  git-2.47.1-1.amzn2023.0.2.x86_64                    git-core-2.47.1-1.amzn2023.0.2.x86_64                  git-core-doc-2.47.1-1.amzn2023.0.2.noarch
  perl-Error-1:0.17029-5.amzn2023.0.2.noarch          perl-File-Find-1.37-477.amzn2023.0.6.noarch            perl-Git-2.47.1-1.amzn2023.0.2.noarch
  perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64         perl-lib-0.65-477.amzn2023.0.6.x86_64

Complete!
[root@ip-172-31-46-238 ~]# git --version
git version 2.47.1
[root@ip-172-31-46-238 ~]# cat /var/lib/jenkins/secrets/initialAdminPassword
7d117153811346eeb87ff65076bb7a35
[root@ip-172-31-46-238 ~]# 
```

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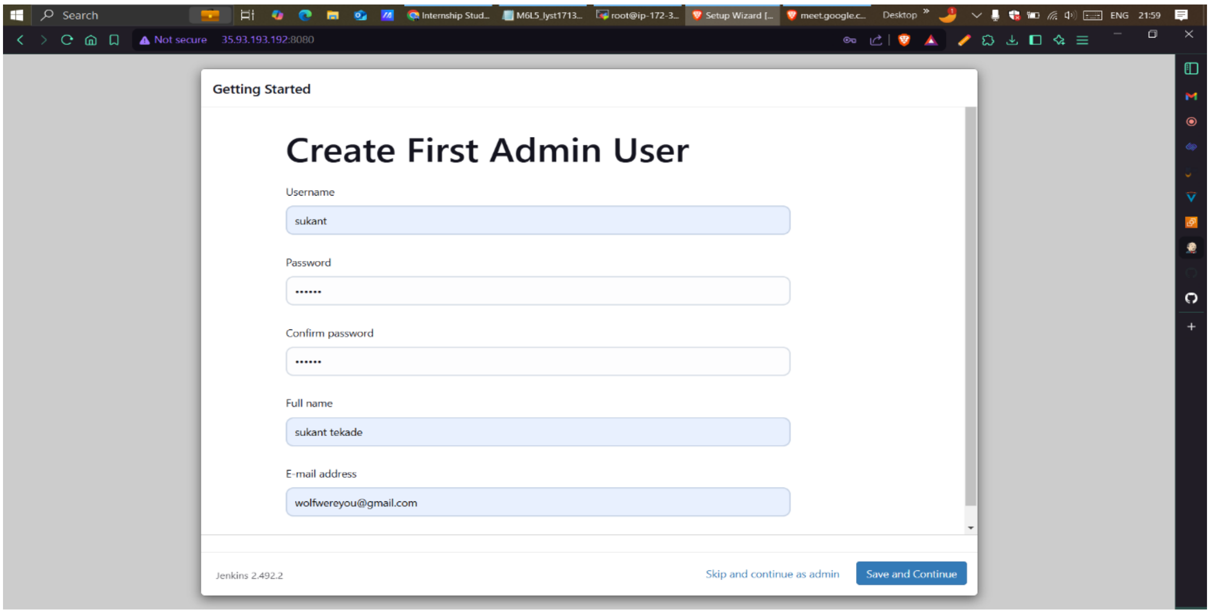


Getting Started

Create First Admin User

Username: sukant

Password: ••••••

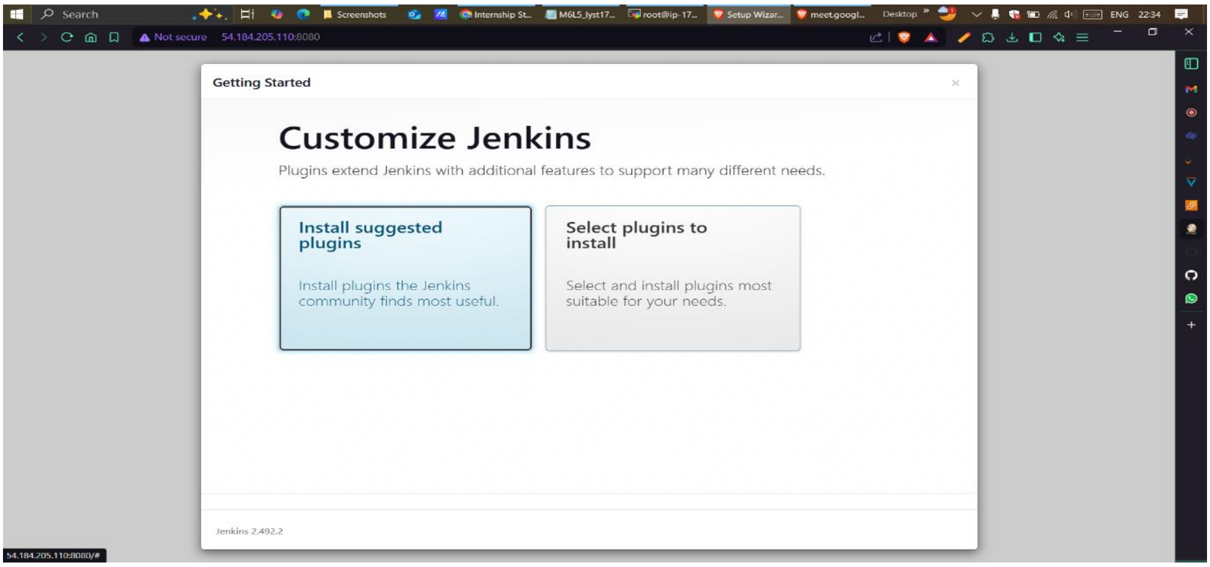
Confirm password: ••••••

Full name: sukant tekade

E-mail address: wolfwereyou@gmail.com

Jenkins 2.492.2

Skip and continue as admin | Save and Continue



Getting Started

Customize Jenkins

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

Install suggested plugins

Install plugins the Jenkins community finds most useful.

Select plugins to install

Select and install plugins most suitable for your needs.

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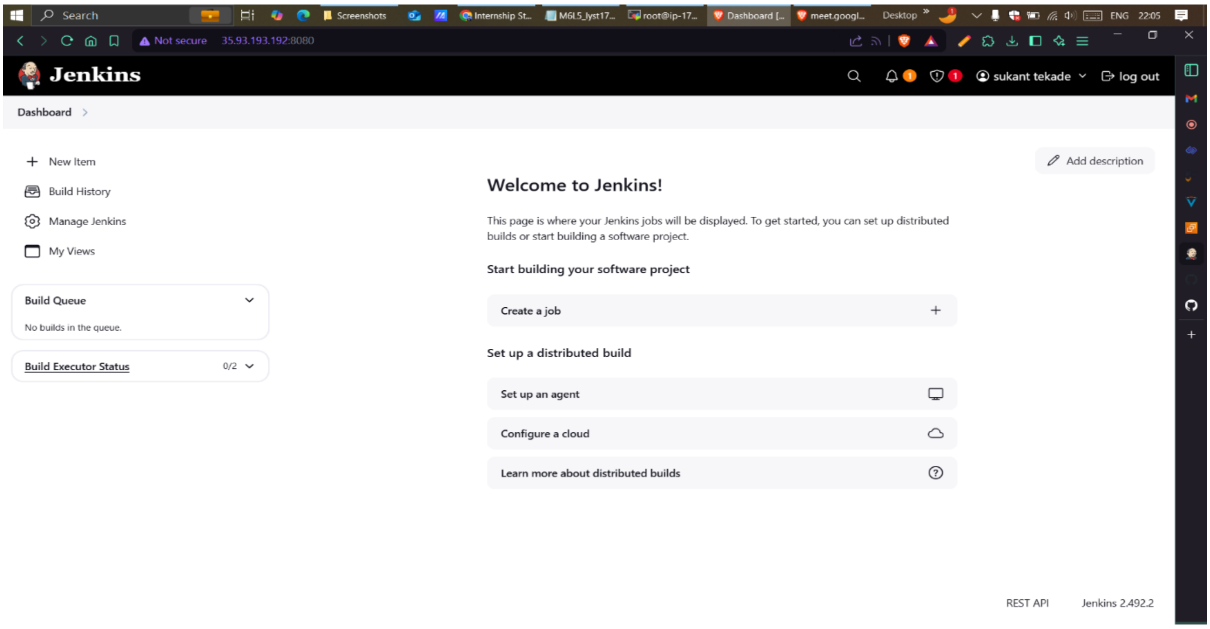


Build Queue

No builds in the queue.

Build Executor Status 0/2

Welcome to Jenkins!

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

Start building your software project

Create a job

Set up a distributed build

Set up an agent

Configure a cloud

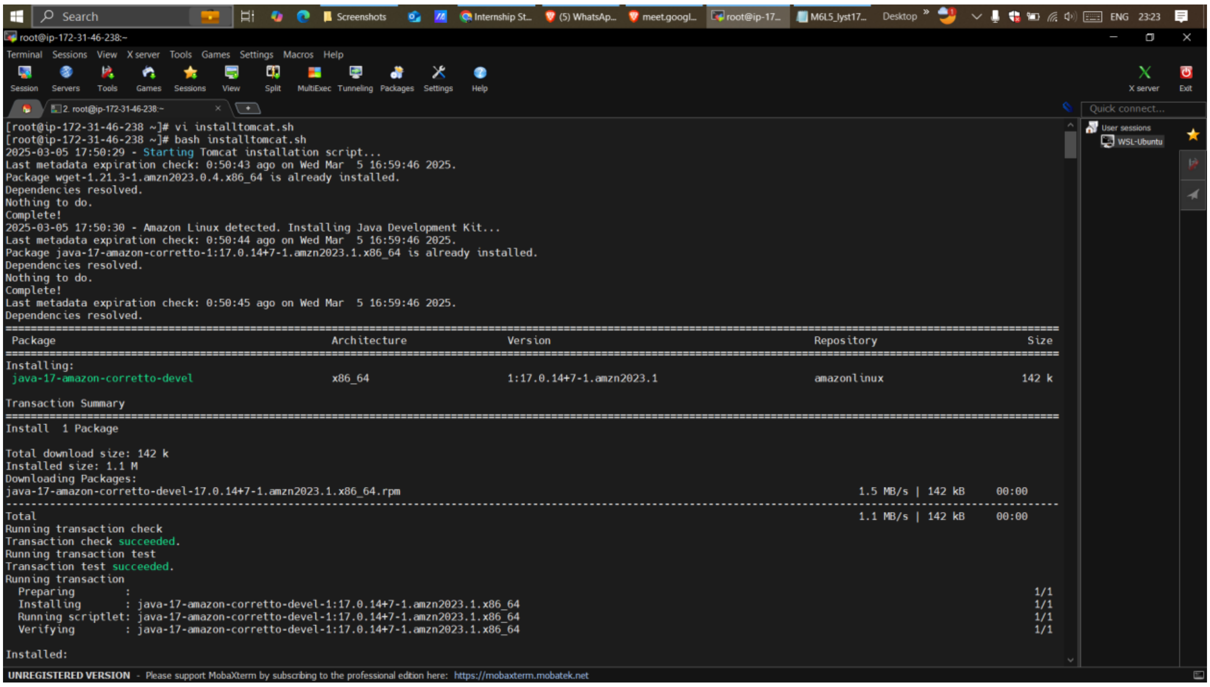
Learn more about distributed builds

REST API   Jenkins 2.492.2

Step: Install and Configure Tomcat Webserver using Script

Internship-Studio-Project/installtomcat.sh

Step: Download and Extract Tomcat



```
[root@ip-172-31-46-238 ~]# vi installtomcat.sh
[root@ip-172-31-46-238 ~]# bash installtomcat.sh
2025-03-05 17:50:29 - Starting Tomcat installation script...
Last metadata expiration check: 0:50:43 ago on Wed Mar  5 16:59:46 2025.
Package wget-1.21.3-1.amzn2023.0.4.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
2025-03-05 17:50:30 - Amazon Linux detected. Installing Java Development Kit...
Last metadata expiration check: 0:50:44 ago on Wed Mar  5 16:59:46 2025.
Package java-17-amazon-corretto-1:17.0.14+7-1.amzn2023.1.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
Last metadata expiration check: 0:50:45 ago on Wed Mar  5 16:59:46 2025.
Dependencies resolved.
==========================================================================================================================================
 Package                                  Architecture          Version                                  Repository                  Size
==========================================================================================================================================
Installing:
 java-17-amazon-corretto-devel            x86_64                1:17.0.14+7-1.amzn2023.1                 amazonlinux                142 k

Transaction Summary
==========================================================================================================================================
Install  1 Package

Total download size: 142 k
Installed size: 1.1 M
Downloading Packages:
java-17-amazon-corretto-devel-17.0.14+7-1.amzn2023.1.x86_64.rpm                                                1.5 MB/s | 142 kB     00:00
------------------------------------------------------------------------------------------------------------------------------------------
Total                                                                                                          1.1 MB/s | 142 kB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :                                                                                                                  1/1
  Installing       : java-17-amazon-corretto-devel-1:17.0.14+7-1.amzn2023.1.x86_64                                                    1/1
  Running scriptlet: java-17-amazon-corretto-devel-1:17.0.14+7-1.amzn2023.1.x86_64                                                    1/1
  Verifying        : java-17-amazon-corretto-devel-1:17.0.14+7-1.amzn2023.1.x86_64                                                    1/1

Installed:
```

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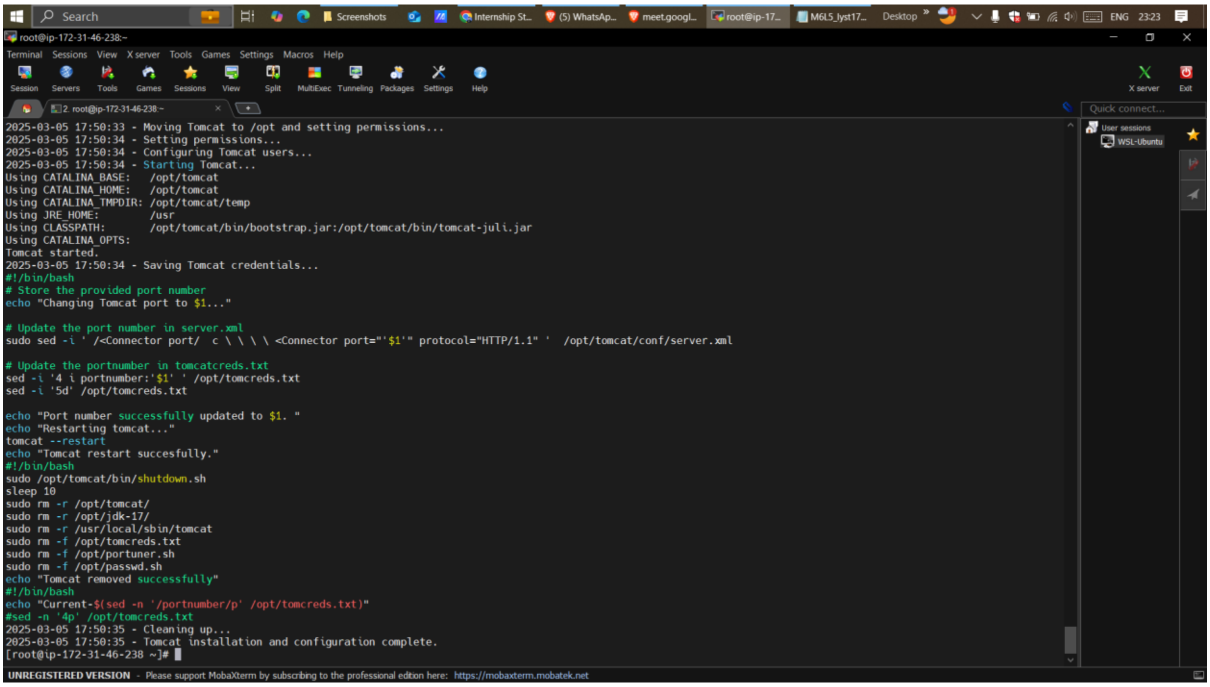

```
2025-03-05 17:50:33 - Moving Tomcat to /opt and setting permissions...
2025-03-05 17:50:34 - Setting permissions...
2025-03-05 17:50:34 - Configuring Tomcat users...
2025-03-05 17:50:34 - Starting Tomcat...
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
2025-03-05 17:50:34 - Saving Tomcat credentials...
#!/bin/bash
# Store the provided port number
echo "Changing Tomcat port to $1..."

# Update the port number in server.xml
sudo sed -i ' /<Connector port/  c \ \ \ \ <Connector port="'$1'" protocol="HTTP/1.1" '  /opt/tomcat/conf/server.xml

# Update the portnumber in tomcatcreds.txt
sed -i '4 i portnumber:'$1' ' /opt/tomcreds.txt
sed -i '5d' /opt/tomcreds.txt

echo "Port number successfully updated to $1. "
echo "Restarting tomcat..."
tomcat --restart
echo "Tomcat restart succesfully."
#!/bin/bash
sudo /opt/tomcat/bin/shutdown.sh
sleep 10
sudo rm -r /opt/tomcat/
sudo rm -r /opt/jdk-17/
sudo rm -r /usr/local/sbin/tomcat
sudo rm -f /opt/tomcreds.txt
sudo rm -f /opt/portuner.sh
sudo rm -f /opt/passwd.sh
echo "Tomcat removed successfully"
#!/bin/bash
echo "Current-$(sed -n '/portnumber/p' /opt/tomcreds.txt)"
#sed -n '4p' /opt/tomcreds.txt
2025-03-05 17:50:35 - Cleaning up...
2025-03-05 17:50:35 - Tomcat installation and configuration complete.
[root@ip-172-31-46-238 ~]#
```

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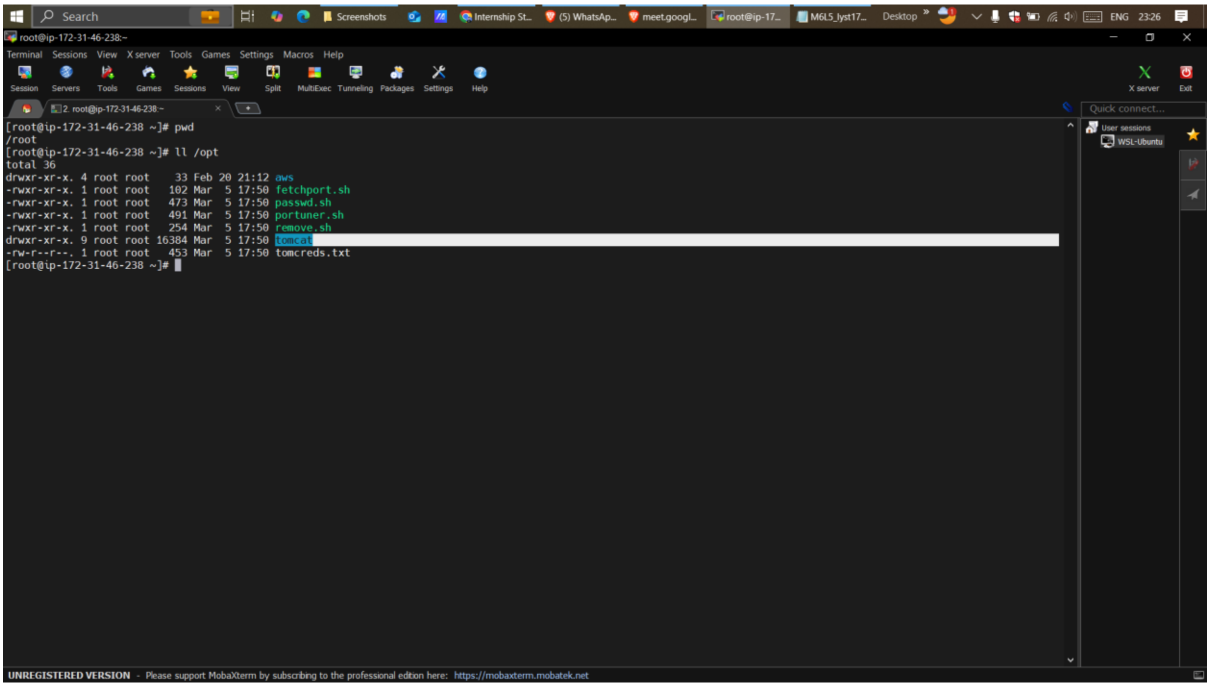
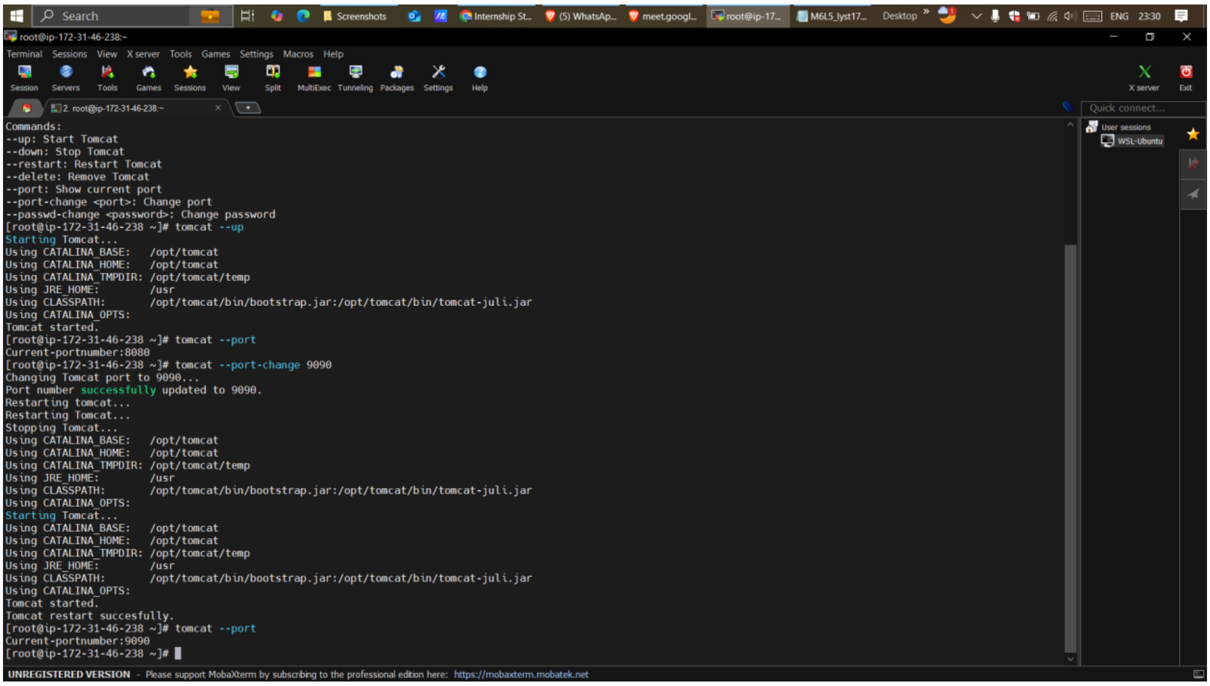


```
[root@ip-172-31-46-238 ~]# pwd
/root
[root@ip-172-31-46-238 ~]# ll /opt
total 36
drwxr-xr-x. 4 root root    33 Feb 20 21:12 aws
-rwxr-xr-x. 1 root root   102 Mar  5 17:50 fetchport.sh
-rwxr-xr-x. 1 root root   473 Mar  5 17:50 passwd.sh
-rwxr-xr-x. 1 root root   491 Mar  5 17:50 portuner.sh
-rwxr-xr-x. 1 root root   254 Mar  5 17:50 remove.sh
drwxr-xr-x. 9 root root 16384 Mar  5 17:50 tomcat
-rw-r--r--. 1 root root   453 Mar  5 17:50 tomcreds.txt
[root@ip-172-31-46-238 ~]#
```

Step: Start Tomcat using Inbuild Command "tomcat --up"

Step: Change Tomcat Port to 9090 using Inbuild Command "tomcat –port-change 9090"



```
Commands:
--up: Start Tomcat
--down: Stop Tomcat
--restart: Restart Tomcat
--delete: Remove Tomcat
--port: Show current port
--port-change <port>: Change port
--passwd-change <password>: Change password
[root@ip-172-31-46-238 ~]# tomcat --up
Starting Tomcat...
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
[root@ip-172-31-46-238 ~]# tomcat --port
Current-portnumber:8080
[root@ip-172-31-46-238 ~]# tomcat --port-change 9090
Changing Tomcat port to 9090...
Port number successfully updated to 9090.
Restarting tomcat...
Restarting Tomcat...
Stopping Tomcat...
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Starting Tomcat...
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
Tomcat restart succesfully.
[root@ip-172-31-46-238 ~]# tomcat --port
Current-portnumber:9090
[root@ip-172-31-46-238 ~]#
```

Step: Open Tomcat Port (9090) in Security Group

1. **EC2 Instance → Security → Security Groups → Edit Inbound Rules**.
2. Add a new rule:
   - **Type:** Custom TCP
   - **Port Range:** 9090
   - **Source:** Anywhere (0.0.0.0/0).

Step: Configure Tomcat Users

1. **Edit tomcat-users.xml:**

```
cd ../conf
vi tomcat-users.xml
```

2. **Add the following users inside the <tomcat-users> tag:**

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

3. **Save and restart Tomcat:**

```
cd ../bin
./shutdown.sh
./startup.sh
```

4. **Access Tomcat at: http://<Public-IP>:9090.**

Step: Install Git on EC2 (For Jenkins)

```
sudo yum install git -y
```

Step: Jenkins Job - GitHub + Maven + Tomcat Deployment

Step: Grant Deployment Permission in Tomcat

1. **Edit tomcat-users.xml:**

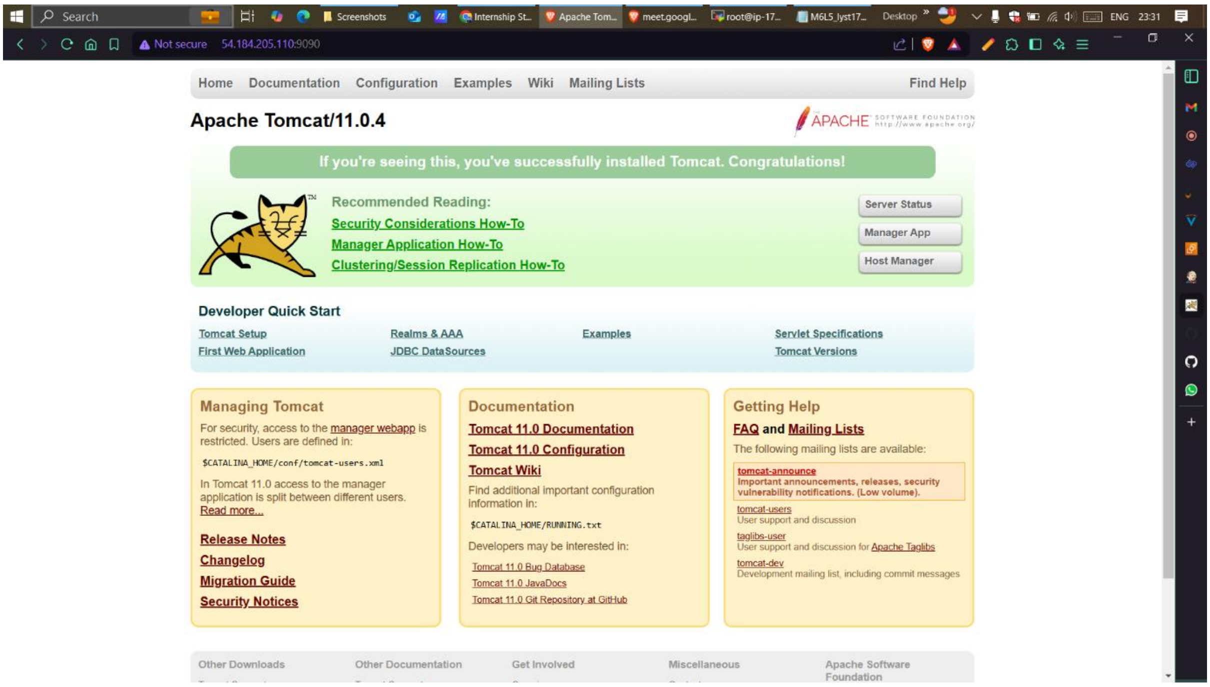
```
vi tomcat-users.xml
```

2. **Add:**

```
<role rolename="manager-script"/>
<user username="deploy" password="deploy" roles="manager-script"/>
```

3. **Save and restart Tomcat:**

```
cd ../bin
./shutdown.sh
./startup.sh
```



Apache Tomcat/11.0.4

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Recommended Reading:
Security Considerations How-To
Manager Application How-To
Clustering/Session Replication How-To

Developer Quick Start

Tomcat Setup
First Web Application
Realms & AAA
JDBC DataSources
Examples
Servlet Specifications
Tomcat Versions

Managing Tomcat

For security, access to the manager webapp is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 11.0 access to the manager application is split between different users. Read more...

Release Notes
Changelog
Migration Guide
Security Notices

Documentation

Tomcat 11.0 Documentation
Tomcat 11.0 Configuration
Tomcat Wiki

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

Tomcat 11.0 Bug Database
Tomcat 11.0 JavaDocs
Tomcat 11.0 Git Repository at GitHub

Getting Help

FAQ and Mailing Lists

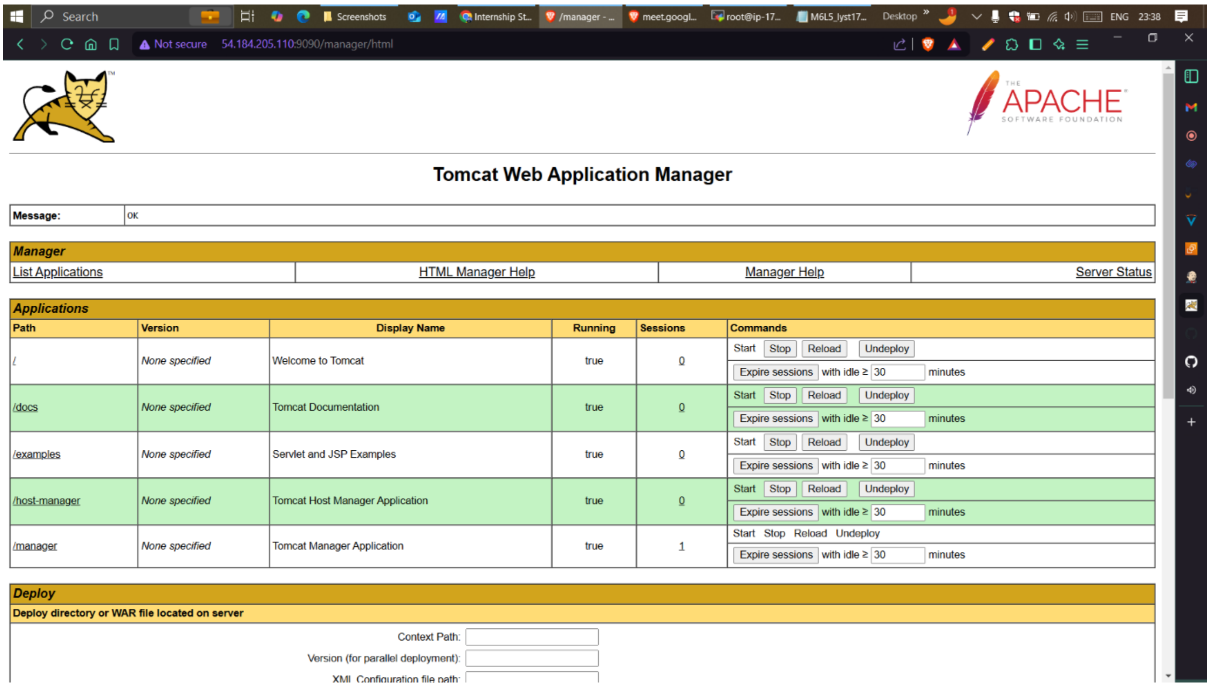
The following mailing lists are available:

tomcat-announce
Important announcements, releases, security vulnerability notifications. (Low volume).

tomcat-users
User support and discussion

taglibs-user
User support and discussion for Apache Taglibs

tomcat-dev
Development mailing list, including commit messages



Tomcat Web Application Manager

Message:	OK

Manager			
List Applications	HTML Manager Help	Manager Help	Server Status

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

Deploy

Deploy directory or WAR file located on server

Context Path:
Version (for parallel deployment):
XML Configuration file path:

Step: Install Jenkins Plugin for Deployment

- **Jenkins Dashboard → Manage Jenkins → Manage Plugins**.
- Search for **Deploy to Container** plugin.
- Select and **Install without Restart**.

Step: Configure Jenkins for GitHub and Maven

- **Jenkins Dashboard → Manage Jenkins → Global Tool Configuration**.
- Configure:
  - **JDK**: Add JDK path.
  - **Git**: Ensure Git is installed.
  - **Maven**: Add Maven path.

Step: Create Jenkins Job for Automated Deployment

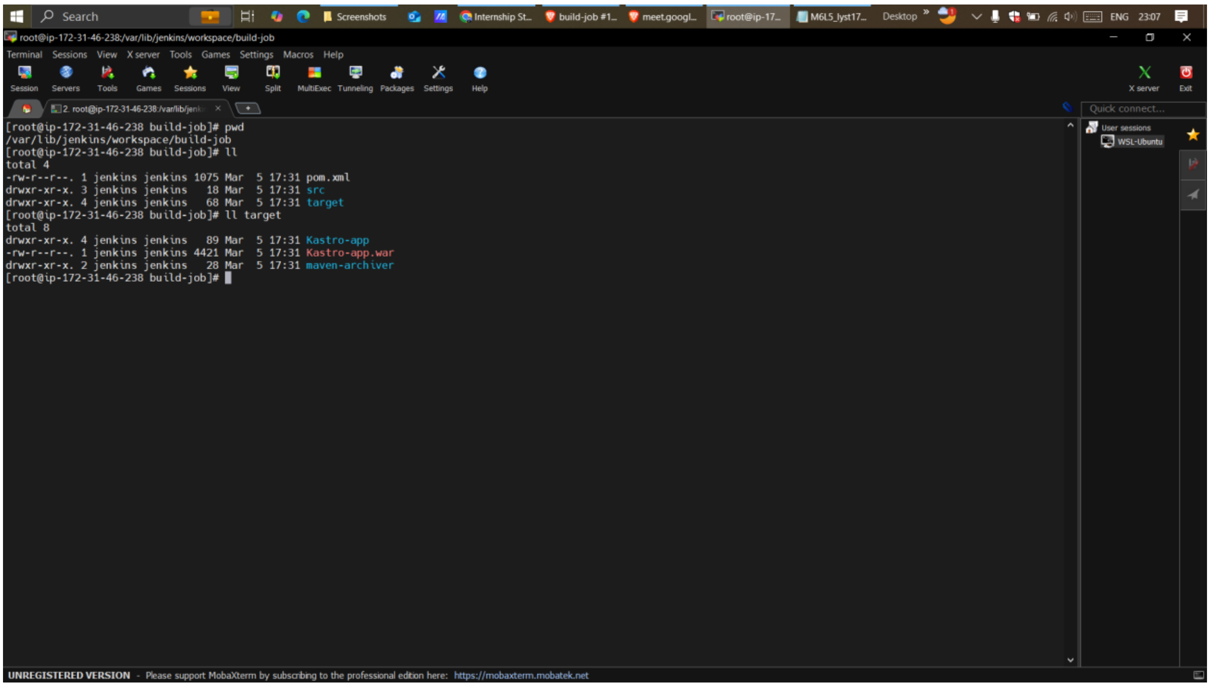
1. **Jenkins Dashboard → New Item → Enter Job Name:** Build and Deployment Job **→ Select "Freestyle Project" → OK**.

2. **Configure Source Code Management:**
   - **GitHub Repository URL:** "**https://github.com/sukant8815/Internship-Studio-Project.git**"

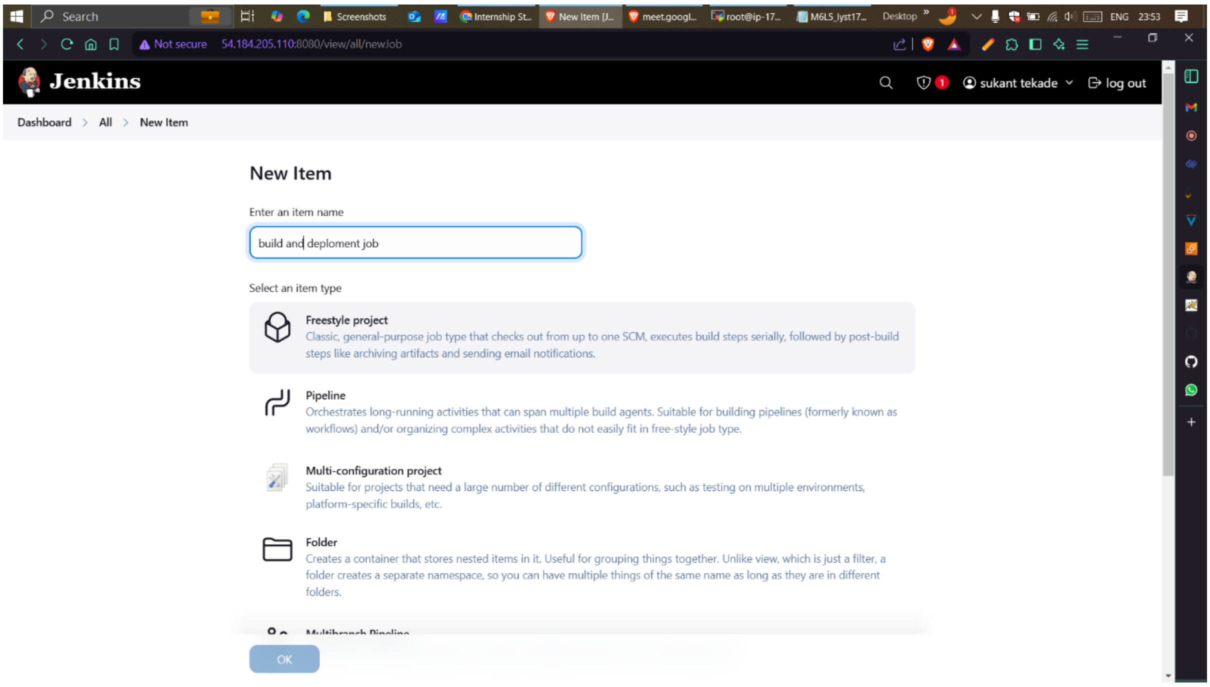
3. **Configure Build Steps:**
   - **Add Build Step → Invoke top-level Maven targets**.
   - Goal: **clean compile package**.

4. **Configure Post-Build Deployment:**
   - **Add Post-Build Action → Deploy war/ear to a container**.
   - **WAR/EAR files**: **/*.war.
   - **Credential**: **user**- apachetomcat | **passwd**- tomcat123
   - **Container:**
     - **Container Type:** Tomcat 9.x.
     - **Manager URL: http://<public-ip:9090**

5. **Save and Apply Changes.**


root@ip-172-31-46-238:/var/lib/jenkins/workspace/build-job
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
2. root@ip-172-31-46-238:/var/lib/jenkins
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net

```
[root@ip-172-31-46-238 build-job]# pwd
/var/lib/jenkins/workspace/build-job
[root@ip-172-31-46-238 build-job]# ll
total 4
-rw-r--r--. 1 jenkins jenkins 1075 Mar  5 17:31 pom.xml
drwxr-xr-x. 3 jenkins jenkins   18 Mar  5 17:31 src
drwxr-xr-x. 4 jenkins jenkins   68 Mar  5 17:31 target
[root@ip-172-31-46-238 build-job]# ll target
total 8
drwxr-xr-x. 4 jenkins jenkins   89 Mar  5 17:31 Kastro-app
-rw-r--r--. 1 jenkins jenkins 4421 Mar  5 17:31 Kastro-app.war
drwxr-xr-x. 2 jenkins jenkins   28 Mar  5 17:31 maven-archiver
[root@ip-172-31-46-238 build-job]#
```


Not secure 54.184.205.110:8080/view/all/newJob
Jenkins
sukant tekade
log out
Dashboard > All > New Item

New Item

Enter an item name

build and deploment job

Select an item type

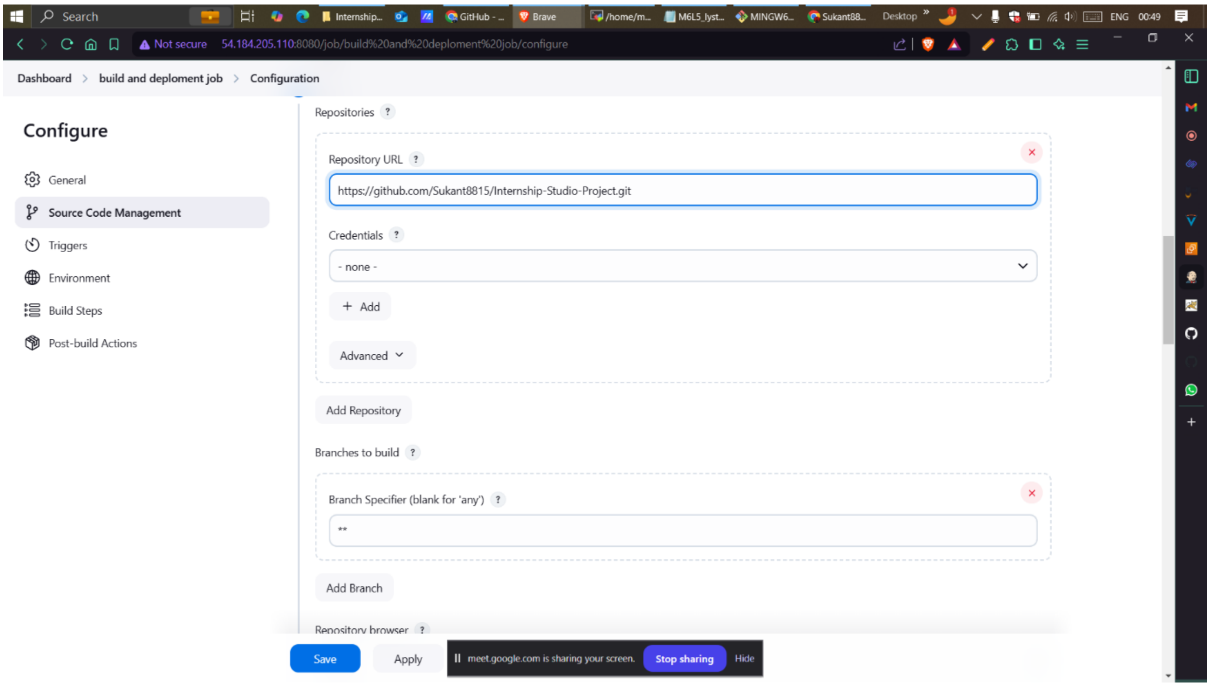
Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

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 folders.

Multibranch Pipeline


Not secure 54.184.205.110:8080/job/build%20and%20deploment%20job/configure
Dashboard > build and deploment job > Configuration
Configure
General
Source Code Management
Triggers
Environment
Build Steps
Post-build Actions

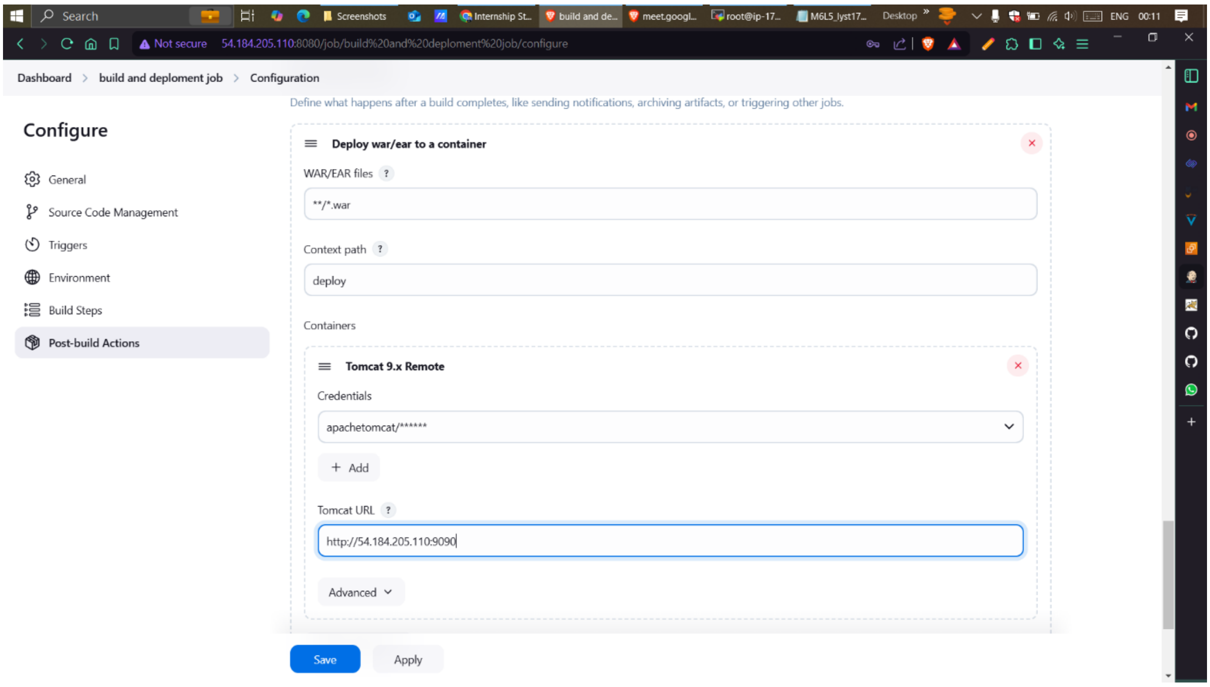
Repositories

Repository URL: https://github.com/Sukant8815/Internship-Studio-Project.git

Credentials: - none -

Branches to build

Branch Specifier (blank for 'any'): **



Not secure 54.184.205.110:8080/job/build%20and%20deploment%20job/configure

Dashboard > build and deploment job > Configuration

Configure

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

Deploy war/ear to a container

WAR/EAR files: **/*.war

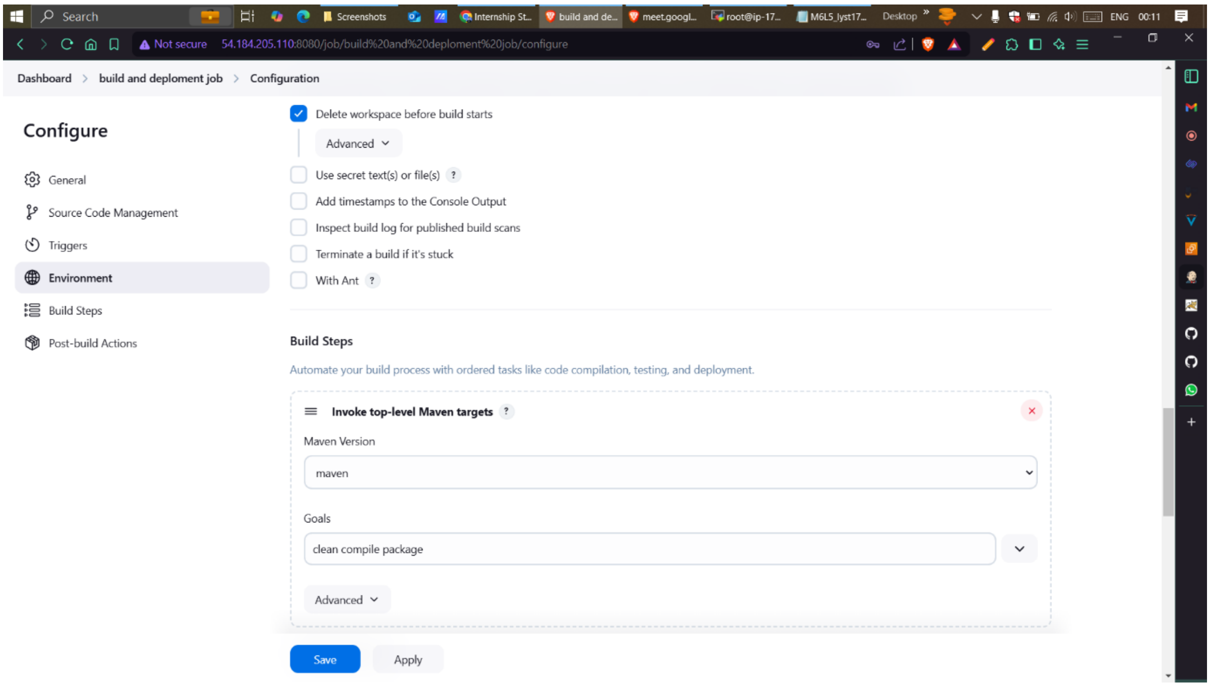
Context path: deploy

Containers

Tomcat 9.x Remote

Credentials: apachetomcat/******

Tomcat URL: http://54.184.205.110:9090



Not secure 54.184.205.110:8080/job/build%20and%20deploment%20job/configure

Dashboard > build and deploment job > Configuration

Configure

☑ Delete workspace before build starts

Advanced

□ Use secret text(s) or file(s)

□ Add timestamps to the Console Output

□ Inspect build log for published build scans

□ Terminate a build if it's stuck

□ With Ant

Build Steps

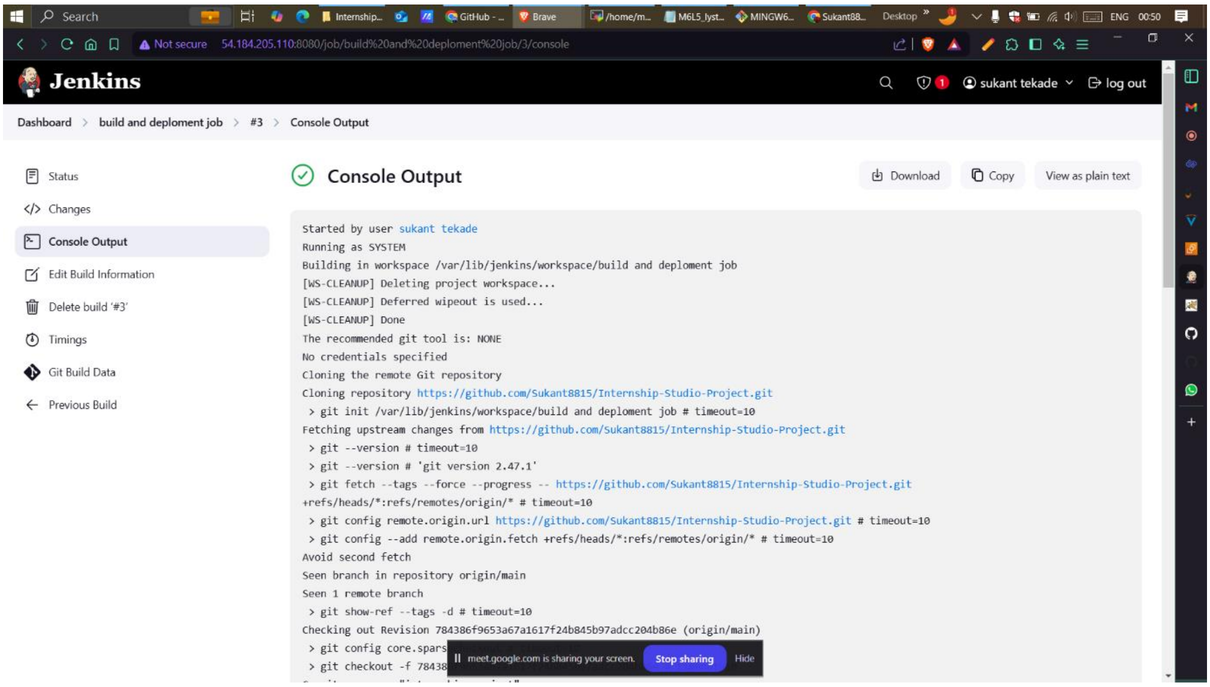
Automate your build process with ordered tasks like code compilation, testing, and deployment.

Invoke top-level Maven targets

Maven Version: maven

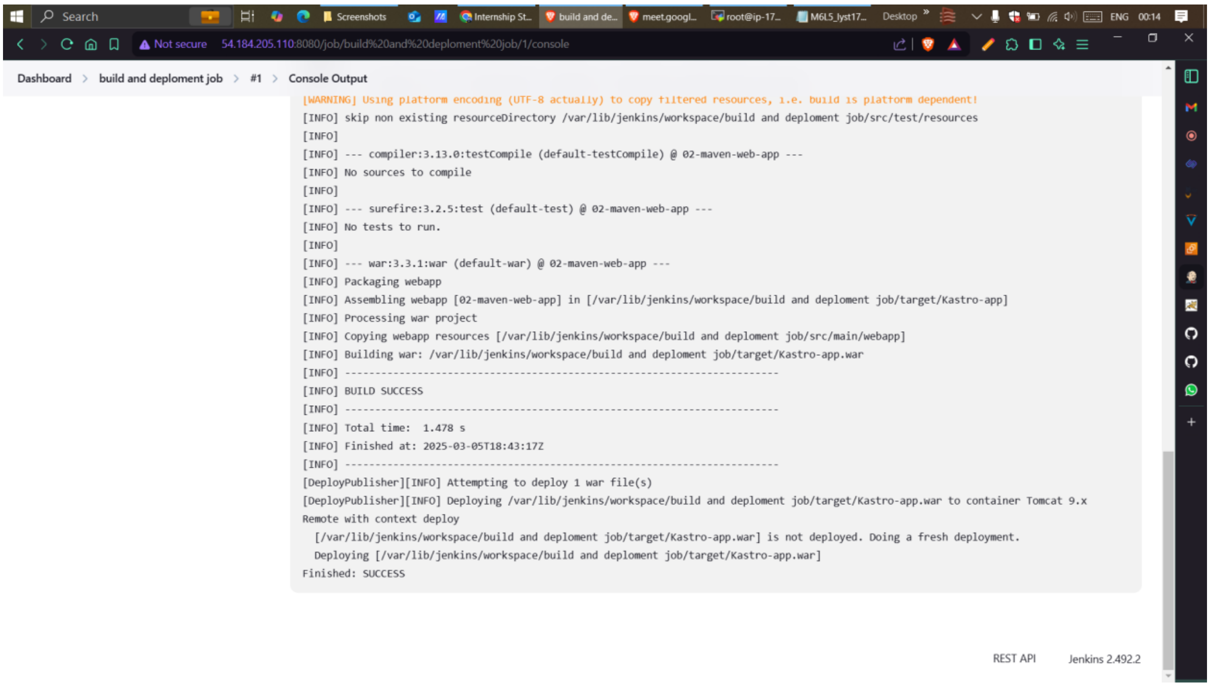
Goals: clean compile package

Step: Build Console Output



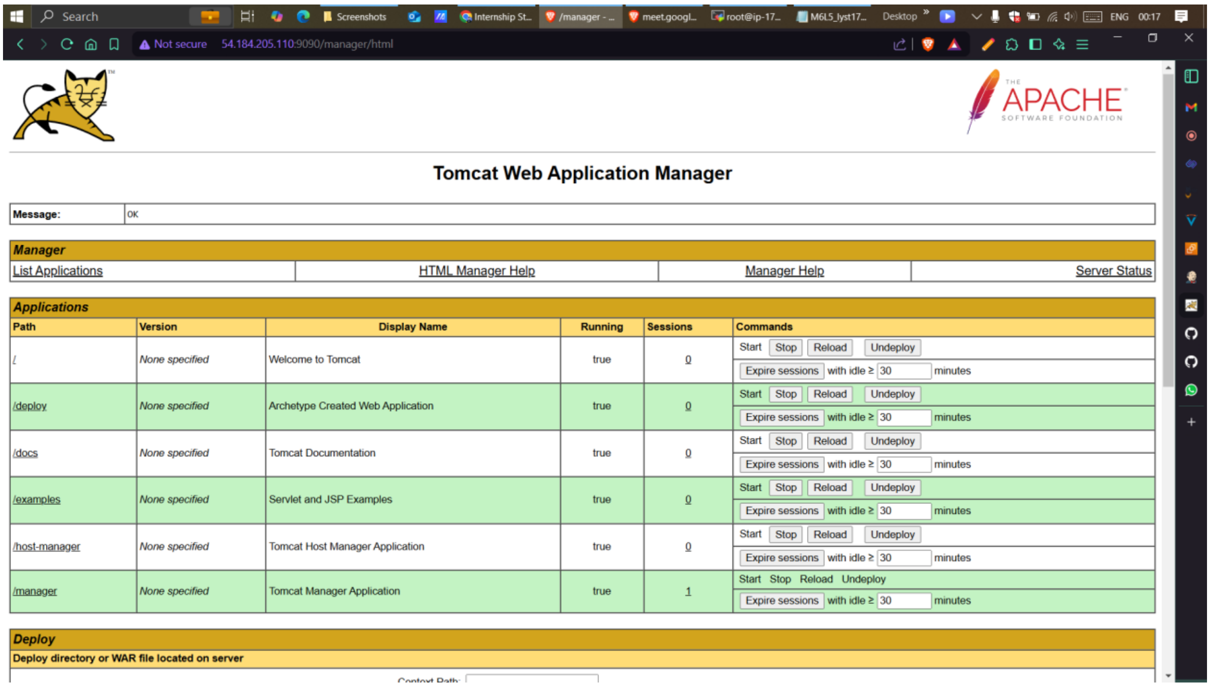
Console Output

```
Started by user sukant tekade
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/build and deploment job
[WS-CLEANUP] Deleting project workspace...
[WS-CLEANUP] Deferred wipeout is used...
[WS-CLEANUP] Done
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/Sukant8815/Internship-Studio-Project.git
 > git init /var/lib/jenkins/workspace/build and deploment job # timeout=10
Fetching upstream changes from https://github.com/Sukant8815/Internship-Studio-Project.git
 > git --version # timeout=10
 > git --version # 'git version 2.47.1'
 > git fetch --tags --force --progress -- https://github.com/Sukant8815/Internship-Studio-Project.git
+refs/heads/*:refs/remotes/origin/* # timeout=10
 > git config remote.origin.url https://github.com/Sukant8815/Internship-Studio-Project.git # timeout=10
 > git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
Seen branch in repository origin/main
Seen 1 remote branch
 > git show-ref --tags -d # timeout=10
Checking out Revision 784386f9653a67a1617f24b845b97adcc204b86e (origin/main)
 > git config core.spars
 > git checkout -f 78438
```


Not secure 54.184.205.110:8080/job/build%20and%20deploment%20job/1/console
Dashboard > build and deploment job > #1 > Console Output
REST API
Jenkins 2.492.2

```
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/build and deploment job/src/test/resources
[INFO]
[INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ 02-maven-web-app ---
[INFO] No sources to compile
[INFO]
[INFO] --- surefire:3.2.5:test (default-test) @ 02-maven-web-app ---
[INFO] No tests to run.
[INFO]
[INFO] --- war:3.3.1:war (default-war) @ 02-maven-web-app ---
[INFO] Packaging webapp
[INFO] Assembling webapp [02-maven-web-app] in [/var/lib/jenkins/workspace/build and deploment job/target/Kastro-app]
[INFO] Processing war project
[INFO] Copying webapp resources [/var/lib/jenkins/workspace/build and deploment job/src/main/webapp]
[INFO] Building war: /var/lib/jenkins/workspace/build and deploment job/target/Kastro-app.war
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.478 s
[INFO] Finished at: 2025-03-05T18:43:17Z
[INFO] ------------------------------------------------------------------------
[DeployPublisher][INFO] Attempting to deploy 1 war file(s)
[DeployPublisher][INFO] Deploying /var/lib/jenkins/workspace/build and deploment job/target/Kastro-app.war to container Tomcat 9.x
Remote with context deploy
  [/var/lib/jenkins/workspace/build and deploment job/target/Kastro-app.war] is not deployed. Doing a fresh deployment.
  Deploying [/var/lib/jenkins/workspace/build and deploment job/target/Kastro-app.war]
Finished: SUCCESS
```

Step: War file get deployed to tomcat



54.184.205.110:9090/manager/html

Tomcat Web Application Manager

Message:	OK

Manager

List Applications	HTML Manager Help	Manager Help	Server Status

Applications

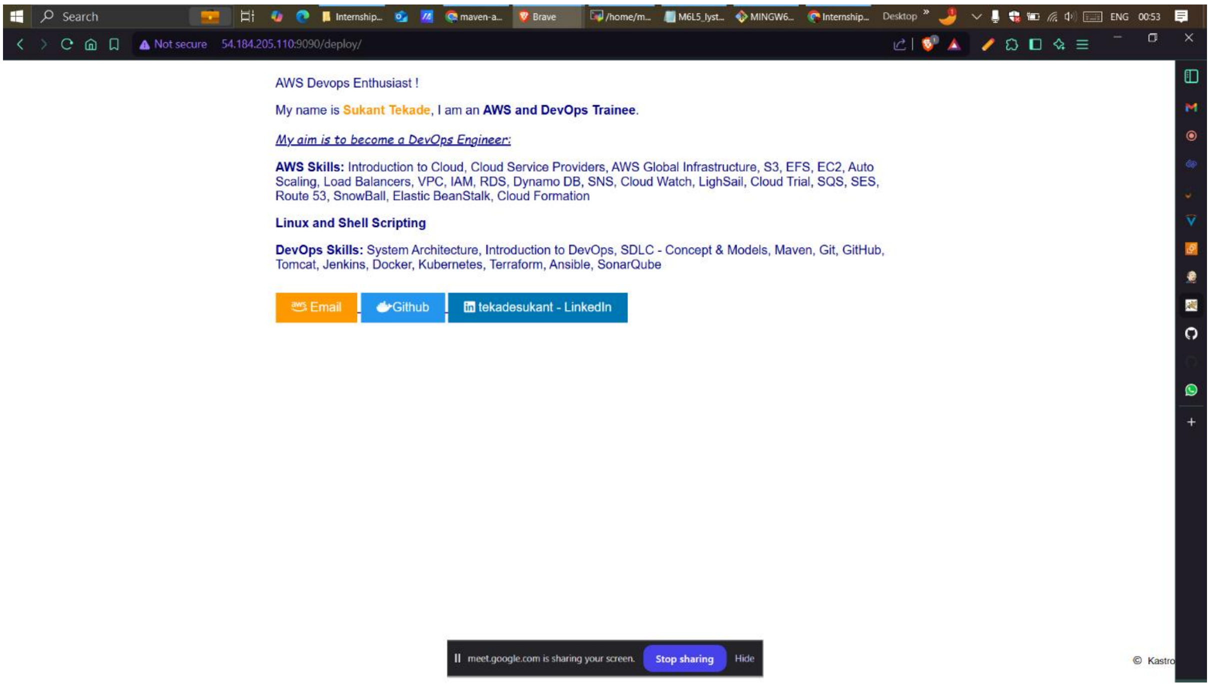
Path	Version	Display Name	Running	Sessions	Commands
/	*None specified*	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/deploy	*None specified*	Archetype Created Web Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	*None specified*	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	*None specified*	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	*None specified*	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	*None specified*	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

Deploy

Deploy directory or WAR file located on server

Context Path:

Final Result:



54.184.205.110:9090/deploy/

AWS Devops Enthusiast !

My name is **Sukant Tekade**, I am an **AWS and DevOps Trainee**.

My aim is to become a DevOps Engineer:

AWS Skills: Introduction to Cloud, Cloud Service Providers, AWS Global Infrastructure, S3, EFS, EC2, Auto Scaling, Load Balancers, VPC, IAM, RDS, Dynamo DB, SNS, Cloud Watch, LighSail, Cloud Trial, SQS, SES, Route 53, SnowBall, Elastic BeanStalk, Cloud Formation

Linux and Shell Scripting

DevOps Skills: System Architecture, Introduction to DevOps, SDLC - Concept & Models, Maven, Git, GitHub, Tomcat, Jenkins, Docker, Kubernetes, Terraform, Ansible, SonarQube