

Experiment no 5

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231410

Aim: To deploy web application on tomcat server

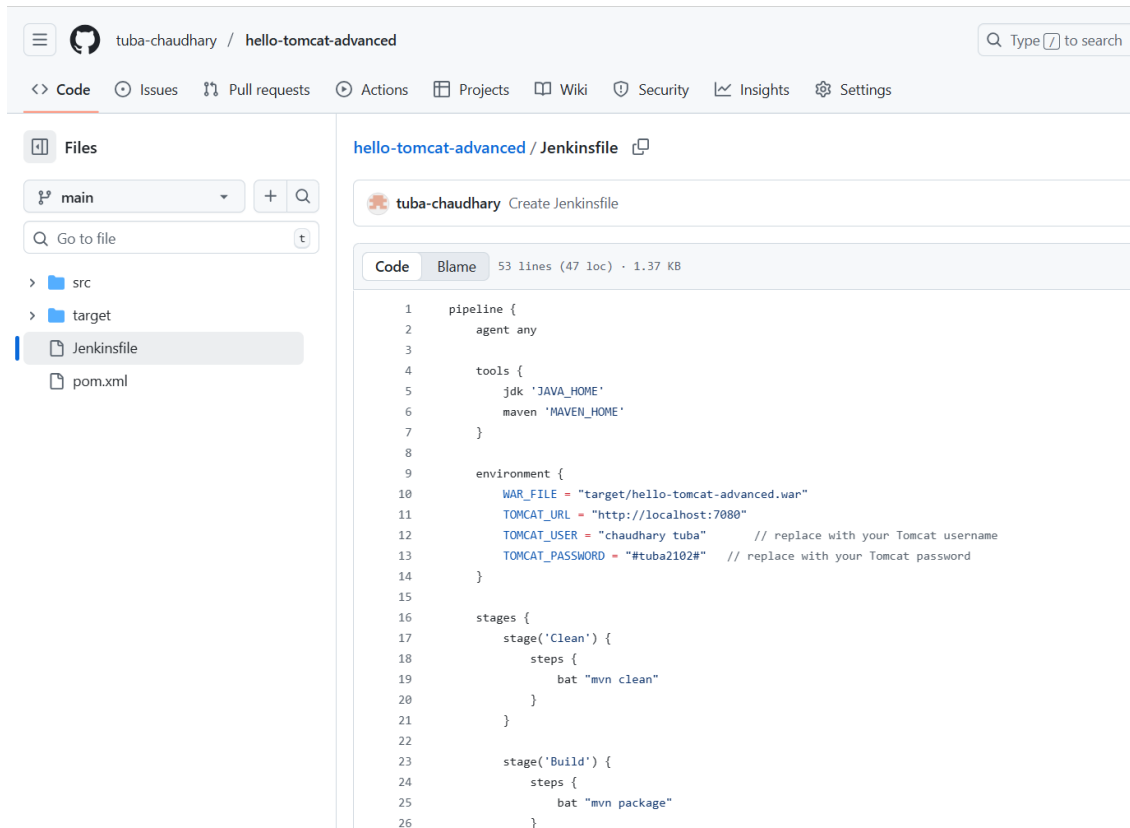
Step 1 : login to your GitHub and create a new repository take a sample maven project and push it in your directory

The screenshot shows the 'Create a new repository' page on GitHub. It has two main sections: 'General' and 'Configuration'. In the 'General' section, the 'Owner' is 'tuba-chaudhary' and the 'Repository name' is 'hello-tomcat-server'. A green checkmark indicates the name is available. Below this is a 'Description' field. The 'Configuration' section includes 'Choose visibility' (set to 'Public'), 'Add README' (toggled 'Off'), 'Add .gitignore' (set to 'No .gitignore'), and 'Add license' (set to 'No license').

The screenshot shows the GitHub repository page for 'tuba-chaudhary / hello-tomcat-advanced'. The repository is public. The page shows the 'main' branch selected. Below the branch selector, there is a search bar and buttons for 'Add file' and 'Code'. The repository content is listed below, showing a directory structure with files and folders. The repository has 2 commits.

File/Folder	Size	Commit
src/main/webapp		
target		
Jenkinsfile		
pom.xml		

I have taken a simple project which includes .xml file now add a Jenkins file to it containing username and password of tomcat.



The screenshot shows a GitHub repository named 'hello-tomcat-advanced' by user 'tuba-chaudhary'. The left sidebar shows the file structure with 'Jenkinsfile' selected. The main area displays the Jenkinsfile content, which is a Jenkins pipeline script. The script defines a pipeline with an agent 'any', tools for 'jdk' and 'maven', and an environment with variables for 'WAR_FILE', 'TOMCAT_URL', 'TOMCAT_USER', and 'TOMCAT_PASSWORD'. It includes two stages: 'Clean' and 'Build', each with a 'mvn' step.

```
1 pipeline {
2   agent any
3
4   tools {
5     jdk 'JAVA_HOME'
6     maven 'MAVEN_HOME'
7   }
8
9   environment {
10    WAR_FILE = "target/hello-tomcat-advanced.war"
11    TOMCAT_URL = "http://localhost:7080"
12    TOMCAT_USER = "chaudhary tuba" // replace with your Tomcat username
13    TOMCAT_PASSWORD = "#tuba2102#" // replace with your Tomcat password
14  }
15
16  stages {
17    stage('Clean') {
18      steps {
19        bat "mvn clean"
20      }
21    }
22
23    stage('Build') {
24      steps {
25        bat "mvn package"
26      }
27    }
28  }
29 }
```

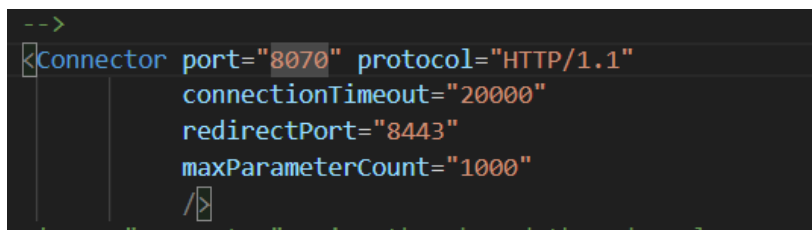
Step 2:

Download ZIP from Tomcat 9 Downloads → Core ZIP.

-Extract to c:/

-Open the C:\apache-tomcat-9.0.108\conf\server.xml file and edit port="7080"

Make sure that Jenkins and tomcat are running on different port no.



The screenshot shows a code editor with XML configuration for a Connector. The port is set to 8070, and the protocol is HTTP/1.1. Other attributes include connectionTimeout, redirectPort, and maxParameterCount.

```
-->
<Connector port="8070" protocol="HTTP/1.1"
  connectionTimeout="20000"
  redirectPort="8443"
  maxParameterCount="1000"
  />
```

go to C:\apache-tomcat-9.0.108\conf\tomcat-users.xml file and add <role rolename="manager-gui"/>

<role rolename="manager-script"/>

<user username="tomcatuser" password="yourpassword" roles="manager-gui,manager-script"/> Inside the users tag;

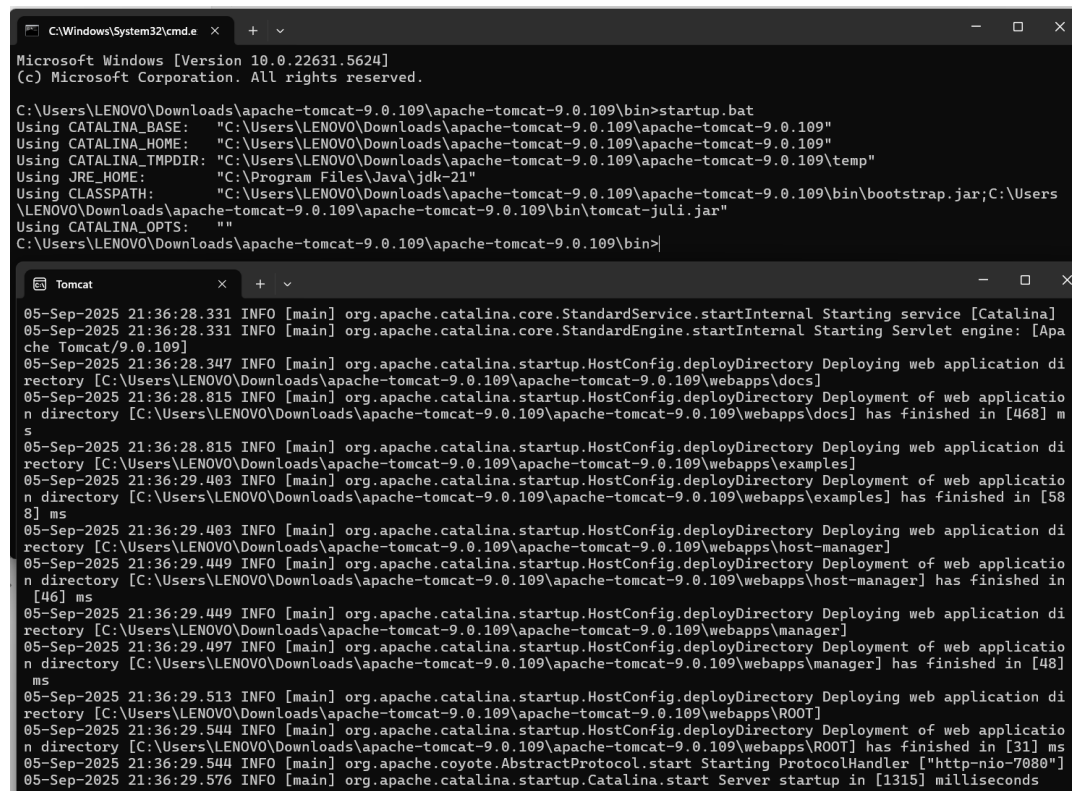
```
6 | limitations under the License.
7 | -->
8 | <tomcat-users xmlns="http://tomcat.apache.org/xml"
9 |               xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
10 |               xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
11 |               version="1.0">
12 |   <role rolename="manager-gui"/>
13 |   <role rolename="manager-script"/>
14 |   <user username="tomcatuser" password="yourpassword" roles="manager-gui,manager-script"/>
15 |
```

go to C:\apache-tomcat-9.0.108\webapps\manager\META-INF\context.xml and comment out <valve> code

```
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
    sameSiteCookies="strict" />
  <!-- <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="127.0.0.1" /> -->
  <Manager sessionAttributeValueClassNameFilter="java\.lang\.(?|Boolean|Integer|Long|Number|string)|o
</Context>
```

Go to C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\bin and open cmd

Type command startup.bat



The screenshot shows a Windows command prompt window titled "C:\Windows\System32\cmd.e" with the following content:

```
Microsoft Windows [Version 10.0.22631.5624]
(c) Microsoft Corporation. All rights reserved.

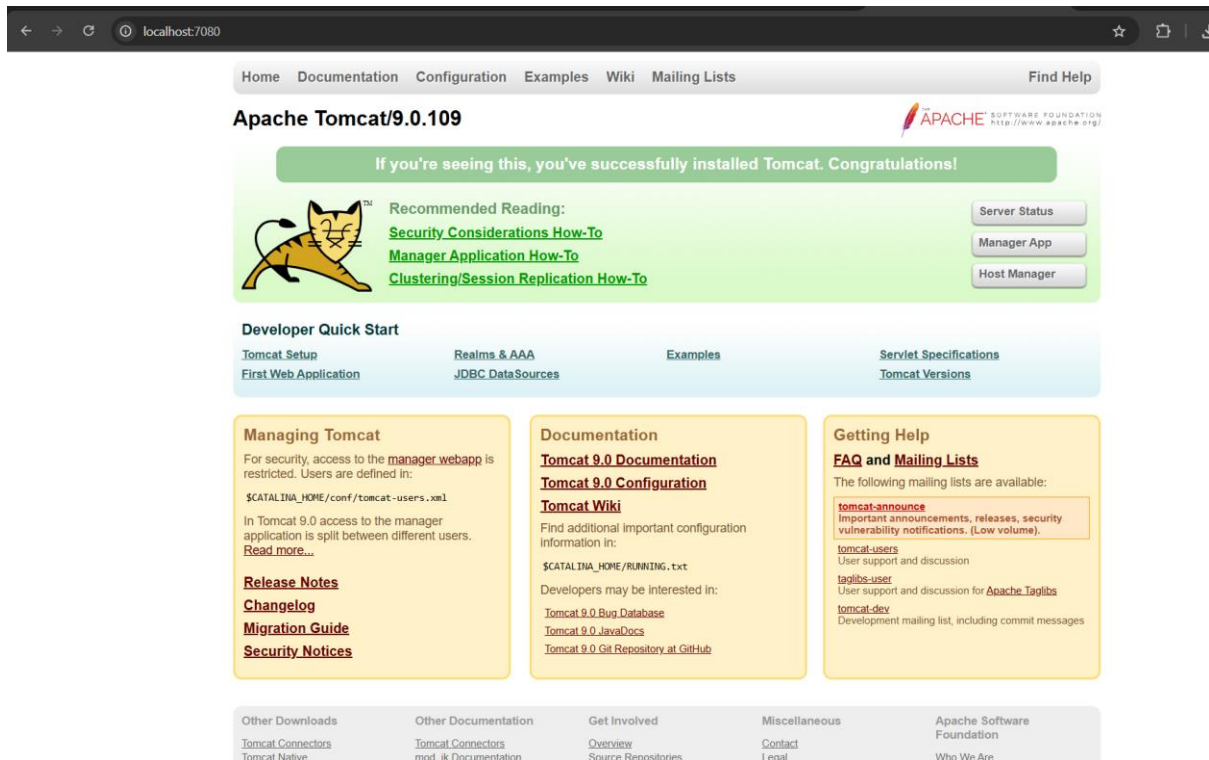
C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\bin>startup.bat
Using CATALINA_BASE: "C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109"
Using CATALINA_HOME: "C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109"
Using CATALINA_TMPDIR: "C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\temp"
Using JRE_HOME: "C:\Program Files\Java\jdk-21"
Using CLASSPATH: "C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\bin\bootstrap.jar;C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\bin\tomcat-juli.jar"
Using CATALINA_OPTS: ""
C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\bin>
```

Below the command prompt, a Tomcat log window titled "Tomcat" shows the following output:

```
05-Sep-2025 21:36:28.331 INFO [main] org.apache.catalina.core.StandardService.startInternal Starting service [Catalina]
05-Sep-2025 21:36:28.331 INFO [main] org.apache.catalina.core.StandardEngine.startInternal Starting Servlet engine: [Apache Tomcat/9.0.109]
05-Sep-2025 21:36:28.347 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\webapps\docs]
05-Sep-2025 21:36:28.815 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\webapps\examples]
05-Sep-2025 21:36:29.403 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\webapps\host-manager]
05-Sep-2025 21:36:29.449 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\webapps\manager]
05-Sep-2025 21:36:29.497 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\webapps\ROOT]
05-Sep-2025 21:36:29.544 INFO [main] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web application directory [C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\apache-tomcat-9.0.109\webapps\ROOT]
05-Sep-2025 21:36:29.576 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in [1315] milliseconds
```

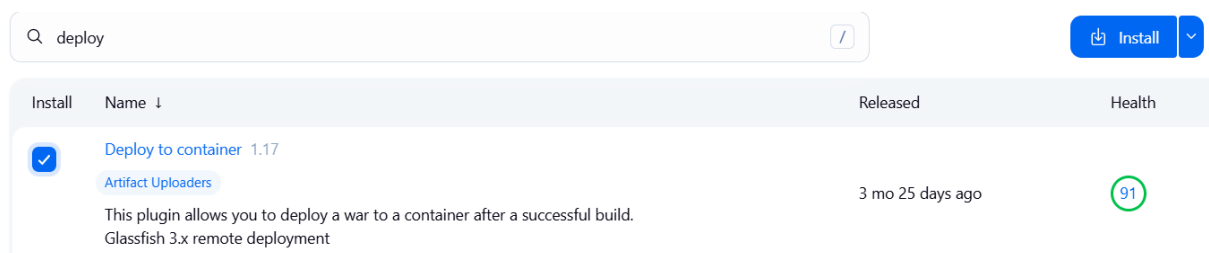
go to <http://localhost:7080/> and open tomcat

v



step 3: go to Jenkins and manage Jenkins --→plugins

Install a Pulgin DEPLOY TO CONTAINER.



Step 4: now go to new item give it a name and select pipeline option

New Item

Enter an item name

231410exp5

» A job already exists with the name '231410exp5'

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.



Maven project

Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.



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.

Give a description fill the required fields and give URL of the repository created earlier

General

Enabled



Description

demo

Plain text [Preview](#)

Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition

Pipeline script from SCM

SCM ?

Git

Repositories ?

Repository URL ?

https://github.com/tuba-chaudhary/hello-tomcat-advanced.git

Credentials ?

tuba-chaudhary/*****

+ Add

Advanced

Click on build now and wait till the build is successful

✓ #4 (Sep 5, 2025, 10:01:41 PM)



Started by user [Chaudhary Tuba](#)



This run spent:

- 14 ms waiting;
- 17 sec build duration;
- 17 sec total from scheduled to completion.



Revision: a86f0a5ef3a07a5cdc8335280e333c9089b0670b

Repository: <https://github.com/tuba-chaudhary/hello-tomcat-advanced.git>

- refs/remotes/origin/main



Changes

1. Update Jenkinsfile ([details](#) / [githubweb](#))

Step 5: go to C:\Users\LENOVO\Downloads\apache-tomcat-9.0.109\webapps you will see that a .war file is generated.

✓ Today

hello-tomcat-advanced.war	05-09-2025 22:01	WAR File	2 KB
hello-tomcat-advanced	05-09-2025 22:01	File folder	
examples	05-09-2025 21:06	File folder	
host-manager	05-09-2025 21:06	File folder	
manager	05-09-2025 21:06	File folder	
docs	05-09-2025 21:06	File folder	
ROOT	05-09-2025 21:06	File folder	

Step 6: go to tomcat manager app you will see the name of your project click on it.

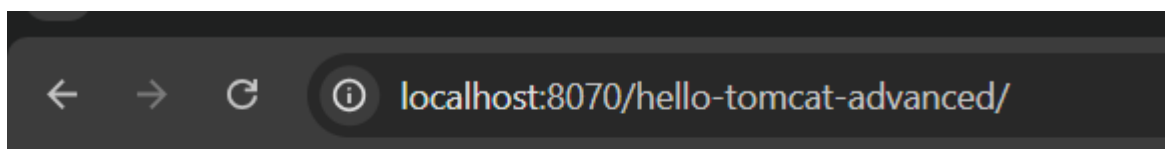
Tomcat Web Application Manager

Message:	OK
----------	----

Manager		
List Applications	HTML Manager Help	

Applications				
Path	Version	Display Name	Running	Sessions
/	None specified	Welcome to Tomcat	true	0
/docs	None specified	Tomcat Documentation	true	0
/examples	None specified	Servlet and JSP Examples	true	0
/hello-tomcat-advanced	None specified	Archetype Created Web Application	true	0
/host-manager	None specified	Tomcat Host Manager Application	true	0
/manager	None specified	Tomcat Manager Application	true	1

This shows that the project is successfully deployed.



Hello World!

Conclusion: In this experiment, we integrated Apache Tomcat with Jenkins to automate deployment from a provided Git repository, ensuring smooth code fetch, build, and deployment to the server.

This setup demonstrates a practical CI/CD pipeline for real-world web application deployment.