DAY 6:

Tom Cat server Page with jenkins 3 jobs:

Step 1: Launch an EC2 Instance

1. Go to AWS Console → EC2 → Launch Instance.
2. Select an **Ubuntu** or **Amazon Linux** AMI.
3. Choose instance type (e.g., t2.micro).
4. Configure security group:
   - ○ Open port **22** for SSH.
   - ○ Open port **8080** for Jenkins.
5. Launch the instance and connect via SSH.

Step 2: Install Jenkins on EC2

Connect to your EC2 instance using SSH

Install Jenkins (Ubuntu example):
Commands:

```
sudo apt update
sudo apt install openjdk-11-jdk -y
wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -
sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'
sudo apt update
sudo apt install jenkins -y
sudo systemctl start jenkins
sudo systemctl enable jenkins
```

3. Access Jenkins via http://<public-ip>:8080.

Step 3: Unlock Jenkins & Install Plugins

Get the initial admin password:

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

1. Paste it into the Jenkins UI and click “Continue.”
2. Choose **Install Suggested Plugins**.
3. Create admin user and save the configuration.

Job 1: Simple Shell Build Job

Step 4: Create a Freestyle Job

1. Click **"New Item"** → Enter a nameJob 1) → Select **Freestyle project** → OK.
2. Under **Build**, click **Add build step** → Select **"Execute shell"**.

   ```
   echo "Hello, World!"
   ```
3. Click **Save** → **Build Now**.
4. Verify output under **Console Output**: Should print Hello, World!.

Job 2: Maven Build Job

Step 5: Install Maven Integration Plugin

1. Go to **Manage Jenkins** → **Manage Plugins** → Available.
2. Search for **"Maven Integration plugin"**, install and restart Jenkins.

Step 6: Configure Maven

1. Go to **Manage Jenkins** → **Global Tool Configuration**.
2. Under **Maven**, click **Add Maven**, name it (e.g., Maven3), check “Install automatically” & save.

Step 7: Create Maven Job

1. Click **New Item** → Name it(JOb 2)→ Select **Freestyle project**.
2. Under **Build Environment**, choose **"Invoke top-level Maven targets"**.(MAVEN_HOME)
3. Maven Version:

   ```
   Maven3
   clean install
   ```

4. Click **Save** → **Build Now**.

Job 3: Deploy to Apache Tomcat Server

Step 8: Set Up Apache Tomcat (on EC2 or local)

Download Tomcat:
Command:

```
wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.102/bin/apache-tomcat-9.0.102.tar.gz
tar -xzvf apache-tomcat-9.0.102.tar.gz
cd apache-tomcat-9.0.102/bin
./catalina.sh start
```

1. Verify Tomcat running: http://<ip>:8080

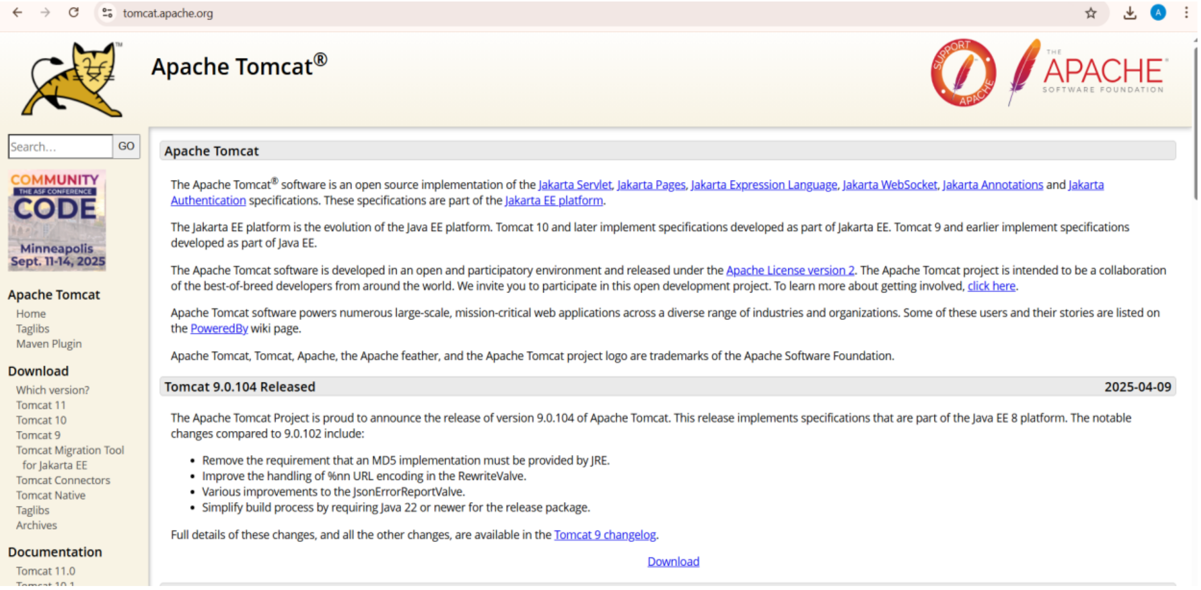
Step 9: Install “Deploy to Container” Plugin in Jenkins

1. Go to **Manage Plugins** → **Available**.
2. Install **Deploy to Container Plugin**.

Step 10: Configure Jenkins to Deploy WAR to Tomcat

1. Go to **New Item** → Freestyle project → Name it Tomcat Deployment.
2. In **Build**, generate a .war file (Maven build) or add existing one.(JAVA_MAVEN_HOME)
3. Add a **Post-build Action** → **Deploy war/ear to a container**.
4. WAR File: **/*.war

5. Container: **Tomcat 8+**
6. Manager URL: http://<Tomcat_IP>:8080/manager/text
7. Give public ip address in web and we should get apache tomcat image.
8. Credentials: Jenkins login for Tomcat manager.



Apache Tomcat

The Apache Tomcat® software is an open source implementation of the Jakarta Servlet, Jakarta Pages, Jakarta Expression Language, Jakarta WebSocket, Jakarta Annotations and Jakarta Authentication specifications. These specifications are part of the Jakarta EE platform.

The Jakarta EE platform is the evolution of the Java EE platform. Tomcat 10 and later implement specifications developed as part of Jakarta EE. Tomcat 9 and earlier implement specifications developed as part of Java EE.

The Apache Tomcat software is developed in an open and participatory environment and released under the Apache License version 2. The Apache Tomcat project is intended to be a collaboration of the best-of-breed developers from around the world. We invite you to participate in this open development project. To learn more about getting involved, click here.

Apache Tomcat software powers numerous large-scale, mission-critical web applications across a diverse range of industries and organizations. Some of these users and their stories are listed on the PoweredBy wiki page.

Apache Tomcat, Tomcat, Apache, the Apache feather, and the Apache Tomcat project logo are trademarks of the Apache Software Foundation.

Tomcat 9.0.104 Released 2025-04-09

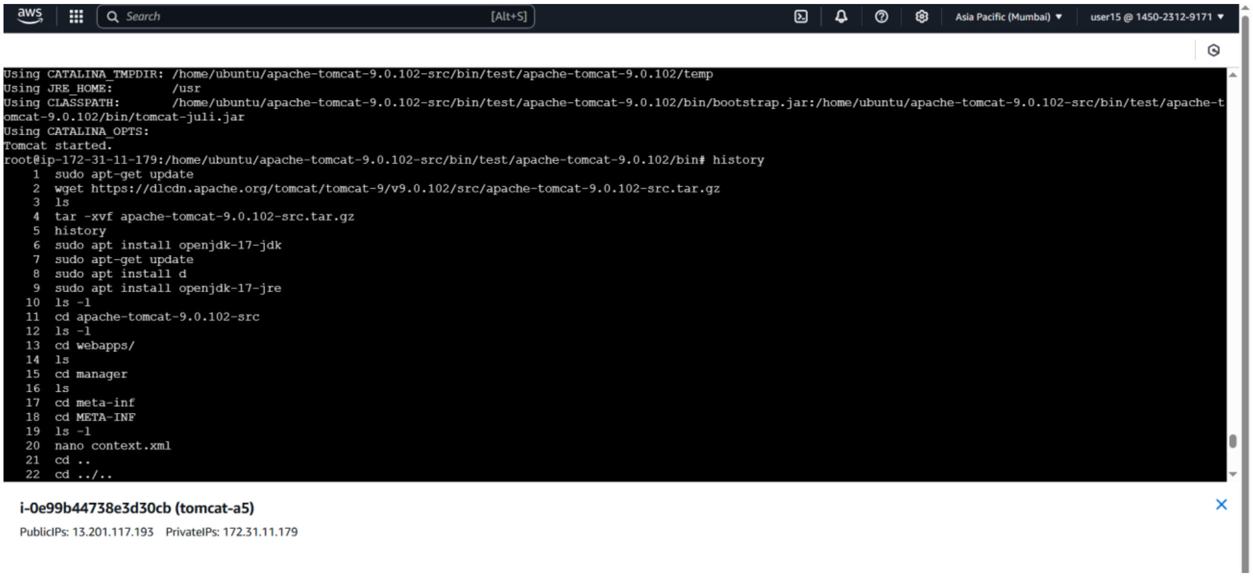
The Apache Tomcat Project is proud to announce the release of version 9.0.104 of Apache Tomcat. This release implements specifications that are part of the Java EE 8 platform. The notable changes compared to 9.0.102 include:

- Remove the requirement that an MD5 implementation must be provided by JRE.
- Improve the handling of %nn URL encoding in the RewriteValve.
- Various improvements to the JsonErrorReportValve.
- Simplify build process by requiring Java 22 or newer for the release package.

Full details of these changes, and all the other changes, are available in the Tomcat 9 changelog.

Download

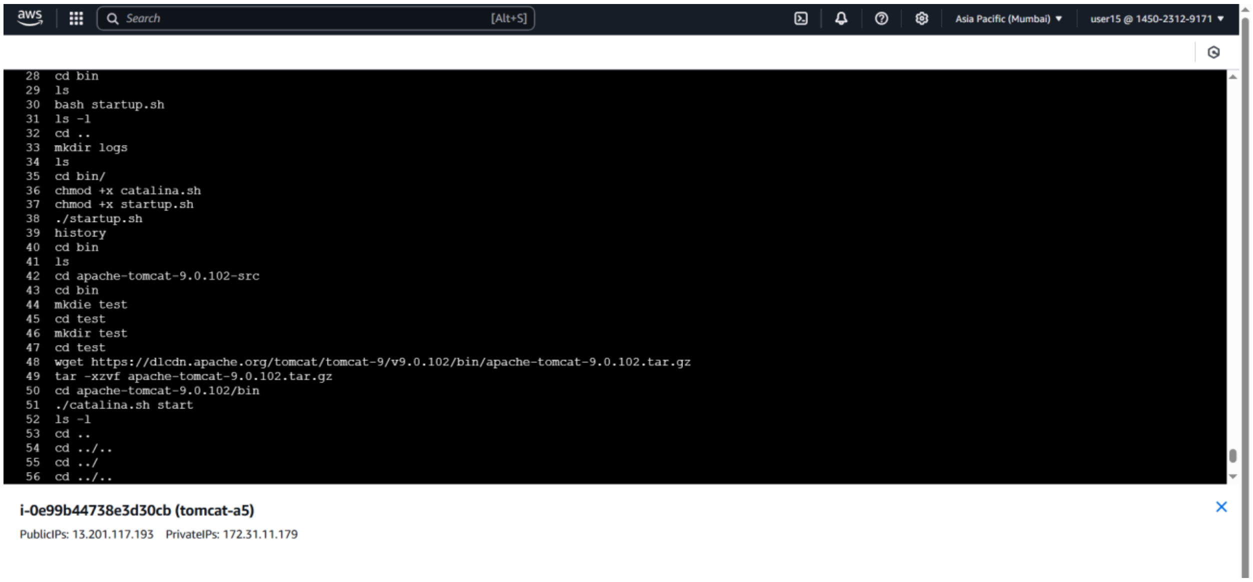
Commands image:



```
Using CATALINA_TMPDIR: /home/ubuntu/apache-tomcat-9.0.102-src/bin/test/apache-tomcat-9.0.102/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /home/ubuntu/apache-tomcat-9.0.102-src/bin/test/apache-tomcat-9.0.102/bin/bootstrap.jar:/home/ubuntu/apache-tomcat-9.0.102-src/bin/test/apache-t
omcat-9.0.102/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
root@ip-172-31-11-179:/home/ubuntu/apache-tomcat-9.0.102-src/bin/test/apache-tomcat-9.0.102/bin# history
    1  sudo apt-get update
    2  wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.102/src/apache-tomcat-9.0.102-src.tar.gz
    3  ls
    4  tar -xvf apache-tomcat-9.0.102-src.tar.gz
    5  history
    6  sudo apt install openjdk-17-jdk
    7  sudo apt-get update
    8  sudo apt install d
    9  sudo apt install openjdk-17-jre
   10  ls -l
   11  cd apache-tomcat-9.0.102-src
   12  ls -l
   13  cd webapps/
   14  ls
   15  cd manager
   16  ls
   17  cd meta-inf
   18  cd META-INF
   19  ls -l
   20  nano context.xml
   21  cd ..
   22  cd ../..
```

i-0e99b44738e3d30cb (tomcat-a5)

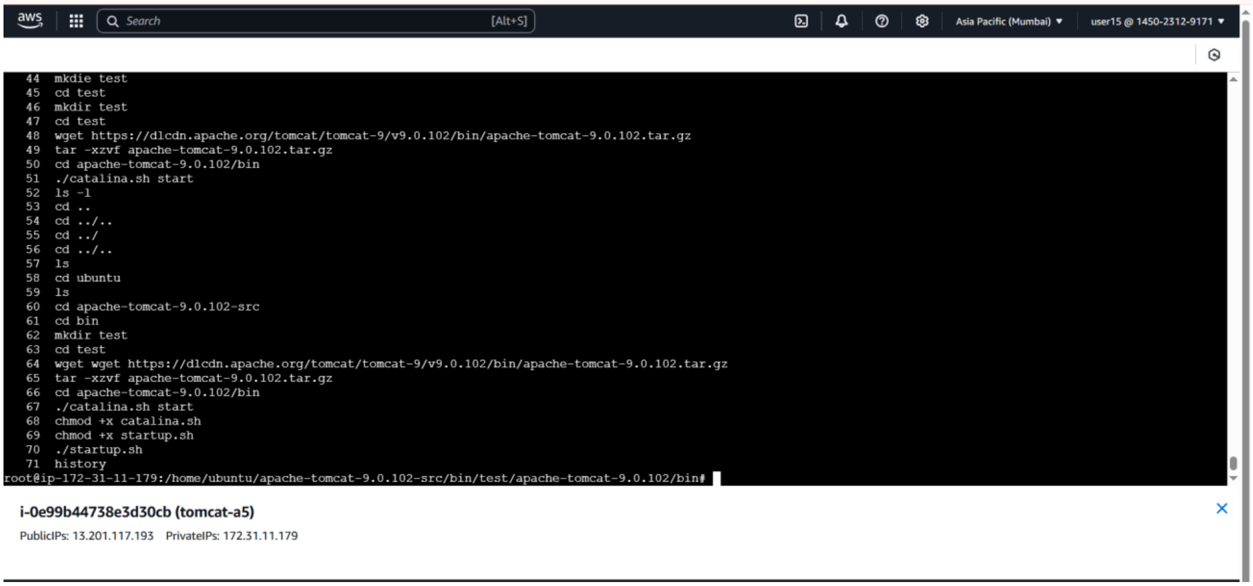
PublicIPs: 13.201.117.193   PrivateIPs: 172.31.11.179



```
   28  cd bin
   29  ls
   30  bash startup.sh
   31  ls -l
   32  cd ..
   33  mkdir logs
   34  ls
   35  cd bin/
   36  chmod +x catalina.sh
   37  chmod +x startup.sh
   38  ./startup.sh
   39  history
   40  cd bin
   41  ls
   42  cd apache-tomcat-9.0.102-src
   43  cd bin
   44  mkdie test
   45  cd test
   46  mkdir test
   47  cd test
   48  wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.102/bin/apache-tomcat-9.0.102.tar.gz
   49  tar -xzvf apache-tomcat-9.0.102.tar.gz
   50  cd apache-tomcat-9.0.102/bin
   51  ./catalina.sh start
   52  ls -l
   53  cd ..
   54  cd ../..
   55  cd ../
   56  cd ../..
```

i-0e99b44738e3d30cb (tomcat-a5)

PublicIPs: 13.201.117.193   PrivateIPs: 172.31.11.179



```
   44  mkdie test
   45  cd test
   46  mkdir test
   47  cd test
   48  wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.102/bin/apache-tomcat-9.0.102.tar.gz
   49  tar -xzvf apache-tomcat-9.0.102.tar.gz
   50  cd apache-tomcat-9.0.102/bin
   51  ./catalina.sh start
   52  ls -l
   53  cd ..
   54  cd ../..
   55  cd ../
   56  cd ../..
   57  ls
   58  cd ubuntu
   59  ls
   60  cd apache-tomcat-9.0.102-src
   61  cd bin
   62  mkdir test
   63  cd test
   64  wget wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.102/bin/apache-tomcat-9.0.102.tar.gz
   65  tar -xzvf apache-tomcat-9.0.102.tar.gz
   66  cd apache-tomcat-9.0.102/bin
   67  ./catalina.sh start
   68  chmod +x catalina.sh
   69  chmod +x startup.sh
   70  ./startup.sh
   71  history
root@ip-172-31-11-179:/home/ubuntu/apache-tomcat-9.0.102-src/bin/test/apache-tomcat-9.0.102/bin#
```

i-0e99b44738e3d30cb (tomcat-a5)

PublicIPs: 13.201.117.193   PrivateIPs: 172.31.11.179

Final Check:

- All 3 jobs show **Build Success**.
- Console outputs show logs of build and deployment.
- We have demonstrated:
  - Jenkins setup on EC2.
  - Freestyle job.
  - Maven build.
  - Deployment to Tomcat.