



Apache Tomcat

❖ APACHE TOMCAT:

- The Apache Tomcat software is an open-source implementation of the Jakarta Servlet, Jakarta Server Pages, Jakarta Expression Language, Jakarta WebSocket, Jakarta Annotations and Jakarta Authentication specifications.
- Tomcat is a Server for **hosting Java Web Applications**.
- It was developed by the **Apache Software Foundation (ASF)**.
- Tomcat software powers numerous large-scale, mission-critical web applications across a diverse range of industries and organizations.
- Tomcat is lightweight, has a fast startup time, and can be run in many different environments with minimal impact on resources.
- Tomcat **Supports Java Technologies**:
 - Java Servlet
 - Java Server Pages (JSP)
 - Java Expression Language (EL)
 - Java WebSocket.

➤ WEB-SERVER Vs APPLICATION-SERVER:

- By strict definition, a web server is a common subset of an application server.
- Web server and Application server are kinds of the server to deliver **sites** and **application operations** performed between users and back-end business applications of the organization.

<u>WEBSERVER</u>	<u>APPLICATION SERVER</u>
1. It handles the HTTP protocol. Protocol independent.	It handles any number of protocols (http, tcp-ip, etc.) Protocol dependent.
2. It is mostly designed to serve static content.	It is used to run dynamic code or business logic.
3. Serves web-based applications.	Web based applications & Enterprise applications.
4. It provides only web container (servlet + jsp).	Web container + EJB container + JMS container.
5. Apache, Nginx, caddy, IIS, lighttpd..etc	Tomcat, Weblogic, Websphere, Glassfish, JBOSS..etc.

➤ **TOMCAT INSTALLATION:**

MAIN CONFIGURATION FILES:

Package	: tomcat
Configuration File	: /tomcat/bin/conf
Auxiliary Directory	: tomcat
Log Files Location	: /tomcat/logs
Service / Daemon	: tomcat10
Ports	: tomcat-8080

TOMCAT INSTALLATION ON CENTOS / RHEL 9:

STEP 1: Update and setting up server hostname:

```
#yum update -y
#hostname Tomcat
#vim /etc/hostname
Tomcat
#bash
#hostname
```

STEP 2 [optional]: Security-Enhanced Linux: SELinux being disabled or in permissive mode:

```
#sed -i 's/SELINUX=.*SELINUX=disabled/g' /etc/selinux/config
#setenforce 0
```

STEP 3: Installing Java-21 Package:

```
#yum install java-21 -y
#java --version
```

STEP 4: Download tomcat binary file:

```
#cd /opt  
  
#wget https://dlcdn.apache.org/tomcat/tomcat-10/v10.1.34/bin/apache-tomcat-10.1.34.tar.gz  
  
#tar -xzvf apache-tomcat-10.1.34.tar.gz  
  
#ls
```

Rename an extracted directory into tomcat10:

```
#mv apache-tomcat-10.1.34 tomcat10  
  
#ls
```

STEP 5: Creating a soft link for scripts

```
#echo $PATH  
  
# ln -s /opt/tomcat10/bin/startup.sh /usr/local/sbin/tomcatup  
  
# ln -s /opt/tomcat10/bin/shutdown.sh /usr/local/sbin/tomcatdown  
  
#tomcatup
```

STEP 6: To check port number & tomcat service:

```
# netstat -pantl  
  
# ps -ef | grep -i tomcat
```

STEP 7: Tomcat Testing:

Go To Web Browser type

http://ip-address:8080

➤ **ENABLE HOST/MANAGER FOR REMOTE IP:**

- By default, tomcat manager and host-manager, pages are enabled to access from localhost only.
- To access the web interface from anywhere, comment or remove these lines from below two files:

```
#vim /opt/tomcat/webapps/host-manager/META-INF/context.xml

#vim /opt/tomcat/webapps/manager/META-INF/context.xml

<!--
  <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="127.d+.d+.d+|::1|0:0:0:0:0:0:1" />
-->
```

CONFIGURE TOMCAT WEB MANAGER INTERFACE:

- Create a user to access the Tomcat's web management interface.
We have a configuration file in Tomcat with name "tomcat-users.xml".

```
#vim /opt/tomcat/bin/conf/ tomcat-users.xml

<role rolename="manager-gui"/>

<role rolename="manager-script"/>

<role rolename="manager-jmx"/>

<role rolename="manager-status"/>

<user username="admin" password="admin123" roles="manager-gui,
manager-script, manager-jmx, manager-status"/>

<user username="tomcat" password="tomcat123" roles="manager-gui"/>

#tomcatdown

#tomcatup
```

Testing Tomcat user on browser:

Enter Username & Password

NOTE: It will open manger Application

➤ WEB APPLICATION MANAGER:

- Tomcat Manager App is a web application that is packaged with the Tomcat server and provides us with the basic functionality we need to manage our deployed web applications.

Message	: Displays success and failure messages.
Manager	: General manager operations like list and help.
Applications	: List of web applications and commands.
Deploy	: Deploying web applications.
Diagnostics	: Identifying potential problems.
Server Information	: Information about the Tomcat server.

➤ APPLICATIONS SECTION:

- The Applications section lists information about all the installed web applications and provides links for managing them.

Path	: The web application context path.
Display Name	: Display name for the web application if it has one configured in its "web.xml".
Running	: Web application is running and available (true), or not running and unavailable (false).
Sessions	: The number of active sessions for remote users of this web application.
Commands	: start / stop / reload / undeploy