**Apache Tomcat for DevOps**

**📌 What is Tomcat? Web Server vs App Server**

* **Apache Tomcat** is an open-source Java Servlet container developed by the Apache Software Foundation. It is used to deploy and serve Java-based web applications (WAR files).
* **Web Server vs Application Server**:

| **Feature** | **Web Server (e.g., Apache HTTP)** | **App Server (e.g., Tomcat)** |
| --- | --- | --- |
| Handles | Static content (HTML, CSS) | Dynamic content (Servlets, JSP) |
| Language Support | Mostly generic (not Java) | Java-specific (Servlets, JSP) |
| Examples | Apache HTTP, Nginx | Tomcat, JBoss, WebLogic, WildFly |

* **Tomcat** is a **lightweight application server**, often used in web-tier deployment for Java web apps.

**🧰 Installation on Windows/Linux**

**✅ On Linux:**

sudo apt update

sudo apt install default-jdk -y

cd /opt

sudo wget https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.85/bin/apache-tomcat-9.0.85.tar.gz

sudo tar -xvzf apache-tomcat-9.0.85.tar.gz

sudo mv apache-tomcat-9.0.85 tomcat9

cd tomcat9/bin

./startup.sh

**✅ On Windows:**

1. Install Java and set JAVA\_HOME.
2. Download Tomcat .zip from the official website.
3. Extract and navigate to bin/ folder.
4. Run startup.bat to start the server.

**📂 Directory Structure & Server Management**

| **Directory** | **Purpose** |
| --- | --- |
| bin/ | Startup/shutdown scripts |
| conf/ | Configuration files (server.xml, web.xml) |
| webapps/ | WAR files or exploded apps go here |
| logs/ | Log files |
| lib/ | JAR libraries required for Tomcat |
| temp/ | Temp files used during runtime |
| work/ | Compiled JSPs and cache |

✅ **Start/Stop Tomcat on Linux**:

./startup.sh # start

./shutdown.sh # stop

**👥 User Management & Role Configuration**

To access the **Tomcat Admin Console**, you must define a user in the conf/tomcat-users.xml file:

<tomcat-users>

<role rolename="manager-gui"/>

<role rolename="admin-gui"/>

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

</tomcat-users>

✅ After saving the file, restart Tomcat:

./shutdown.sh

./startup.sh

Then go to:  
📌 http://<your-ip>:8080/manager/html

**📦 Deploy WAR Files via Admin Console & CLI**

**✅ Using Admin Console:**

1. Go to http://<server>:8080/manager/html
2. Login using the user created earlier.
3. Use **"Deploy"** section to upload a .war file.
4. Application will be deployed to /webapps/ folder.

**✅ Using CLI:**

1. Copy .war file into webapps/:

cp myapp.war /opt/tomcat9/webapps/

1. Tomcat auto-deploys WAR files placed in this directory.

**🔧 Port Configuration & Server Tuning**

Tomcat uses **port 8080** by default. To change:

**1. Open conf/server.xml:**

<Connector port="8080" protocol="HTTP/1.1"

connectionTimeout="20000"

redirectPort="8443" />

Change to:

<Connector port="9090" ... />

**2. Restart Tomcat:**

./shutdown.sh && ./startup.sh

**✅ Summary**

| **Topic** | **Purpose** |
| --- | --- |
| Tomcat | Deploy Java web apps |
| Admin Console | Manage apps via browser |
| CLI | Manage WARs from terminal |
| User Roles | Secure access to management tools |
| Ports & Tuning | Optimize performance |