



---

# TOMCAT SERVER DOCUMENTATION

---

**Mithun Technologies, [devopstrainingblr@gmail.com](mailto:devopstrainingblr@gmail.com), +91 99809 23226**



<b>Mithun Technologies</b> +91-9980923226	<b>Tomcat Server</b> info@mithuntechnologies.com	<b>Author</b>	<b>Mithun Technologies</b>
		<b>Web site</b>	http://mithuntechnologies.com

## Tomcat

### **Introduction**

Tomcat or Apache Tomcat is a light weight, open source web container used to deploy and running the java based web applications, developed by Apache Software Foundation (ASF).

### **What is Webserver?**

A Web server is a program that uses HTTP (Hypertext Transfer Protocol) protocol to serves web content (HTML and static content) to users.

### **Examples**

Apache HTTP server  
Nginx (pronounced engine X)  
IBM HTTP server (IHS)  
Oracle iplanet web server  
Internet Information Server (IIS)

### **What is Application Server?**

An application server is a container upon which you can build and expose business logic and processes to client applications through various protocols including HTTP in a n-tier architecture.

### **Examples**

Apache Tomcat  
JBoss/WildFly - RedHat  
WebLogic - Oracle  
WebSphere Application Server - IBM  
WebSphere Liberty Profile - IBM  
Galssfish

### **Tomcat installation**

Tomcat software will available as a zip file. So, we can unzip it and use as follows.

Step 1: Create the folder called **Apache** in any directory and Unzip apache software into that folder.

Step 2: Open the command prompt and execute the below commands.

```
>cd C:\DevOps\Apache\apache-tomcat-7.0.79\bin
```

```
>startup.bat (OR) > catalina.bat start ---> Starting the Tomcat server.
```

### **MAC/Linux:**

```
sh startup.sh (OR) > sh catalina.sh start ---> Starting the Tomcat server.
```

```
C:\Users\IBM_ADMIN>cd C:\DevOps\Apache\apache-tomcat-7.0.79\bin
C:\DevOps\Apache\apache-tomcat-7.0.79\bin>startup.bat
```



<b>Mithun Technologies</b> +91-9980923226	<b>Tomcat Server</b> info@mithuntechnologies.com	<b>Author</b>	<b>Mithun Technologies</b>
		<b>Web site</b>	http://mithuntechnologies.com

external package here, such as MySQL JDBC driver (mysql-connector-java-5.1.{xx}-bin.jar) and JSTL (jstl.jar and standard.jar).

**logs:** contains the engine logfile Catalina.{yyyy-mm-dd}.log, host logfile localhost.{yyyy-mm-dd}.log, and other application logfiles such as manger and host-manager. The access log (created by the AccessLogValve) is also kept here.

**webapps:** the default appBase - web applications base directory of the host localhost.

**work:** contains the translated servlet source files and classes of JSP/JSPF. Organized in hierarchy of engine name (Catalina), host name (localhost), webapp name, followed by the Java classes package structure.

**temp:** temporary files.

### How to change the port number in Tomcat?

Go to the conf directory and open the server.xml and you will find below lines.

```
<Connector port="8080" protocol="HTTP/1.1"
            connectionTimeout="20000"
            redirectPort="8443" />
```

Replace the 8080 with any port number.

### How to stop the tomcat server?

```
>cd APACHE_HOME Dir\bin
>shutdown.bat (OR) > catalina.bat stop
```

#### MAC/Linux:

```
shutdown.sh (OR) > catalina.sh stop
```

### Install Tomcat in Linux

```
cd /opt
wget http://apache.spinellicreations.com/tomcat/tomcat-9/v9.0.16/bin/apache-tomcat-9.0.16.zip
unzip apache-tomcat-9.0.16.zip
cd /opt/apache-tomcat-9.0.16/bin
chmod u+x *.sh
```

```
#sh /opt/apache-tomcat-9.0.16/bin/startup.sh
```

```
ln -s /opt/apache-tomcat-9.0.16/bin/startup.sh /usr/bin/startTomcat
ln -s /opt/apache-tomcat-9.0.16/bin/shutdown.sh /usr/bin/stopTomcat
```

For starting/stopping tomcat we will below commands

```
startTomcat --> Starting Tomcat
stopTomcat --> Stopping Tomcat
```

<b>Mithun Technologies</b> +91-9980923226	<b>Tomcat Server</b> info@mithuntechnologies.com	<b>Author</b> <b>Web site</b>	<b>Mithun Technologies</b> http://mithuntechnologies.com
--	---	----------------------------------	---

## Admin Console

Tomcat provides a web based administration console which can be started via the following link:

<http://localhost:8080/manager/html>

Tomcat manager is the web application, using this we manage applications running on tomcat. By default access is restricted to this application.

- Remove the restriction to manager application

Open the /webapps/manager/META-INF/context.xml file and remove the <Value> .....</Value> from this file.

- Add user to access tomcat manager application as follows.

Open the tomcat-users.xml file which is available in conf directory.

# The tomcat-users.xml file should look something like this:

```
<tomcat-users>
<!--
    <role rolename="tomcat"/>
    <role rolename="role1"/>
    <user username="tomcat" password="tomcat" roles="tomcat" />
    <user username="role1" password="tomcat" roles="role1" />
    <user username="both" password="tomcat" roles="tomcat,role1" />
-->
```

<!-- **Note:** While copy paste above line you have to remove double quotes and type manually. -->

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

**<user username="mithun" password="passw0rd" roles="manager-gui,admin-gui"/>**

</tomcat-users>

## **Server Status & Manager App**

To access the server status application and Manager app, tomcat 7 onwards below roles as introduced.

manager-gui : allows access to the HTML GUI and the Server Status and Manager App pages

admin-gui : allows access to the Host Manager page.

If you provide add below line in tomcat-users.xml, we will get the access for below apps(Buttons)

**<user username="admin" password="passw0rd" roles="manager-gui"/>**

Mithun Technologies +91-9980923226	Tomcat Server info@mithuntechnologies.com	Author Web site	Mithun Technologies http://mithuntechnologies.com
---------------------------------------	--	--------------------	--

**Server Status**

<http://localhost:8083/manager/status>

**Manager App**

<http://localhost:8083/manager/html>

## Host Manager

To access the host manager application, tomcat 7 onwards below roles as introduced.  
admin-gui - allows access to the HTML GUI

If you provide add below line in tomcat-users.xml, we will get the access for below apps(Buttons)

<user username="admin" password="passw0rd" roles="admin-gui"/>

**Host Manager**

<http://localhost:8083/host-manager/html>

## Stop the server

# ./shutdown.sh (OR) sh catalina.sh stop

## Deployment

Deploying the application into Tomcat server is nothing but, keeping the war file in Tomcat's webapps directly.

## Error 1

```
E:\Softwares\DevOps\ApplicationServers\apache-tomcat-8.5.24\bin>catalina.bat start
Neither the JAVA_HOME nor the JRE_HOME environment variable is defined
At least one of these environment variable is needed to run this program
E:\Softwares\DevOps\ApplicationServers\apache-tomcat-8.5.24\bin>
```

## Solution:

If you see this error set the class path for Java.

## Error 2:

<b>Mithun Technologies</b> +91-9980923226	<b>Tomcat Server</b> info@mithuntechnologies.com	<b>Author</b>	<b>Mithun Technologies</b>
		<b>Web site</b>	http://mithuntechnologies.com

Sign in

http://ec2-13-232-32-220.ap-south-1.compute.amazonaws.com:8080

Your connection to this site is not private

Username

Password

### Solution:

Go to server.xml which is available in conf dir and update as follows.

```
<Listener className="org.apache.catalina.core.AprLifecycleListener" SSLEngine="on" />
```

By default SSLEngine="on", make it to off, like below.

```
<Listener className="org.apache.catalina.core.AprLifecycleListener" SSLEngine="off" />
```

Then restart the tomcat server.

### Tomcat Performance Tuning

#### How to increase the Heap size in Tomcat?

Ans)

1) Go to <ApacheTomcatHomeDir>/bin

```
cd /opt/apache-tomcat-9.0.21/bin
```

2) Create a file with name setenv.sh, add below lines.

```
vi setenv.sh
```

```
export CATALINA_OPTS="$CATALINA_OPTS -Xms512m"
export CATALINA_OPTS="$CATALINA_OPTS -Xmx8192m"
export CATALINA_OPTS="$CATALINA_OPTS -XX:MaxPermSize=256m"
```



<b>Mithun Technologies</b> +91-9980923226	<b>Tomcat Server</b> info@mithuntechnologies.com	<b>Author</b>	<b>Mithun Technologies</b>
		<b>Web site</b>	http://mithuntechnologies.com

**Note:** The default -Xmx value is 64MB.

3) Give the execute permissions.

```
chmod u+x setenv.sh
```

4) Restart Tomcat server. Once you started check in console.out log file, you will see below lines as output.

```
04-Jul-2019 12:12:03.526 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log
Command line argument: -Xms512m
04-Jul-2019 12:12:03.526 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log
Command line argument: -Xmx8192m
04-Jul-2019 12:12:03.526 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log
Command line argument: -XX:MaxPermSize=256m
```

```
04-Jul-2019 12:12:03.526 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Xms512m
04-Jul-2019 12:12:03.526 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -Xmx8192m
04-Jul-2019 12:12:03.526 INFO [main] org.apache.catalina.startup.VersionLoggerListener.log Command line argument: -XX:MaxPermSize=256m
```

## **References**

<https://mithuntechnologies-devops.blogspot.com/2020/08/tomcat-installation-linux-mithun.html>

--> **Tomcat Installation**

<http://tomcat.apache.org/tomcat-7.0-doc/windows-service-howto.html>

<https://wiki.apache.org/tomcat/TomcatVersions>