

# AWS Documentation: Installing Apache Tomcat on Amazon Linux 2023

This document provides a comprehensive and step-by-step guide for installing and configuring Apache Tomcat on an Amazon Linux 2023 EC2 instance. Follow these instructions to get your Tomcat server up and running quickly and securely.

## Prerequisites

Before you begin, ensure you have the following:

- An Amazon EC2 instance running **Amazon Linux 2023**.
- **SSH access** to the EC2 instance.
- **Root privileges** or a user with sudo permissions.

## Step 1: Install the Java Development Kit (JDK)

Apache Tomcat is a Java-based application, so it requires a JDK to operate. We will install Amazon Corretto, a production-ready and multi-platform distribution of the OpenJDK.

**Install the JDK:**

```
sudo yum install java-21-amazon-corretto-devel
```

**Verify the Installation:**

```
java -version
```

## Step 2: Download, Extract, and Configure Apache Tomcat

Navigate to the /opt directory, which is the standard location for optional software packages.

**Change Directory:**

```
cd /opt
```

**Download Apache Tomcat:**

Use wget to download the latest stable version of Apache Tomcat.

Tip: Always check the official Apache Tomcat website for the most up-to-date download link.

```
wget [https://dlcdn.apache.org/tomcat/tomcat-10/v10.1.26/bin/apache-tomcat-10.1.26.tar.gz](https://dlcdn.apache.org/tomcat/tomcat-10/v10.1.26/bin/apache-tomcat-10.1.26.tar.gz)
```

### **Extract the Archive:**

This command will extract the contents of the .tar.gz file.

```
tar -zvxf apache-tomcat-10.1.26.tar.gz
```

### **Rename the Directory:**

Rename the extracted folder to a more convenient name.

```
mv apache-tomcat-10.1.26 tomcat
```

## **Step 3: Configure Tomcat Permissions and Symbolic Links**

To simplify future management, we'll configure permissions and create symbolic links for the startup and shutdown scripts.

### **Set Script Permissions:**

Navigate to the bin directory and give execute permissions to the startup and shutdown scripts.

```
cd /opt/tomcat/bin  
chmod +x shutdown.sh startup.sh
```

### **Create Symbolic Links:**

These links allow you to run the tomcatup and tomcatdown commands from any directory.

```
sudo ln -s /opt/tomcat/bin/startup.sh /usr/local/sbin/tomcatup  
sudo ln -s /opt/tomcat/bin/shutdown.sh /usr/local/sbin/tomcatdown
```

## **Step 4: Configure Context Files for Remote Access**

By default, the Tomcat Manager and other web applications restrict access to localhost. We need to edit the context.xml files to allow remote access.

**Important Note:** For production environments, it is a best practice to use a reverse proxy

(e.g., NGINX) to handle external traffic and implement stricter access control for security.

#### **Navigate and Find Files:**

First, move to the main Tomcat directory and locate all context.xml files.

```
cd /opt/tomcat
```

```
find . -name context.xml
```

#### **Edit Files:**

Edit the following files and comment out the <Valve> section to allow access from any IP address.

- ./webapps/examples/META-INF/context.xml
- ./webapps/host-manager/META-INF/context.xml
- ./webapps/manager/META-INF/context.xml

#### **Example of the change:**

##### **Before:**

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

##### **After (Commented Out):**

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

## **Step 5: Create Users and Assign Roles**

To access the Tomcat Manager GUI and other administrative tools, you need to define users and their roles in the tomcat-users.xml file.

#### **Navigate to the conf directory:**

```
cd /opt/tomcat/conf
```

#### **Edit the configuration file:**

```
vi tomcat-users.xml
```

Add the following user roles and users. **Remember to use strong, unique passwords for production!**

```
<tomcat-users>
    <role rolename="manager-gui"/>
    <role rolename="manager-script"/>
    <role rolename="manager-jmx"/>
    <role rolename="manager-status"/>

    <user username="admin" password="admin" roles="manager-gui, manager-script,
manager-jmx, manager-status"/>
    <user username="deployer" password="deployer" roles="manager-script"/>
    <user username="tomcat" password="s3cret" roles="manager-gui"/>
</tomcat-users>
```

## **Step 6: Start and Access the Tomcat Server**

#### **Start the Server:**

Use the symbolic link we created to start the Tomcat server.

```
tomcatup
```

#### **Verify the Server Status:**

To ensure the server is running, you can monitor the log file.

```
tail -f /opt/tomcat/logs/catalina.out
```

#### **Access the Tomcat Welcome Page:**

Before you can access the server, you must ensure that the security group of your EC2 instance allows inbound traffic on port 8080.

Once the port is open, you can access the server from your web browser using your EC2 instance's public IP address or DNS name.

<http://<Public-IP-of-tomcat-server>:8080>

You can now use the credentials you created to log in to the Tomcat Manager application

Not secure 13.51.194.45:8080/manager/status



## Server Status

**Manager**

|                                   |                                   |                              |  |
|-----------------------------------|-----------------------------------|------------------------------|--|
| <a href="#">List Applications</a> | <a href="#">HTML Manager Help</a> | <a href="#">Manager Help</a> | <a href="#">Complete Server Status</a> |
|-----------------------------------|-----------------------------------|------------------------------|--|

**Server Information**

| Tomcat Version        | JVM Version  | JVM Vendor      | OS Name | OS Version                      | OS Architecture | Hostname                                     | IP Address    |
|-----------------------|--------------|-----------------|---------|---------------------------------|-----------------|--|---------------|
| Apache Tomcat/9.0.109 | 21.0.8+9-LTS | Amazon.com Inc. | Linux   | 6.1.150-174.273.amzn2023.x86_64 | amd64           | ip-172-31-45-202.eu-north-1.compute.internal | 172.31.45.202 |

**JVM**

Free Memory: 3.99 MB Total Memory: 25.82 MB Max Memory: 220.43 MB

| Memory Pool                      | Type            | Initial  | Total    | Maximum    | Used          |
|----------------------------------|-----------------|----------|----------|------------|---------------|
| Eden Space                       | Heap memory     | 4.31 MB  | 7.18 MB  | 60.87 MB   | 5.99 MB (9%)  |
| Survivor Space                   | Heap memory     | 0.50 MB  | 0.87 MB  | 7.56 MB    | 0.87 MB (11%) |
| Tenured Gen                      | Heap memory     | 10.68 MB | 17.76 MB | 152.00 MB  | 14.96 MB (9%) |
| CodeHeap 'non-nmethods'          | Non-heap memory | 2.43 MB  | 2.43 MB  | 5.55 MB    | 1.25 MB (22%) |
| CodeHeap 'non-profiled nmethods' | Non-heap memory | 2.43 MB  | 2.43 MB  | 117.22 MB  | 1.68 MB (1%)  |
| CodeHeap 'profiled nmethods'     | Non-heap memory | 2.43 MB  | 8.18 MB  | 117.21 MB  | 8.18 MB (5%)  |
| Compressed Class Space           | Non-heap memory | 0.00 MB  | 2.56 MB  | 1024.00 MB | 2.39 MB (0%)  |
| Metaspace                        | Non-heap memory | 0.00 MB  | 25.68 MB | -0.00 MB   | 25.37 MB      |

"http-nio-8080"

Max threads: 200 Current thread count: 10 Current threads busy: 1 Keep alive sockets count: 2  
 Max processing time: 1623 ms Processing time: 1.709 s Request count: 12 Error count: 1 Bytes received: 0.00 MB Bytes sent: 0.09 MB

| Stage | Time  | Bytes Sent | Bytes Recv | Client (Forwarded) | Client (Actual) | VHost        | Request                      |
|-------|-------|------------|------------|--------------------|-----------------|--------------|------------------------------|
| R     | ?     | ?          | ?          | ?                  | ?               | ?            | Open Merlin                  |
| S     | 16 ms | 0 KiB      | 0 KiB      | 103.157.123.96     | 103.157.123.96  | 13.51.194.45 | GET /manager/status HTTP/1.1 |

P: Parse and prepare request S: Service F: Finishing R: Ready K: Keepalive

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