

Installation of tomcat in Ubuntu

The Apache Tomcat software is an open source implementation of the Java Servlet, JavaServer Pages, Java Expression Language and Java WebSocket technologies.

Open linux command:

Step1:

1. To install tomcat java should be installed in Ubuntu.
2. Check the java version using **java -version** command.

```
DevOpsVm3@DevOpsVm3:/opt/tomcat/bin$ java -version
openjdk version "1.8.0_242"
OpenJDK Runtime Environment (build 1.8.0_242-8u242-b08-0ubuntu3~16.04-b08)
OpenJDK 64-Bit Server VM (build 25.242-b08, mixed mode)
DevOpsVm3@DevOpsVm3:/opt/tomcat/bin$
```

Step 2:

Create tomcat user and group.

- 1.create a directory called tmp using **mkdir /tmp** command
- 1.sudo groupadd tomcat to create a group in the tomcat.
2. sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat it is used to add user to the group in the tomcat.

```
DevOpsVm3@DevOpsVm3:~$ cd /tmp
DevOpsVm3@DevOpsVm3:/tmp$ sudo groupadd tomcat
groupadd: group 'tomcat' already exists
DevOpsVm3@DevOpsVm3:/tmp$ sudo useradd -s /bin/false -g tomcat -d /opt/tomcat tomcat
sent invalidate(passwd) request, exiting
sent invalidate(group) request, exiting
sent invalidate(passwd) request, exiting
sent invalidate(group) request, exiting
```

Step 3:

Download the tomcat:

Copy the link address of the latest version of tomcat which contain tar.gz from the official apache tomcat page.

1. Curl -O https: paste it after -O then press enter tomcat will get downloaded.

```
DevOpsVm3@DevOpsVm3:/tmp$ curl -O http://apachemirror.wuchna.com/tomcat/tomcat-8/v8.5.53/bin/apache-tomcat-8.5.53.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  9.8M  100  9.8M    0     0  3699k      0  0:00:02  0:00:02 --:--:-- 3699k
```

2. Make a directory using **sudo mkdir /opt/tomcat**.
3. The downloaded tomcat is zipped so it should be unzipped so use the following command **sudo tar xzvf apache-tomcat-8*tar.gz -C /opt/tomcat --strip-components=1**

```
DevOpsVm3@DevOpsVm3:/tmp$ sudo mkdir /opt/tomcat
DevOpsVm3@DevOpsVm3:/tmp$ sudo tar xzvf apache-tomcat-8*tar.gz -C /opt/tomcat --strip-components=1
apache-tomcat-8.5.53/conf/
apache-tomcat-8.5.53/conf/catalina.policy
apache-tomcat-8.5.53/conf/catalina.properties
apache-tomcat-8.5.53/conf/context.xml
apache-tomcat-8.5.53/conf/jaspic-providers.xml
apache-tomcat-8.5.53/conf/jaspic-providers.xsd
apache-tomcat-8.5.53/conf/logging.properties
apache-tomcat-8.5.53/conf/server.xml
apache-tomcat-8.5.53/conf/tomcat-users.xml
apache-tomcat-8.5.53/conf/tomcat-users.xsd
apache-tomcat-8.5.53/conf/web.xml
apache-tomcat-8.5.53/bin/
apache-tomcat-8.5.53/lib/
apache-tomcat-8.5.53/logs/
apache-tomcat-8.5.53/temp/
apache-tomcat-8.5.53/webapps/
apache-tomcat-8.5.53/webapps/ROOT/
apache-tomcat-8.5.53/webapps/ROOT/WEB-INF/
apache-tomcat-8.5.53/webapps/docs/
apache-tomcat-8.5.53/webapps/docs/WEB-INF/
apache-tomcat-8.5.53/webapps/docs/annotationapi/
```

Step 4:

Modifying tomcat permission:

1. Using cd command change the directory to **cd /opt/tomcat**.
2. **Sudo chgrp -R tomcat /opt/tomcat** is used to provide read permission to the group.
3. **Sudo chmod -R g+r conf** command is used to give read access to the conf directory.
4. **Sudo chmod g+x conf** command is used to give permission to execute.
5. **Sudo chown -R tomcat webapps/ work temp/ logs** is used to give permission to the tomcat user ownership to webapps, work, temp, and logs.

```
apache-tomcat-8.5.53/bin/version.sh
DevOpsVm3@DevOpsVm3:/tmp$ cd /opt/tomcat
DevOpsVm3@DevOpsVm3:/opt/tomcat$ sudo chgrp -R tomcat /opt/tomcat
DevOpsVm3@DevOpsVm3:/opt/tomcat$ sudo chmod -R g+r conf
DevOpsVm3@DevOpsVm3:/opt/tomcat$ sudo chmod g+x conf
DevOpsVm3@DevOpsVm3:/opt/tomcat$ sudo chown -R tomcat webapps/ work/ temp/ logs
```

Step 5:

1. Using **sudo update-java-alternatives -l** command know the java home.

2. Create and open a new file in the `/etc/systemd/system` under the name `tomcat.service` using **sudo nano /etc/systemd/system/tomcat.service** command.

```
DevOpsVm3@DevOpsVm3:/opt/tomcat$ sudo update-java-alternatives -l
java-1.8.0-openjdk-amd64      1081      /usr/lib/jvm/java-1.8.0-openjdk-amd64
DevOpsVm3@DevOpsVm3:/opt/tomcat$ sudo nano /etc/systemd/system/tomcat.service
```

After entering the above command a nano window will open enter the following command.

[Unit]

Description=Apache Tomcat Web Application Container

After=network.target

[Service]

Type=forking

Environment=JAVA_HOME=/usr/lib/jvm/java-1.11.0-openjdk-amd64

Environment=CATALINA_PID=/opt/tomcat/latest/temp/tomcat.pid

Environment=CATALINA_HOME=/opt/tomcat

Environment=CATALINA_BASE=/opt/tomcat

Environment='CATALINA_OPTS=-Xms512M -Xmx1024M -server -XX:+UserParallelGC'

Environment='JAVA_OPTS=-Djava.awt.headless=true

Djava.security.egd=file:/dev/./urandom'

ExecStart=/opt/tomcat/bin/startup.sh

ExecStop=/opt/tomcat/bin/shutdown.sh

User=tomcat

Group=tomcat

UMask=0007

RestartSec=10

Restart=always

[Install]

WantedBy=multi-user.target

After the above command Ctrl+o enter and Ctrl+x.

3. The changes to take place reload using **sudo systemctl daemon-reload** command.
4. Start the tomcat service using **sudo systemctl start tomcat** command.
5. To check the tomcat status use **sudo systemctl status tomcat** command.

```
Apr 09 04:57:39 DevOpsVm3 systemd[1]: tomcat.service: Failed with result 'exit-code'.
DevOpsVm3@DevOpsVm3:/etc/systemd/system$ sudo nano tomcat.service
DevOpsVm3@DevOpsVm3:/etc/systemd/system$ sudo systemctl daemon-reload
DevOpsVm3@DevOpsVm3:/etc/systemd/system$ sudo systemctl start tomcat.service
DevOpsVm3@DevOpsVm3:/etc/systemd/system$ sudo systemctl status tomcat
• tomcat.service - Apache Tomcat Web Application Container
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; vendor preset: enabled)
   Active: activating (auto-restart) (Result: exit-code) since Thu 2020-04-09 05:00:13 UTC; 6s
   Process: 27052 ExecStop=/bin/kill -15 $MAINPID (code=exited, status=0/SUCCESS)
   Process: 27018 ExecStart=/opt/tomcat/bin/startup.sh (code=exited, status=0/SUCCESS)
   Main PID: 27037 (code=exited, status=1/FAILURE)

Apr 09 05:00:13 DevOpsVm3 systemd[1]: tomcat.service: Unit entered failed state.
Apr 09 05:00:13 DevOpsVm3 systemd[1]: tomcat.service: Failed with result 'exit-code'.
```

After successfully completion of execution of all the command open the tomcat in the browser which look like this.

