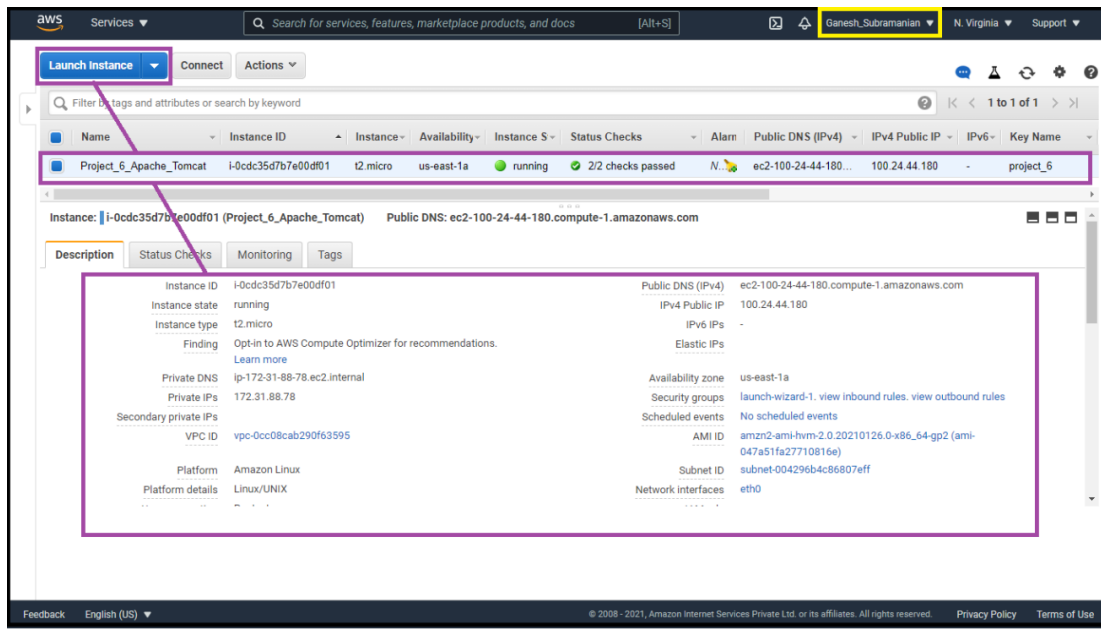


Project 6

Installing and Configuring Apache tomcat server on Linux

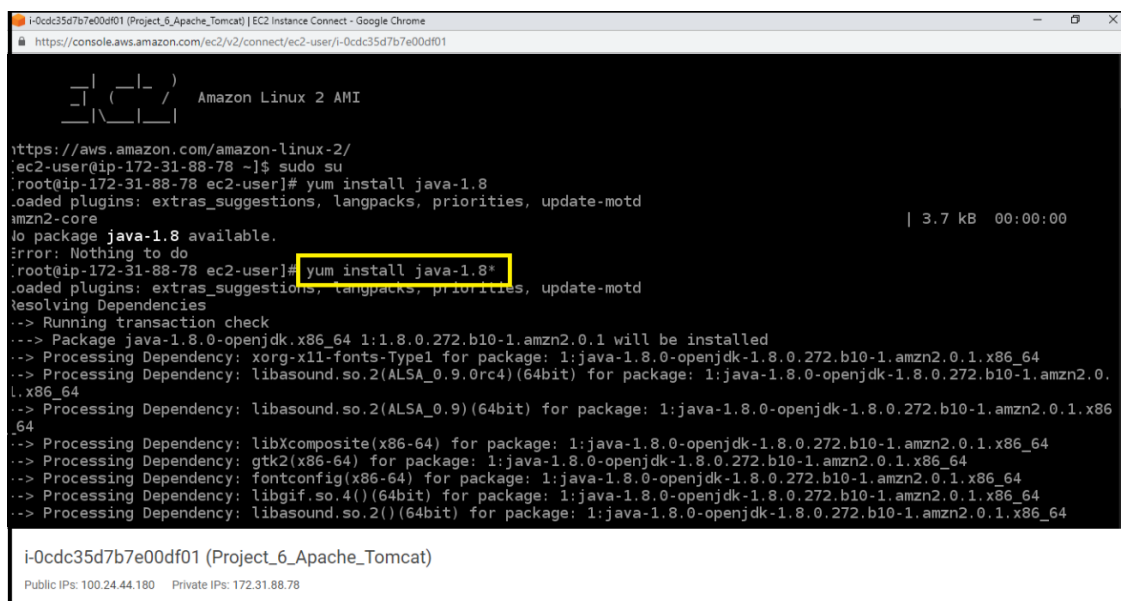
⇒ **Task 1: EC2 Linux Instance Created**



⇒ **Task 2: Install java**

“yum install java-1.8* “

This command installs Java



⇒ **Task 3:** Install tomcat

“cd /opt”

```
wget https://mirrors.estointernet.in/apache/tomcat/tomcat-8/v8.5.61/bin/apache-tomcat-8.5.61.tar.gz
```

wget will help to download the tar file form the location that was provided in the above URL

The screenshot shows a terminal window with the following content:

```

i-0275746596b7b73ae (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0275746596b7b73ae

Last login: Tue Feb  2 12:44:31 2021 from ec2-18-206-107-26.compute-1.amazonaws.com

 _ _ _ _ _
|_| ( _ _ _ _ _ /
|_| \ _ _ _ _ _ |
Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-93-245 ~]$ sudo su
[root@ip-172-31-93-245 ec2-user]# cd /opt
bash: cd/opt: No such file or directory
[root@ip-172-31-93-245 ec2-user]# cd /opt
[root@ip-172-31-93-245 opt]# wget https://mirrors.estointernet.in/apache/tomcat/tomcat-8/v8.5.61/bin/apache-tomcat-8.5.61.tar.gz
--2021-02-02 13:47:47-- https://mirrors.estointernet.in/apache/tomcat/tomcat-8/v8.5.61/bin/apache-tomcat-8.5.61.tar.gz
Resolving mirrors.estointernet.in (mirrors.estointernet.in)... 43.255.166.254, 2403:8940:3:1::f
Connecting to mirrors.estointernet.in (mirrors.estointernet.in)|43.255.166.254|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10492067 (10M) [application/octet-stream]
Saving to: 'apache-tomcat-8.5.61.tar.gz.1'

100%[=====>] 10,492,067  3.62MB/s   in 2.8s

2021-02-02 13:47:51 (3.62 MB/s) - 'apache-tomcat-8.5.61.tar.gz.1' saved [10492067/10492067]

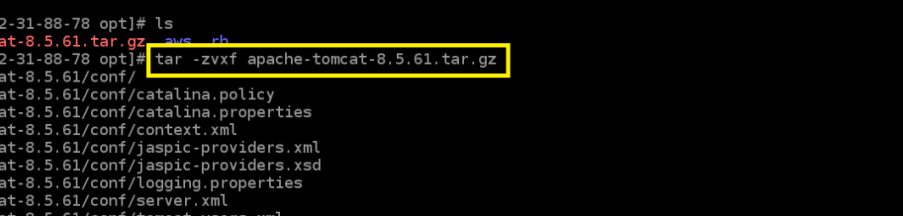
[root@ip-172-31-93-245 opt]#

```

Public IPs: 54.167.1.203 Private IPs: 172.31.93.245

```
"tar -zxvf apache-tomcat-8.5.61.tar.gz"
```

This command will directly unzip and extract the file followed by the file name (apache-tomcat-8.5.61.tar.gz)



The screenshot shows a terminal window with the following content:

```
i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0cdc35d7b7e00df01

[root@ip-172-31-88-78 opt]# ls
apache-tomcat-8.5.61.tar.gz
[root@ip-172-31-88-78 opt]# tar -zxvf apache-tomcat-8.5.61.tar.gz
apache-tomcat-8.5.61/conf/
apache-tomcat-8.5.61/conf/catalina.policy
apache-tomcat-8.5.61/conf/catalina.properties
apache-tomcat-8.5.61/conf/context.xml
apache-tomcat-8.5.61/conf/jaspic-providers.xml
apache-tomcat-8.5.61/conf/jaspic-providers.xsd
apache-tomcat-8.5.61/conf/logging.properties
apache-tomcat-8.5.61/conf/server.xml
apache-tomcat-8.5.61/conf/tomcat-users.xml
apache-tomcat-8.5.61/conf/tomcat-users.xsd
apache-tomcat-8.5.61/conf/web.xml
apache-tomcat-8.5.61/bin/
apache-tomcat-8.5.61/lib/
apache-tomcat-8.5.61/logs/
apache-tomcat-8.5.61/temp/
apache-tomcat-8.5.61/webapps/
apache-tomcat-8.5.61/webapps/ROOT/
apache-tomcat-8.5.61/webapps/ROOT/WEB-INF/
apache-tomcat-8.5.61/webapps/docs/
apache-tomcat-8.5.61/webapps/docs/WEB-INF/
apache-tomcat-8.5.61/webapps/docs/annotationapi/
apache-tomcat-8.5.61/webapps/docs/api/
apache-tomcat-8.5.61/webapps/docs/appdev/

i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat)
Public IPs: 100.24.44.180 Private IPs: 172.31.88.78
```

- Modify permissions for startup.sh and shutdown.sh

Since we are using Shell command we are considering only .sh files.

“ps -ef | grep tomcat” This command will check if tomcat process is running

“ls -l | grep .sh” This command will show only the .sh files

“chmod +x startup.sh” This command will provide the execution permission

“chmod +x shutdown.sh” This command will provide the execution permission

```

i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0cdc35d7b7e00df01
-rwxr-x--- 1 root root 1997 Dec 3 14:05 ciphers.sh
-rwxr-x--- 1 root root 1922 Dec 3 14:05 configtest.sh
-rwxr-x--- 1 root root 9100 Dec 3 14:05 daemon.sh
-rwxr-x--- 1 root root 1965 Dec 3 14:05 digest.sh
-rwxr-x--- 1 root root 3708 Dec 3 14:05 setclasspath.sh
-rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
-rwxr-x--- 1 root root 1902 Dec 3 14:05 shutdown.sh
-rwxr-x--- 1 root root 1904 Dec 3 14:05 startup.sh
-rwxr-x--- 1 root root 5540 Dec 3 14:05 tool-wrapper.sh
-rwxr-x--- 1 root root 1908 Dec 3 14:05 version.sh
[root@ip-172-31-88-78 bin]# chmod +x startup.sh
[root@ip-172-31-88-78 bin]# chmod +x shutdown.sh
[root@ip-172-31-88-78 bin]# ls -l | grep .sh
-rwxr-x--- 1 root root 25121 Dec 3 14:05 catalina.sh
-rwxr-x--- 1 root root 1997 Dec 3 14:05 ciphers.sh
-rwxr-x--- 1 root root 1922 Dec 3 14:05 configtest.sh
-rwxr-x--- 1 root root 9100 Dec 3 14:05 daemon.sh
-rwxr-x--- 1 root root 1965 Dec 3 14:05 digest.sh
-rwxr-x--- 1 root root 3708 Dec 3 14:05 setclasspath.sh
-rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
-rwxr-x--- 1 root root 1902 Dec 3 14:05 shutdown.sh
-rwxr-x--- 1 root root 1904 Dec 3 14:05 startup.sh
-rwxr-x--- 1 root root 5540 Dec 3 14:05 tool-wrapper.sh
-rwxr-x--- 1 root root 1908 Dec 3 14:05 version.sh
[root@ip-172-31-88-78 bin]# -rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
bash: -rw-r-----: command not found
[root@ip-172-31-88-78 bin]#
i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat)
Public IPs: 100.24.44.180 Private IPs: 172.31.88.78

```

“Find / -name startup.sh”

The above will find the path and the location of the startup.sh

```

i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0cdc35d7b7e00df01
-rwxr-x--- 1 root root 3708 Dec 3 14:05 setclasspath.sh
-rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
-rwxr-x--- 1 root root 1902 Dec 3 14:05 shutdown.sh
-rwxr-x--- 1 root root 1904 Dec 3 14:05 startup.sh
-rwxr-x--- 1 root root 5540 Dec 3 14:05 tool-wrapper.sh
-rwxr-x--- 1 root root 1908 Dec 3 14:05 version.sh
[root@ip-172-31-88-78 bin]# chmod +x startup.sh
[root@ip-172-31-88-78 bin]# chmod +x shutdown.sh
[root@ip-172-31-88-78 bin]# ls -l | grep .sh
-rwxr-x--- 1 root root 25121 Dec 3 14:05 catalina.sh
-rwxr-x--- 1 root root 1997 Dec 3 14:05 ciphers.sh
-rwxr-x--- 1 root root 1922 Dec 3 14:05 configtest.sh
-rwxr-x--- 1 root root 9100 Dec 3 14:05 daemon.sh
-rwxr-x--- 1 root root 1965 Dec 3 14:05 digest.sh
-rwxr-x--- 1 root root 3708 Dec 3 14:05 setclasspath.sh
-rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
-rwxr-x--- 1 root root 1902 Dec 3 14:05 shutdown.sh
-rwxr-x--- 1 root root 1904 Dec 3 14:05 startup.sh
-rwxr-x--- 1 root root 5540 Dec 3 14:05 tool-wrapper.sh
-rwxr-x--- 1 root root 1908 Dec 3 14:05 version.sh
[root@ip-172-31-88-78 bin]# -rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
bash: -rw-r-----: command not found
[root@ip-172-31-88-78 bin]# echo $PATH
/bin:/bin:/usr/sbin:/usr/bin
[root@ip-172-31-88-78 bin]# find / -name startup.sh
/opt/apache-tomcat-8.5.61/bin/startup.sh
[root@ip-172-31-88-78 bin]#
i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat)
Public IPs: 100.24.44.180 Private IPs: 172.31.88.78

```

- Create a Softlink
- **"ln -s /opt/apache-tomcat-8.5.61/bin/startup.sh /usr/bin/tomcatup"**
The above will create a softlink for **tomcatup**
- **"ln -s /opt/apache-tomcat-8.5.61/bin/shutdown.sh /usr/bin/tomcatdown"**
The above will create a softlink for **tomcatdown**

```

i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0cdc35d7b7e00df01
.rwxr-x--- 1 root root 1902 Dec 3 14:05 shutdown.sh
.rwxr-x--- 1 root root 1904 Dec 3 14:05 startup.sh
.rwxr-x--- 1 root root 5540 Dec 3 14:05 tool-wrapper.sh
.rwxr-x--- 1 root root 1908 Dec 3 14:05 version.sh
root@ip-172-31-88-78 bin# chmod +x startup.sh
root@ip-172-31-88-78 bin# chmod +x shutdown.sh
root@ip-172-31-88-78 bin# ls -l | grep .sh
.rwxr-x--- 1 root root 25121 Dec 3 14:05 catalina.sh
.rwxr-x--- 1 root root 1997 Dec 3 14:05 ciphers.sh
.rwxr-x--- 1 root root 1922 Dec 3 14:05 configtest.sh
.rwxr-x--- 1 root root 9100 Dec 3 14:05 daemon.sh
.rwxr-x--- 1 root root 1965 Dec 3 14:05 digest.sh
.rwxr-x--- 1 root root 3708 Dec 3 14:05 setclasspath.sh
.rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
.rwxr-x--x 1 root root 1902 Dec 3 14:05 shutdown.sh
.rwxr-x--x 1 root root 1904 Dec 3 14:05 startup.sh
.rwxr-x--- 1 root root 5540 Dec 3 14:05 tool-wrapper.sh
.rwxr-x--- 1 root root 1908 Dec 3 14:05 version.sh
root@ip-172-31-88-78 bin# -rw-r----- 1 root root 2020 Dec 3 14:05 shutdown.bat
bash: -rw-r-----: command not found
root@ip-172-31-88-78 bin# echo $PATH
/sbin:/bin:/usr/sbin:/usr/bin
root@ip-172-31-88-78 bin# find / -name startup.sh
/opt/apache-tomcat-8.5.61/bin/startup.sh
root@ip-172-31-88-78 bin# ln -s /opt/apache-tomcat-8.5.61/bin/startup.sh /usr/bin/tomcatup
root@ip-172-31-88-78 bin# ln -s /opt/apache-tomcat-8.5.61/bin/startup.sh /usr/bin/tomcatdown
root@ip-172-31-88-78 bin#
i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat)
Public IPs: 100.24.44.180 Private IPs: 172.31.88.78

```

- Change the port to 8090 by editing the server.xml by using “vi server.xml”

The above will open the server.xml file in an editor for editing purpose, the vi command will allow the user to make the changes to port 8080 and change it to 8090

```

i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0cdc35d7b7e00df01

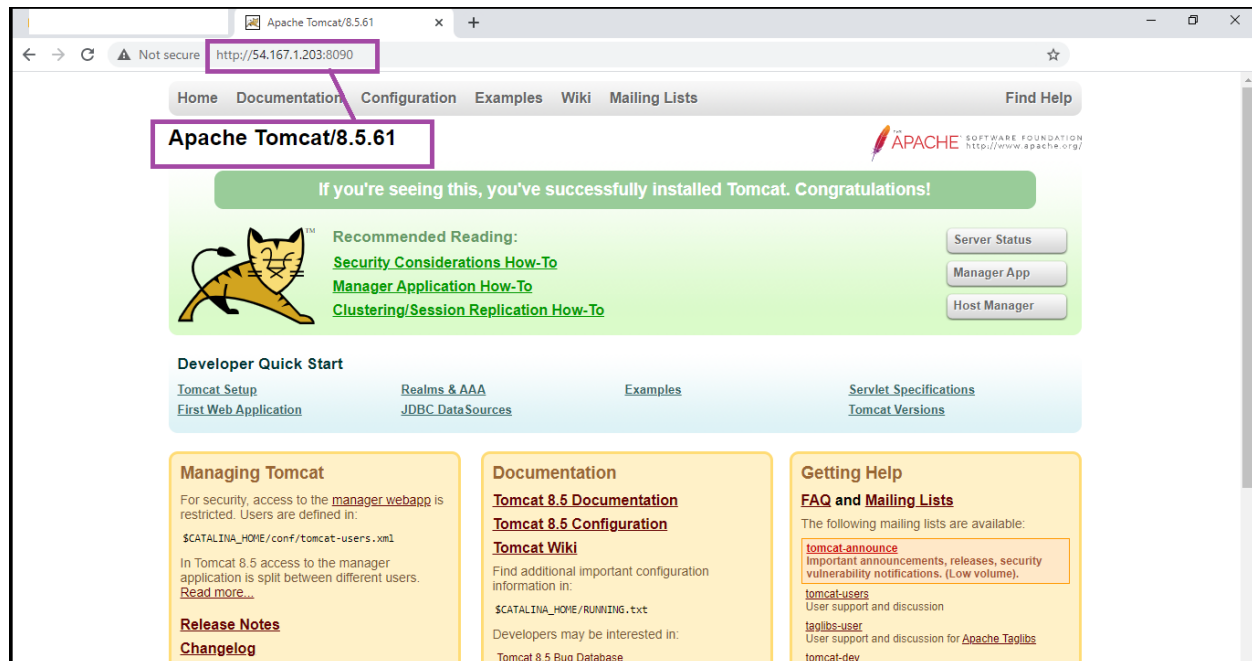
<Executor name="tomcatThreadPool" namePrefix="catalina-exec-"
maxThreads="150" minSpareThreads="4"/>
-->

<!-- A "Connector" represents an endpoint by which requests are received
and responses are returned. Documentation at :
Java HTTP Connector: /docs/config/http.html
Java AJP Connector: /docs/config/ajp.html
APR (HTTP/AJP) Connector: /docs/apr.html
Define a non-SSL/TLS HTTP/1.1 Connector on port 8080
<Connector port="8090" protocol="HTTP/1.1"
connectionTimeout="20000"
redirectPort="8443" />
<!-- A "Connector" using the shared thread pool-->
<!--
<Connector executor="tomcatThreadPool"
port="8080" protocol="HTTP/1.1"
connectionTimeout="20000"
redirectPort="8443" />
-->
<!-- Define an SSL/TLS HTTP/1.1 Connector on port 8443
This connector uses the NIO implementation. The default
SSLImplementation will depend on the presence of the APR/native
library and the useOpenSSL attribute of the
-- INSERT --

i-0cdc35d7b7e00df01 (Project_6_Apache_Tomcat)
Public IPs: 100.24.44.180 Private IPs: 172.31.88.78

```

- Check configuration in 8090



- Edit context.xml to allow manager apps access by using “**vi context.xml**” and comment Value section of the file by inserting **<!-- -->**

```

i-0275746596b7b73ae (Project_6_Apache_Tomcat) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0275746596b7b73ae
?xml version="1.0" encoding="UTF-8"?>
<!--
Licensed to the Apache Software Foundation (ASF) under one or more
contributor license agreements.  See the NOTICE file distributed with
this work for additional information regarding copyright ownership.
The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
the License.  You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
    sameSiteCookies="strict" />
  <!-- <Valve className="org.apache.catalina.valves.RemoteAddrValve"
    allow="127\.0\.0\.1" /> -->
  <Manager sessionAttributeValueClassnameFilter="java\.lang\.(?:Boolean|Integer|Long|Number|String)|org\.apache\.catalina\
filters\.CsrfPreventionFilter\$LruCache(?:\$1)?|java\.util\.(?:Linked)?HashMap"/>
</Context>

/opt/apache-tomcat-8.5.61/webapps/host-manager/META-INF/context.xml 24L, 1360C

i-0275746596b7b73ae (Project_6_Apache_Tomcat)
Public IPs: 54.167.1.203 Private IPs: 172.31.93.245

```

- Add users and roles to tomcat-users.xml by editing the tomcat-users.xml file by using “vi tomcat-users.xml”

```

this work for additional information regarding copyright ownership.
The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
the License. You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

-->
<Context antiResourceLocking="false" privileged="true" >
  <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
    <!-- <Valve className="org.apache.catalina.valves.RemoteAddrValve"
      allows="127.0.0.1" /> -->
  <Manager sessionAttributeValueClassNameFilter="java\\.lang\\. (?Boolean|Integer|Long|Number|String) |org\\.apache\\.catalina\\
    .filters\\.CsrfPreventionFilter|LruCache(?:\\$1)?|java\\.util\\. (?Linked)?HashMap"/>
</Context>

"/opt/apache-tomcat-8.5.61/webapps/host-manager/META-INF/context.xml" 24L, 1360C written
[root@ip-172-31-93-245 conf]# ls
catalina catalina.properties jaspic-providers.xml logging.properties tomcat-users.xml web.xml
catalina.policy context.xml jaspic-providers.xsd server.xml tomcat-users.xsd
[root@ip-172-31-93-245 conf]# vi tomcat-users.xml

```

- Add the below contents in the above file and save the same to make the changes applicable

```

<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user username="admin" password="ganesh" roles="manager-gui,manager-script,manager-
jmx,manager-status"/>
<user username="deployer" password="ganesh" roles="manager-script"/>
<user username="tomcat" password="ganesh" roles="manager-gui"/>

```

```

application.
-->
<!--
NOTE: The sample user and role entries below are intended for use with the
examples web application. They are wrapped in a comment and thus are ignored
when reading this file. If you wish to configure these users for use with the
examples web application, do not forget to remove the <!-- ... --> that surrounds
them. You will also need to set the passwords to something appropriate.
-->

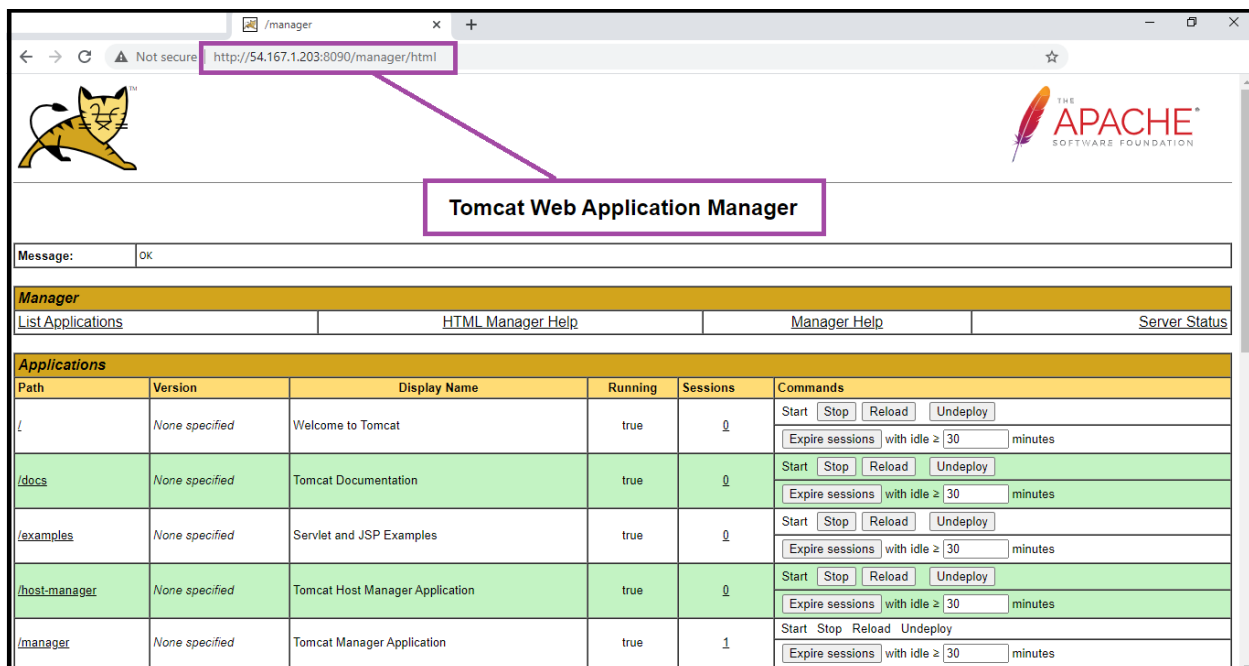
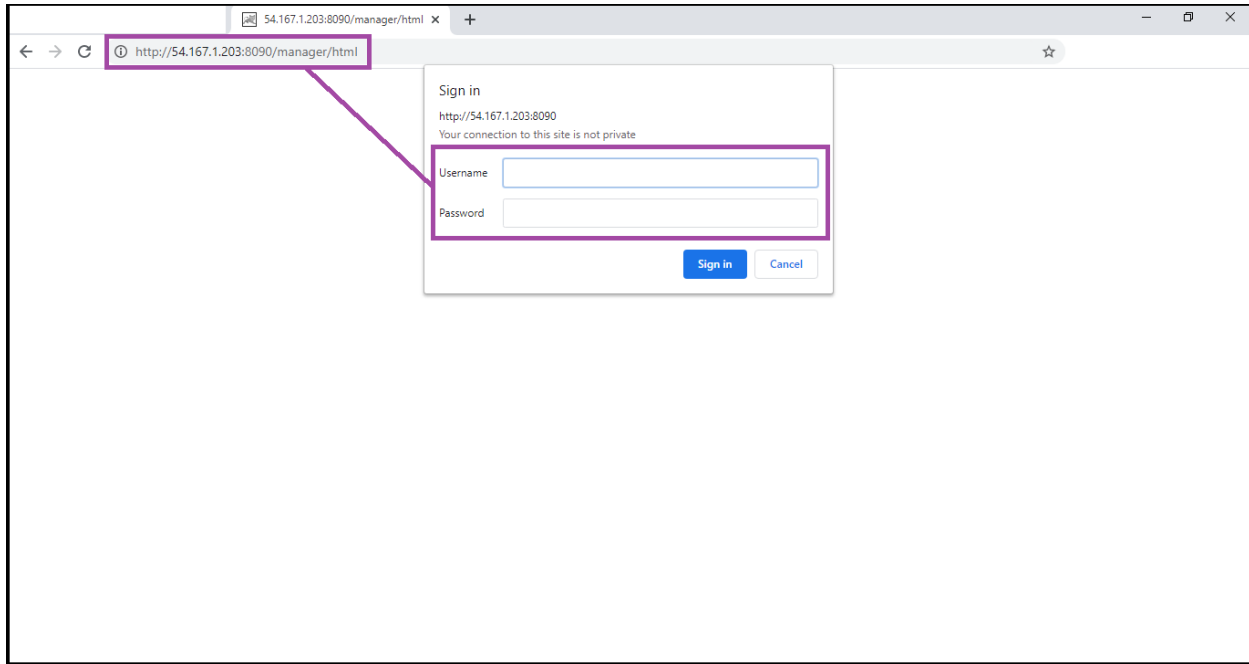
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user username="admin" password="ganesh" roles="manager-gui,manager-script,manager-jmx,manager-status"/>
<user username="deployer" password="ganesh" roles="manager-script"/>
<user username="tomcat" password="ganesh" roles="manager-gui"/>

"tomcat-users.xml" 61L, 2542C written
[root@ip-172-31-93-245 conf]#

```

- Give a restart and check for web application manager

The Tomcat web page would prompt for a login credentials. Insert the login details which was inserted in the tomcat-users.xml file (username: - **admin** / Password: - **ganesh**), Using the values inserted in the tomcat-users.xml file and clicking on the sign in button the Tomcat web Application Manager will be logged in Successfully



The above Tomcat web Application Manager page is displayed successfully