How to install Tomcat 7 in Centos 7/Amazon Linux

In this session, we are going to discuss how to install Tomcat 7 in Centos 7.

Prerequisites:

You must be logged in via SSH as sudo or root user to install the packages.

Step 1: Install OpenJDK 8 in CentOS 7

```
[root@ip-172-31-89-37 ~]# sudo yum install java-1.8.0-devel -y
```

Output:

```
[root@ip-172-31-89-37 ~]# yum install  java-1.8.0-openjdk-devel -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                                               | 3.7 kB  00:00:00
Resolving Dependencies
--> Running transaction check
---> Package java-1.8.0-openjdk-devel.x86_64 1:1.8.0.332.b09-1.amzn2.0.2 will be installed
--> Processing Dependency: java-1.8.0-openjdk(x86-64) = 1:1.8.0.332.b09-1.amzn2.0.2 for package: 1:java-1.8.0-openjdk
-devel-1.8.0.332.b09-1.amzn2.0.2.x86_64
--> Processing Dependency: libjvm.so()(64bit) for package: 1:java-1.8.0-openjdk-devel-1.8.0.332.b09-1.amzn2.0.2.x86_6
4
--> Processing Dependency: libjava.so()(64bit) for package: 1:java-1.8.0-openjdk-devel-1.8.0.332.b09-1.amzn2.0.2.x86_
64
--> Processing Dependency: libX11.so.6()(64bit) for package: 1:java-1.8.0-openjdk-devel-1.8.0.332.b09-1.amzn2.0.2.x86
_64
--> Running transaction check
---> Package java-1.8.0-openjdk.x86_64 1:1.8.0.332.b09-1.amzn2.0.2 will be installed
```

Step 1.1: Check whether java is installed or not using the below command.

```
[root@ip-172-31-89-37 ~]# sudo java -version
```

Output:

```
[root@ip-172-31-89-37 ~]# sudo java -version
openjdk version "1.8.0_332"
OpenJDK Runtime Environment (build 1.8.0_332-b09)
OpenJDK 64-Bit Server VM (build 25.332-b09, mixed mode)
[root@ip-172-31-89-37 ~]#
[root@ip-172-31-89-37 ~]#
```

Step 2: Go to Tomcat official page and download the tomcat 7.0.106 binary tar file in /opt directory

Url : https://archive.apache.org/dist/tomcat/tomcat-7/v7.0.106/bin/

```
[root@ip-172-31-89-37 ~]# cd /opt/
[root@ip-172-31-89-37 opt]# wget https://archive.apache.org/dist/tomcat/tomcat-7/v7.0.106/bin/apache-tomcat-7.0.106.tar.gz
```

Output:

```
[root@ip-172-31-89-37 ~]# cd /opt/
[root@ip-172-31-89-37 opt]# wget https://archive.apache.org/dist/tomcat/tomcat-7/v7.0.106/bin/apache-tomcat-7.0.106.tar.gz
--2022-08-28 07:32:39--  https://archive.apache.org/dist/tomcat/tomcat-7/v7.0.106/bin/apache-tomcat-7.0.106.tar.gz
Resolving archive.apache.org (archive.apache.org)... 138.201.131.134, 2a01:4f8:172:2ec5::2
Connecting to archive.apache.org (archive.apache.org)|138.201.131.134|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9642456 (9.2M) [application/x-gzip]
Saving to: 'apache-tomcat-7.0.106.tar.gz'

100%[======================================================================================>] 9,642,456   6.17MB/s   in 1.5s

2022-08-28 07:32:41 (6.17 MB/s) - 'apache-tomcat-7.0.106.tar.gz' saved [9642456/9642456]

[root@ip-172-31-89-37 opt]#
```

Step 3: Untar the tomcat using below command

```
[root@ip-172-31-89-37 opt]# sudo tar -xvf apache-tomcat-7.0.106.tar.gz
```

Note:

1. **x = extract**
2. **v = verbose**
3. **f = file**

Output:

```
[root@ip-172-31-89-37 opt]# tar -xvf apache-tomcat-7.0.106.tar.gz
apache-tomcat-7.0.106/conf/
apache-tomcat-7.0.106/conf/catalina.policy
apache-tomcat-7.0.106/conf/catalina.properties
apache-tomcat-7.0.106/conf/context.xml
apache-tomcat-7.0.106/conf/logging.properties
apache-tomcat-7.0.106/conf/server.xml
apache-tomcat-7.0.106/conf/tomcat-users.xml
apache-tomcat-7.0.106/conf/tomcat-users.xsd
apache-tomcat-7.0.106/conf/web.xml
```

Step 4: Then rename the tomcat directory using below command

```
[root@ip-172-31-89-37 opt]# sudo mv apache-tomcat-7.0.106    tomcat
```

Output:

```
[root@ip-172-31-89-37 opt]# ll
total 9420
drwxr-xr-x 9 root root     220 Aug 28 07:34 apache-tomcat-7.0.106
-rw-r--r-- 1 root root 9642456 Sep 16  2020 apache-tomcat-7.0.106.tar.gz
drwxr-xr-x 4 root root      33 Aug 15 20:22 aws
drwx--x--x 4 root root      28 Aug 27 15:46 containerd
drwxr-xr-x 2 root root       6 Aug 16  2018 rh
[root@ip-172-31-89-37 opt]# mv apache-tomcat-7.0.106 tomcat
[root@ip-172-31-89-37 opt]# ll
total 9420
-rw-r--r-- 1 root root 9642456 Sep 16  2020 apache-tomcat-7.0.106.tar.gz
drwxr-xr-x 4 root root      33 Aug 15 20:22 aws
drwx--x--x 4 root root      28 Aug 27 15:46 containerd
drwxr-xr-x 2 root root       6 Aug 16  2018 rh
drwxr-xr-x 9 root root     220 Aug 28 07:34 tomcat
[root@ip-172-31-89-37 opt]#
```

Step 5: As a good security practice, it is not recommended to run tomcat service with root privileges. So create a new user named tomcat to run the tomcat service.

Step 5.1: First create the tomcat user using below command

```
[root@ip-172-31-89-37 opt]# sudo useradd tomcat
```

Output:

```
[root@ip-172-31-89-37 opt]# useradd tomcat
[root@ip-172-31-89-37 opt]# id tomcat
uid=1001(tomcat) gid=1001(tomcat) groups=1001(tomcat)
[root@ip-172-31-89-37 opt]#
```

Step 5.2: Change the ownership of tomcat directory

```
[root@ip-172-31-89-37 opt]# sudo chown -R tomcat:tomcat tomcat/
```

Output:

```
[root@ip-172-31-89-37 opt]# chown -R tomcat:tomcat tomcat/
[root@ip-172-31-89-37 opt]# ll
total 9420
-rw-r--r-- 1 root   root   9642456 Sep 16  2020 apache-tomcat-7.0.106.tar.gz
drwxr-xr-x 4 root   root        33 Aug 15 20:22 aws
drwx--x--x 4 root   root        28 Aug 27 15:46 containerd
drwxr-xr-x 2 root   root         6 Aug 16  2018 rh
drwxr-xr-x 9 tomcat tomcat     220 Aug 28 07:34 tomcat
[root@ip-172-31-89-37 opt]#
[root@ip-172-31-89-37 opt]#
```

Step 6: To start the tomcat use below command

```
[root@ip-172-31-89-37 opt]# sudo sh /opt/tomcat/bin/startup.sh
```

Output:

```
[root@ip-172-31-89-37 opt]# sh /opt/tomcat/bin/startup.sh
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
[root@ip-172-31-89-37 opt]#
```

Step 7: **To stop the tomcat use below command**

```
[root@ip-172-31-89-37 opt]# sudo sh /opt/tomcat/bin/shutdown.sh
```

Output:

```
[root@ip-172-31-89-37 opt]# sh /opt/tomcat/bin/shutdown.sh
Using CATALINA_BASE:   /opt/tomcat
Using CATALINA_HOME:   /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
[root@ip-172-31-89-37 opt]#
```

Step 8: Setup Tomcat as a service instead of using shell scripts. You have to create the **tomcat.service** file under the **/etc/systemd/system/** directory

```
[root@ip-172-31-89-37 opt]# sudo vim /etc/systemd/system/tomcat.service
```

Mentioned the below content in **tomcat.service** file

```
[Unit]
Description=Tomcat 7.0.106 container
After=network.target
[Service]
Type=forking
User=tomcat
Group=tomcat
ExecStart=/opt/tomcat/bin/startup.sh
ExecStop=/opt/tomcat/bin/shutdown.sh
[Install]
WantedBy=multi-user.target
```

Step 9: Enable the tomcat service using below command

```
[root@ip-172-31-89-37 opt]# sudo systemctl enable  tomcat
```

Output:

```
[root@ip-172-31-89-37 opt]# systemctl enable  tomcat
Created symlink from /etc/systemd/system/multi-user.target.wants/tomcat.service to /etc/systemd/system/tomcat.service.
[root@ip-172-31-89-37 opt]#
```

Step 10: Start the tomcat service use below command

```
[root@ip-172-31-89-37 opt]# sudo systemctl start  tomcat
                          (OR)
[root@ip-172-31-89-37 opt]# sudo service tomcat start
```

Step 11: Stop the tomcat service use below command

```
[root@ip-172-31-89-37 opt]# sudo systemctl stop  tomcat
                          (OR)
[root@ip-172-31-89-37 opt]# sudo service tomcat stop
```

Step 12: Check the status of the tomcat service

```
[root@ip-172-31-89-37 opt]# sudo systemctl status  tomcat
                          (OR)
[root@ip-172-31-89-37 opt]# sudo service tomcat status
```

Output:

```
[root@ip-172-31-89-37 opt]# systemctl status tomcat
● tomcat.service - Tomcat 7.0.106 conatiner
   Loaded: loaded (/etc/systemd/system/tomcat.service; enabled; vendor preset: disabled)
   Active: active (running) since Sun 2022-08-28 07:52:04 UTC; 7s ago
  Process: 4602 ExecStart=/opt/tomcat/bin/startup.sh (code=exited, status=0/SUCCESS)
 Main PID: 4616 (java)
    Tasks: 27
   Memory: 70.3M
   CGroup: /system.slice/tomcat.service
           └─4616 /usr/bin/java -Djava.util.logging.config.file=/opt/tomcat/conf/logging.properties -Djava.util.logging.mana

Aug 28 07:52:04 ip-172-31-89-37.ec2.internal systemd[1]: Starting Tomcat 7.0.106 conatiner...
Aug 28 07:52:04 ip-172-31-89-37.ec2.internal startup.sh[4602]: Tomcat started.
Aug 28 07:52:04 ip-172-31-89-37.ec2.internal systemd[1]: Started Tomcat 7.0.106 conatiner.
[root@ip-172-31-89-37 opt]#
```

Step 13: To restart the tomcat service use the below command.

```
[root@ip-172-31-89-37 opt]# sudo systemctl restart  tomcat
                                    (OR)
[root@ip-172-31-89-37 opt]# sudo service tomcat restart
```

Step 14: To access the Tomcat GUI. First need to enable the 8080 port number

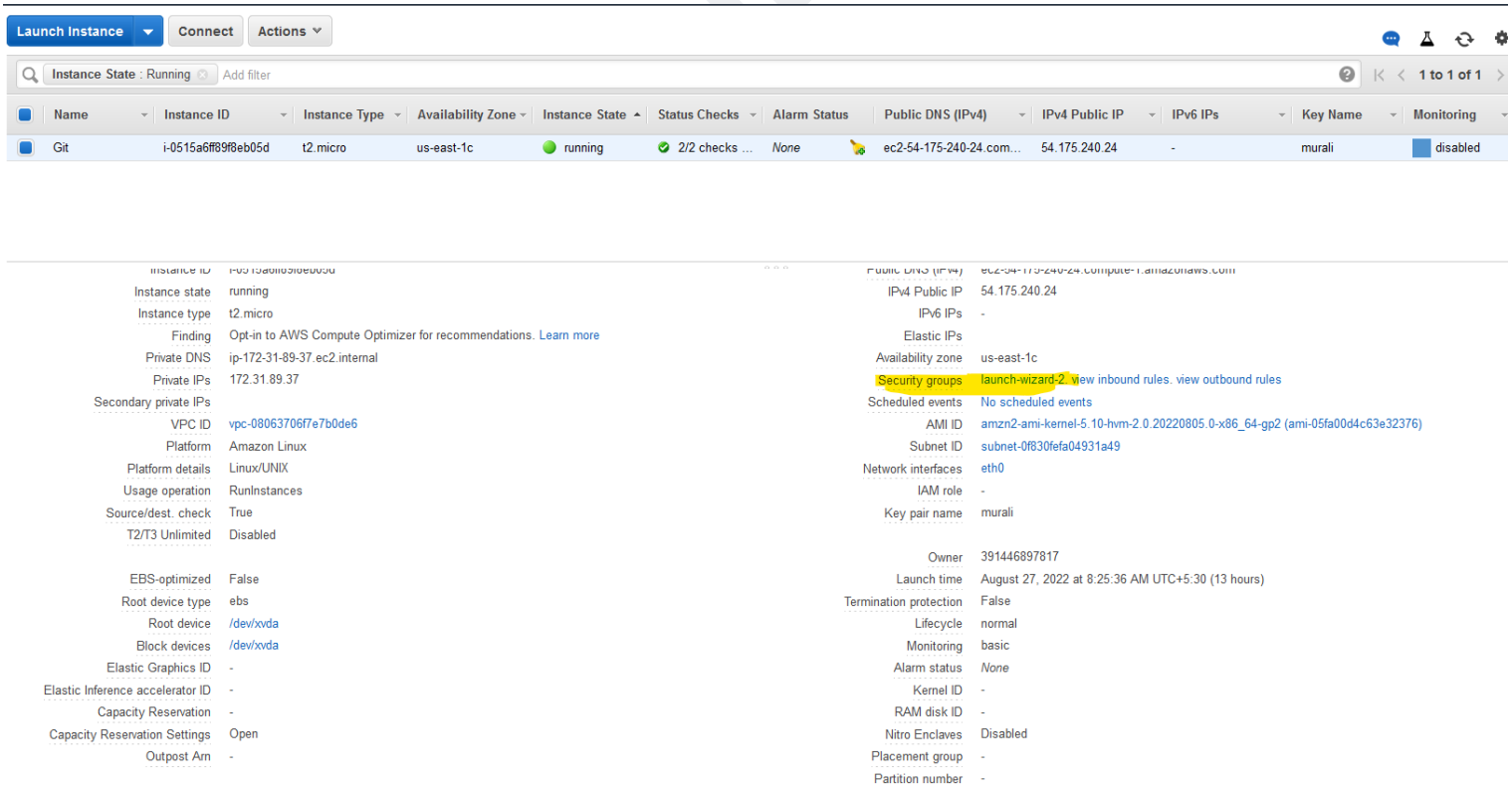
Note:

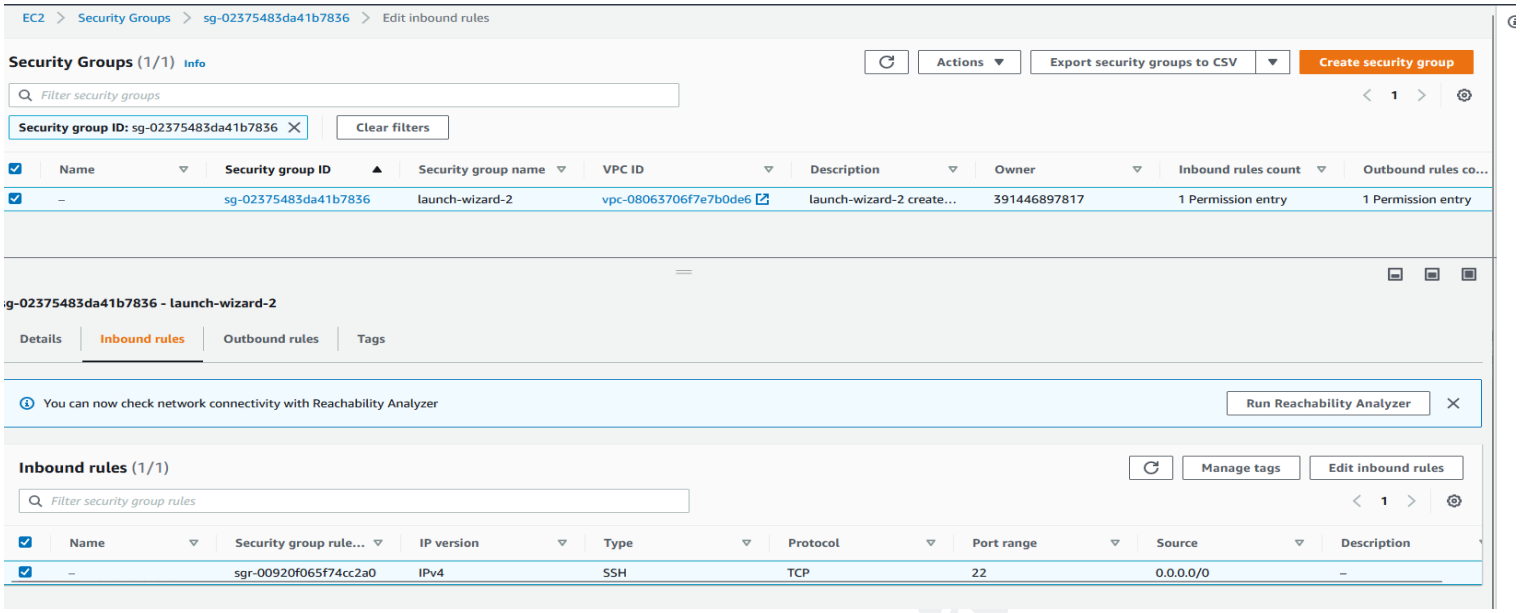
If your using on-premise server use below command to enabled the port number

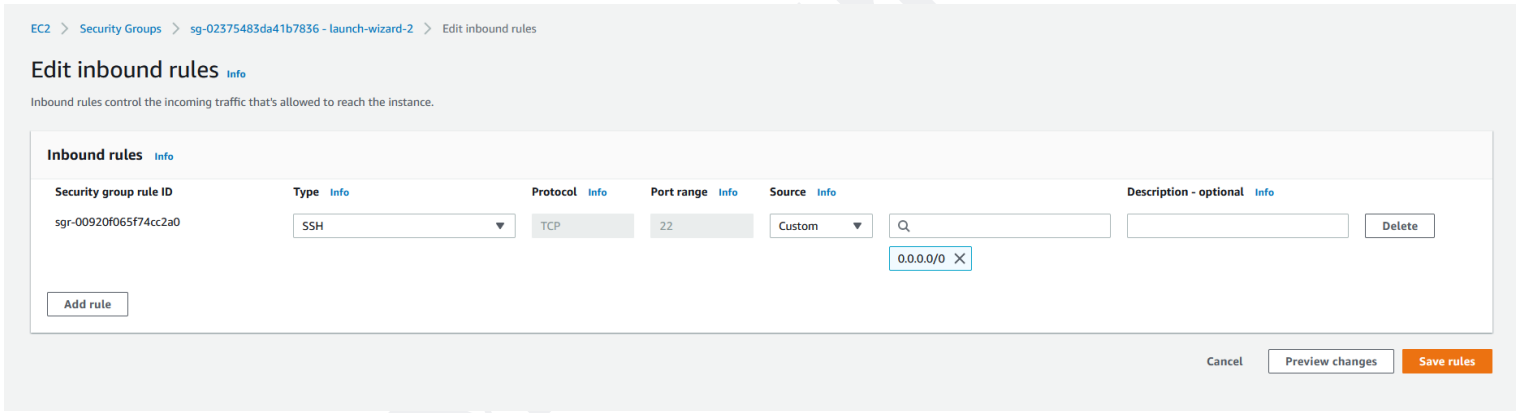
```
[root@ip-172-31-89-37 ~]# sudo firewall-cmd --permanent --zone=public --add-port=8080/tcp
[root@ip-172-31-89-37 ~]# sudo firewall-cmd --reload
```

If you are using an AWS EC2 instance, you have to open the Inbound rules 8080 port number in Security Groups for a particular server.

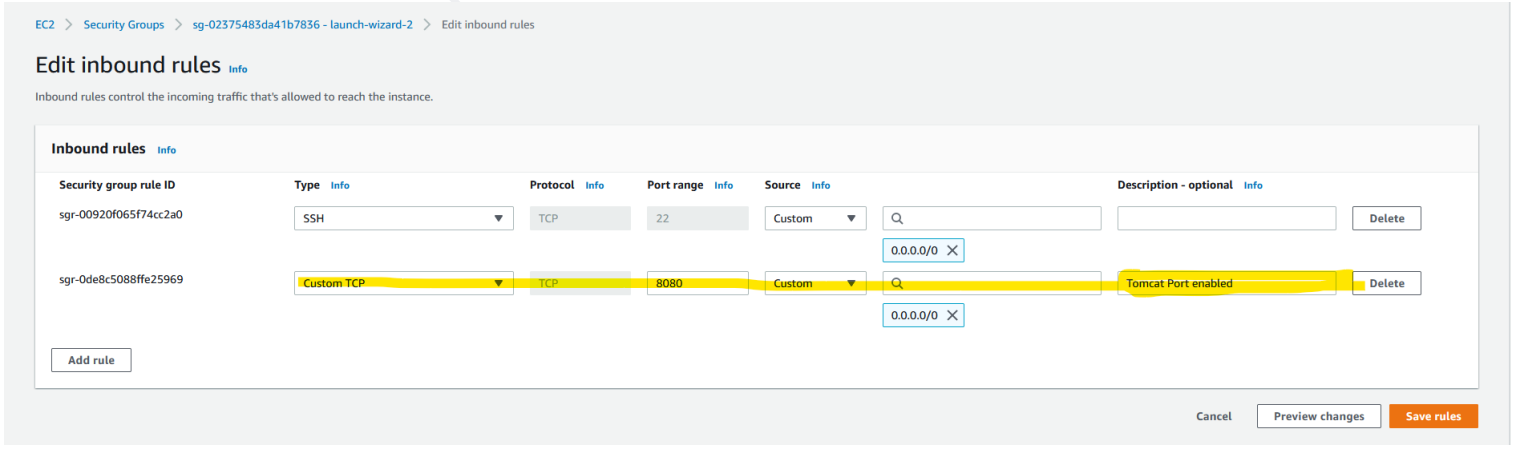
Example:







Add the 8080 port number in the Inbound rule.



Note: If you are not enabled with the 8080 port number , you can't access Tomcat GUI.

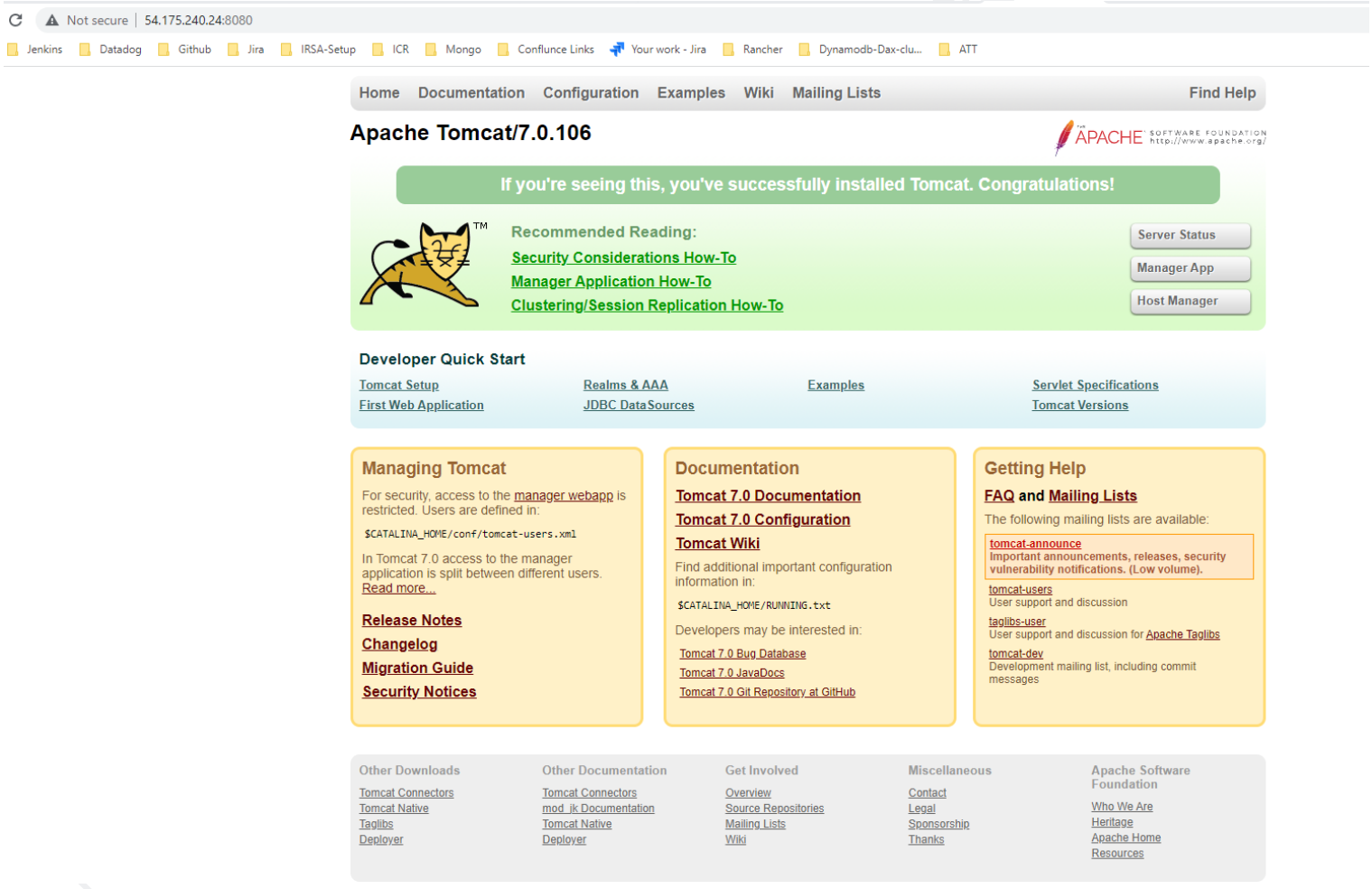
Step 15: To access the Tomcat GUI. Open any browser and type your domain or IP address followed by port 8080:

http://your_ip_or_domain:8080

Example:

http:54.175.240.24:8080

Example:



Step 16: Configure the Management Interface

We haven't configured the Tomcat users and their roles because of that currently the web management interface is inaccessible. So add the users and roles in **tomcat-users.xml** under **/opt/tomcat/conf/ directory.**

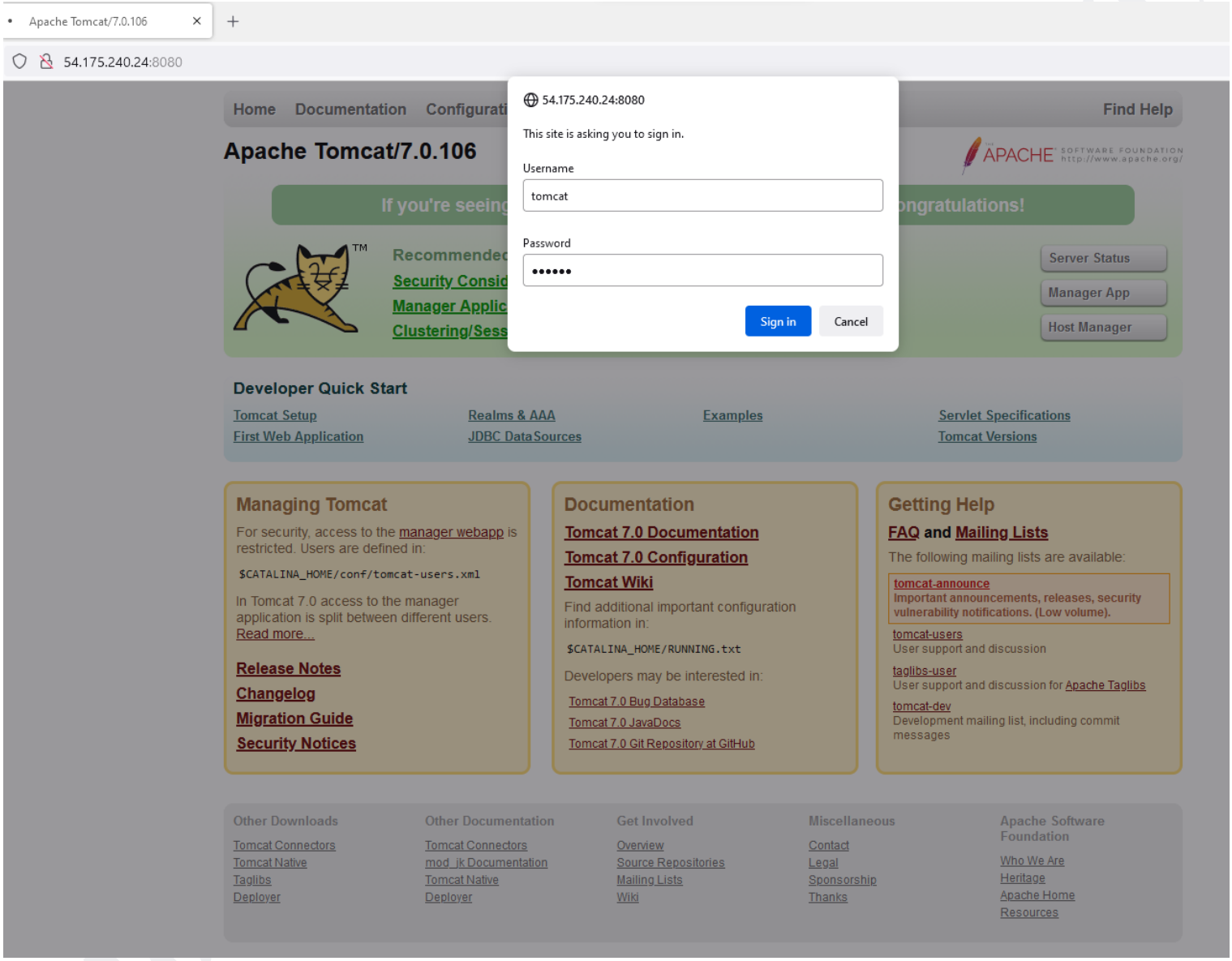
```
[root@ip-172-31-89-37 opt]# sudo vim /opt/tomcat/conf/tomcat-users.xml
```

Add the below users and roles under <tomcat-users > </tomcat-users> tag.

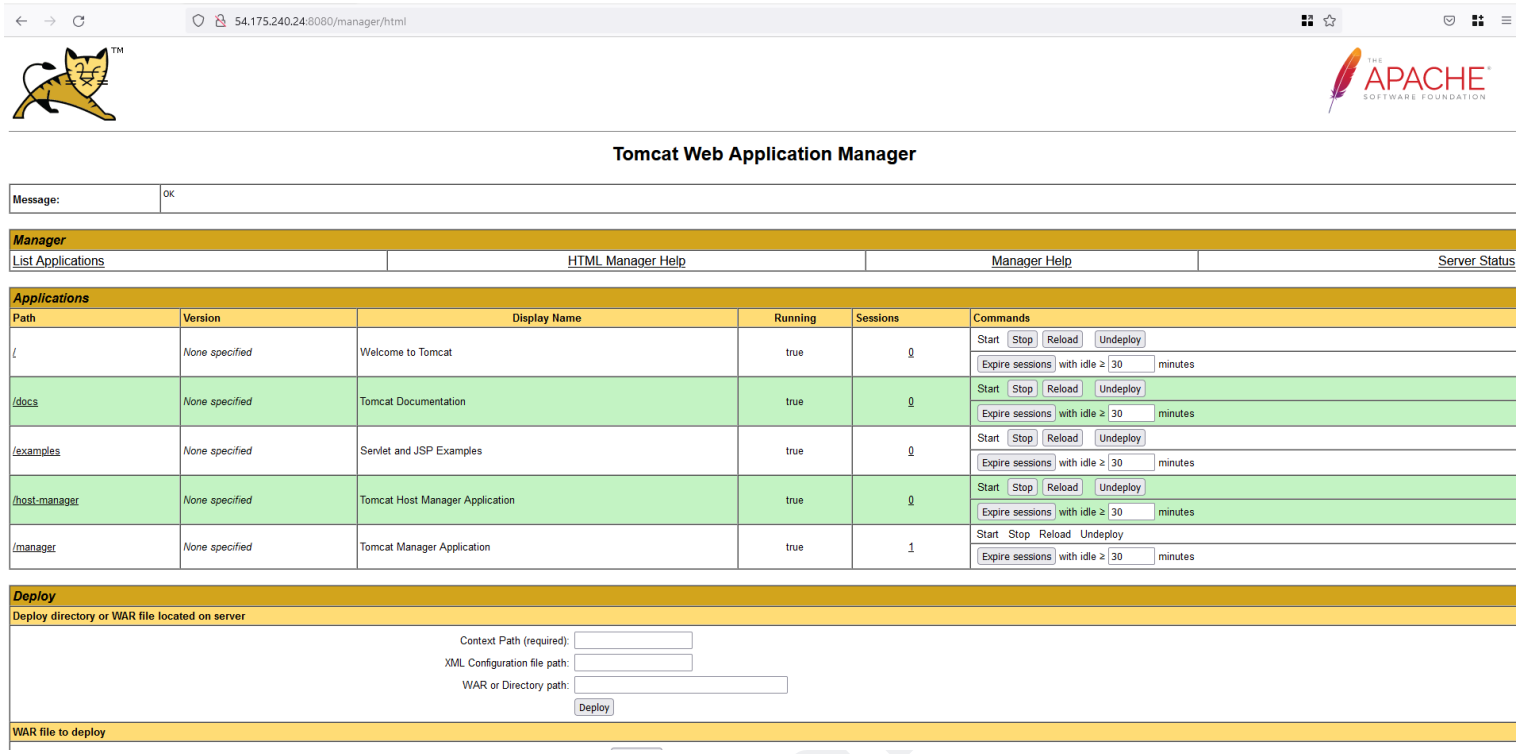
```
<role rolename="manager-gui" />
<role rolename="manager-status" />
<role rolename="manager-script" />
<role rolename="manager-jmx" />
<role rolename="admin-gui" />
<role rolename="admin-script" />

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

Step 17: Once updated the users and roles. Once You have to restart the tomcat service. Now new user will have access to the web interfaces(manager-gui and admin-gui).

Once click the **Manager app** it will prompt and ask for the username and password.



Once provided the username and password. It will display like below .



Now the Tomcat web application manager dashboard can be reached at **http://54.175.240.24:8080/manager/html**. From here, you can manage (start, stop, reload, deploy and undeploy) your applications.

Conclusion:

Congratulations. You have successfully installed the tomcat 7. If you are facing any issues during installation. Feel free to reach out in the comment box.

**** Thank you for watching this Video. We will see you in the next video. ****

About the Author:

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- I am having rich experience in Devops and Cloud technologies and have done many projects on all varieties of tools which are hot cake in the market.
- I am passionate about learning new technology and teaching.
- My courses focus on providing students with an interactive and hands-on experience in learning new technology that makes learning really interesting.
- I have a wide range of experience in Telecom, Banking, Healthcare, Retail domains.
- I have been training people in newer technologies, like DevOps, AWS, Kubernetes, Terraform,Rancher, etc. and they have settled in MNC's and drawing respectable salaries.
- I have undergone many challenges and changed the entire phase of the projects.
- Certified in AWS, Kubernetes , Terraform, Linux and many to go.

Please check out my courses and join me with thousands of others who are learning the latest DevOps and Cloud tools!

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