



Project

INSTALLING AND CONFIGURING APACHE TOMCAT SERVER ON LINUX



FEBRUARY 1, 2021

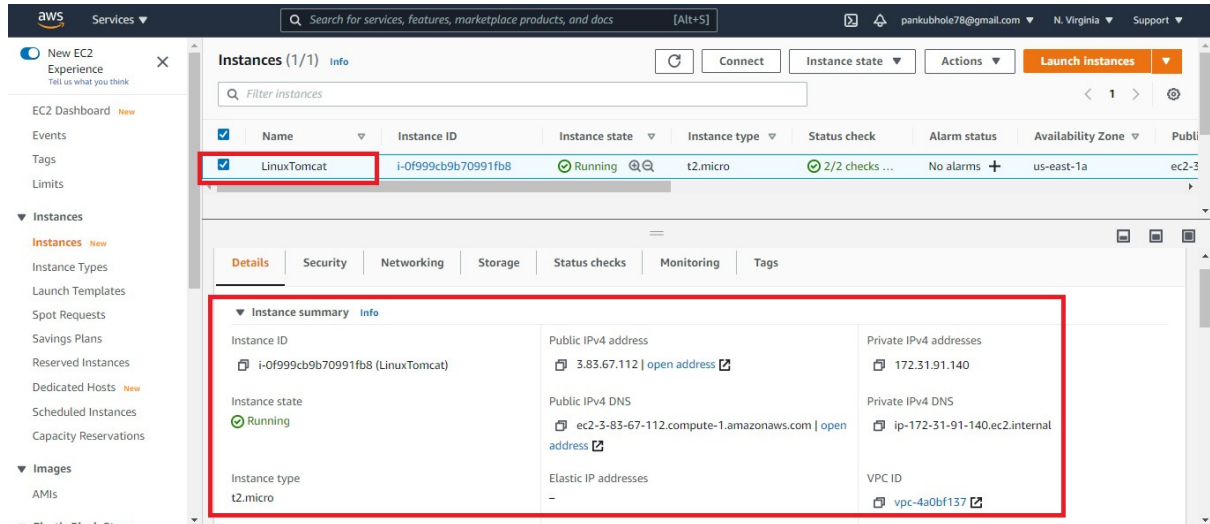
LetsUpgrad

Trainer Name: Mrs. Vinolin Jerimaha

Advance AWS Cloud Computing With DevOps Fundamentals

1) Install java

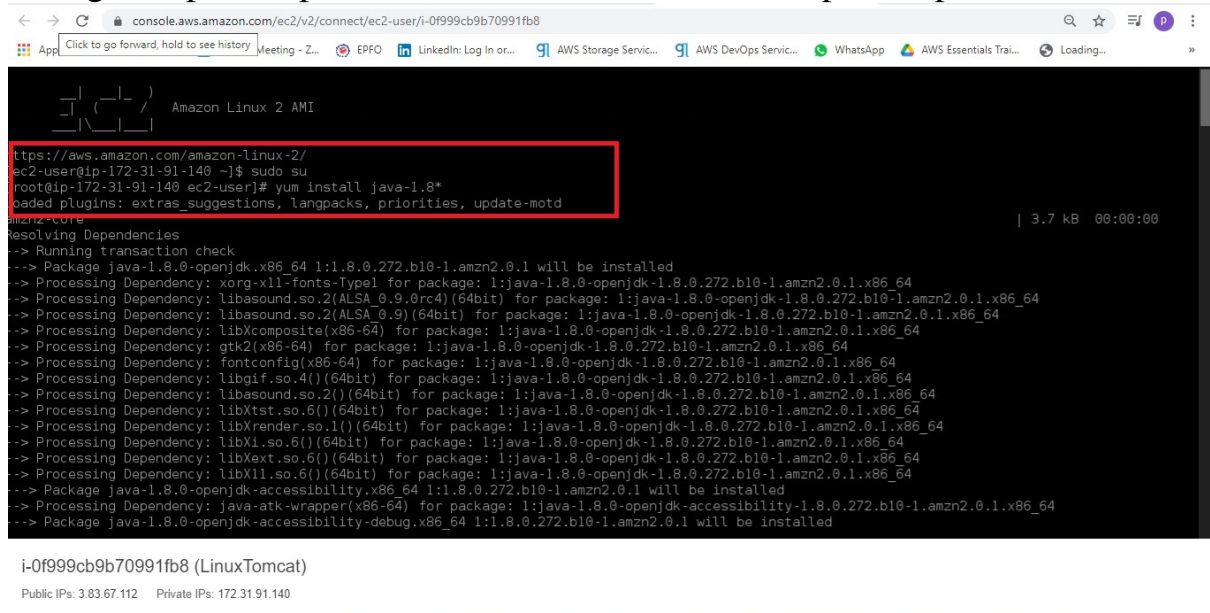
➤ `yum install java-1.8*`



In above screen Linux instance ip details is as follows,

Public IP	3.83.67.112
Private IP	172.31.91.140

Change the public ip when restart the instance current public ip is 3.92.226.29.



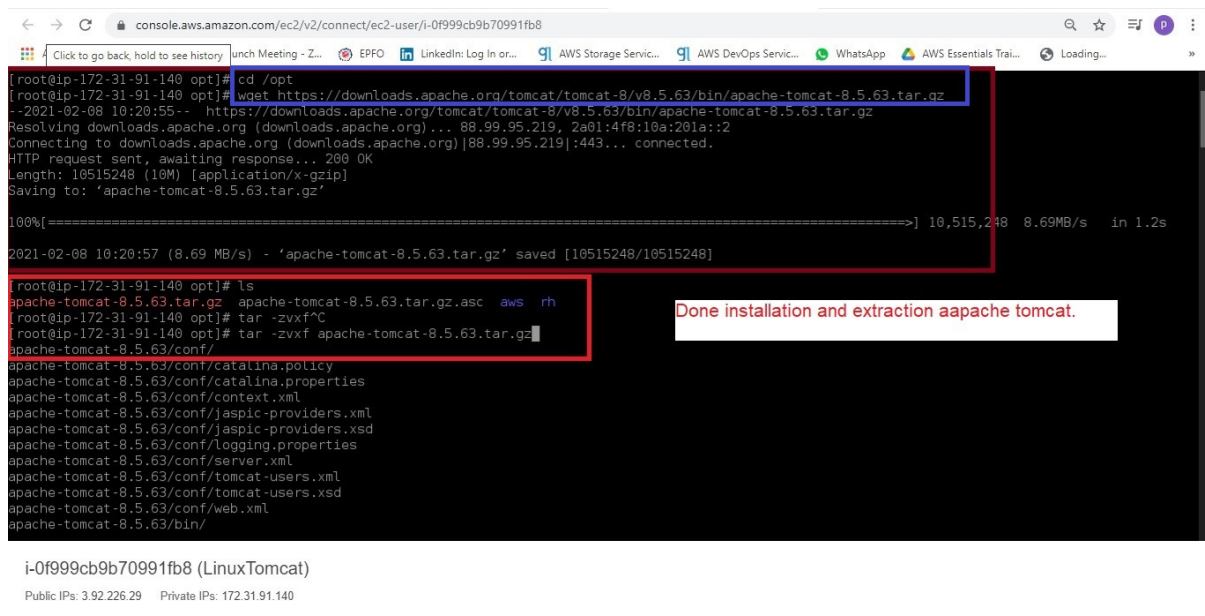
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2. Install tomcat

- cd /opt
- wget

<https://downloads.apache.org/tomcat/tomcat-8/v8.5.63/bin/apache-tomcat-8.5.63.tar.gz>

- tar -zxvf apache-tomcat-8.5.63.tar.gz



```
[root@ip-172-31-91-140 opt]# cd /opt
[root@ip-172-31-91-140 opt]# wget https://downloads.apache.org/tomcat/tomcat-8/v8.5.63/bin/apache-tomcat-8.5.63.tar.gz
--2021-02-08 10:20:55-- https://downloads.apache.org/tomcat/tomcat-8/v8.5.63/bin/apache-tomcat-8.5.63.tar.gz
Resolving downloads.apache.org (downloads.apache.org)... 88.99.95.219, 2a01:4f8:10a:201a::2
Connecting to downloads.apache.org (downloads.apache.org)|88.99.95.219|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10515248 (10M) [application/x-gzip]
Saving to: 'apache-tomcat-8.5.63.tar.gz'

100%[=====] 10,515,248 8.69MB/s in 1.2s

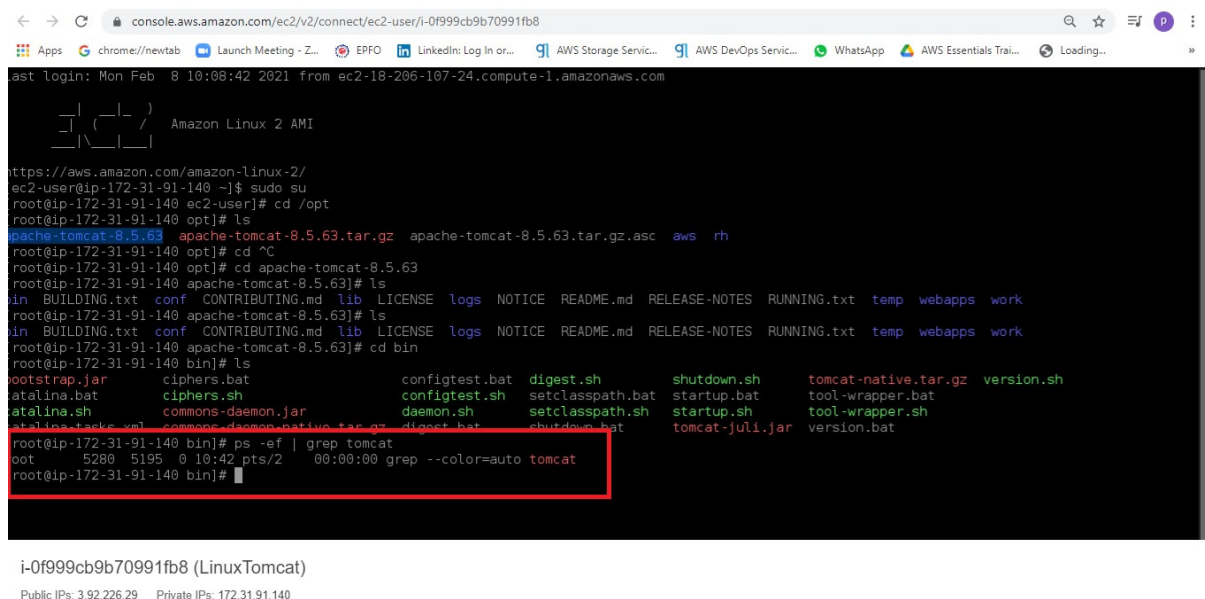
2021-02-08 10:20:57 (8.69 MB/s) - 'apache-tomcat-8.5.63.tar.gz' saved [10515248/10515248]

[root@ip-172-31-91-140 opt]# ls
apache-tomcat-8.5.63.tar.gz  apache-tomcat-8.5.63.tar.gz.asc  aws  rh
[root@ip-172-31-91-140 opt]# tar -zxvf apache-tomcat-8.5.63.tar.gz
apache-tomcat-8.5.63/conf/
apache-tomcat-8.5.63/conf/catalina.policy
apache-tomcat-8.5.63/conf/catalina.properties
apache-tomcat-8.5.63/conf/context.xml
apache-tomcat-8.5.63/conf/jaspic-providers.xml
apache-tomcat-8.5.63/conf/jaspic-providers.xsd
apache-tomcat-8.5.63/conf/logging.properties
apache-tomcat-8.5.63/conf/server.xml
apache-tomcat-8.5.63/conf/tomcat-users.xml
apache-tomcat-8.5.63/conf/tomcat-users.xsd
apache-tomcat-8.5.63/conf/web.xml
apache-tomcat-8.5.63/bin/
```

Done installation and extraction aapache tomcat.

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140



```
ast login: Mon Feb 8 10:08:42 2021 from ec2-18-206-107-24.compute-1.amazonaws.com

Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
ec2-user@ip-172-31-91-140 ~]$ sudo su
root@ip-172-31-91-140 ec2-user]$ cd /opt
root@ip-172-31-91-140 opt]$ ls
apache-tomcat-8.5.63  apache-tomcat-8.5.63.tar.gz  apache-tomcat-8.5.63.tar.gz.asc  aws  rh
root@ip-172-31-91-140 opt]$ cd ^C
root@ip-172-31-91-140 opt]$ cd apache-tomcat-8.5.63
root@ip-172-31-91-140 apache-tomcat-8.5.63]$ ls
bin  BUILDING.txt  conf  CONTRIBUTING.md  lib  LICENSE  logs  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  temp  webapps  work
root@ip-172-31-91-140 apache-tomcat-8.5.63]$ cd bin
root@ip-172-31-91-140 bin]$ ls
bootstrap.jar  ciphers.bat  configtest.bat  digest.sh  shutdown.sh  tomcat-native.tar.gz  version.sh
atalina.bat  ciphers.sh  configtest.sh  setclasspath.bat  startup.bat  tool-wrapper.bat
atalina.sh  commons-daemon.jar  daemon.sh  setclasspath.sh  startup.sh  tool-wrapper.sh
atalina-task.jar  commons-daemon-native.tar.gz  digest.bat  shutdown.bat  tomcat-juli.jar  version.bat
root@ip-172-31-91-140 bin]$ ps -ef | grep tomcat
root 5280 5195 0 10:42 pts/2 00:00:00 grep --color=auto tomcat
root@ip-172-31-91-140 bin]#
```

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

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❖ Modify permissions for startup.sh and shutdown.sh

➤ ls -ltr

```
console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0f999cb9b70991fb8
Apps chrome://newtab Launch Meeting - Z... EPFO LinkedIn: Log In or... AWS Storage Servic... AWS DevOps Servic... WhatsApp AWS Essentials Trai... Loading...
root@ip-172-31-91-140 bin# ls -ltr
total 872
-rw-r----- 1 root root 2026 Jan 29 11:24 version.bat
-rw-r----- 1 root root 4574 Jan 29 11:24 tool-wrapper.bat
-rw-r----- 1 root root 51209 Jan 29 11:24 tomcat-juli.jar
-rw-r----- 1 root root 2022 Jan 29 11:24 startup.bat
-rw-r----- 1 root root 2020 Jan 29 11:24 shutdown.bat
-rw-r----- 1 root root 3460 Jan 29 11:24 setclasspath.bat
-rw-r----- 1 root root 2091 Jan 29 11:24 digest.bat
-rw-r----- 1 root root 2040 Jan 29 11:24 configtest.bat
-rw-r----- 1 root root 25357 Jan 29 11:24 commons-daemon.jar
-rw-r----- 1 root root 2123 Jan 29 11:24 ciphers.bat
-rw-r----- 1 root root 16840 Jan 29 11:24 catalina.bat
-rw-r----- 1 root root 36311 Jan 29 11:24 bootstrap.jar
-rwxr-x--- 1 root root 1908 Jan 29 11:24 version.sh
-rwxr-x--- 1 root root 5540 Jan 29 11:24 tool-wrapper.sh
-rwxr-x--- 1 root root 1904 Jan 29 11:24 startup.sh
-rwxr-x--- 1 root root 1902 Jan 29 11:24 shutdown.sh
-rwxr-x--- 1 root root 3708 Jan 29 11:24 setclasspath.sh
-rwxr-x--- 1 root root 1965 Jan 29 11:24 digest.sh
-rwxr-x--- 1 root root 9100 Jan 29 11:24 daemon.sh
-rwxr-x--- 1 root root 1922 Jan 29 11:24 configtest.sh
-rwxr-x--- 1 root root 1997 Jan 29 11:24 ciphers.sh
-rwxr-x--- 1 root root 25294 Jan 29 11:24 catalina.sh
-rw-r----- 1 root root 423135 Jan 29 11:24 tomcat-native.tar.gz
-rw-r----- 1 root root 207420 Jan 29 11:24 commons-daemon-native.tar.gz
-rw-r----- 1 root root 1664 Jan 29 11:25 catalina-tasks.xml
root@ip-172-31-91-140 bin#
```

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

➤ chmod +x startup.sh

➤ chmod +x shutdown.sh

```
console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0f999cb9b70991fb8
Apps Click to go forward, hold to see history Meeting - Z... EPFO LinkedIn: Log In or... AWS Storage Servic... AWS DevOps Servic... WhatsApp AWS Essentials Trai... Loading...
total 872
-rw-r----- 1 root root 2026 Jan 29 11:24 version.bat
-rw-r----- 1 root root 4574 Jan 29 11:24 tool-wrapper.bat
-rw-r----- 1 root root 51209 Jan 29 11:24 tomcat-juli.jar
-rw-r----- 1 root root 2022 Jan 29 11:24 startup.bat
-rw-r----- 1 root root 2020 Jan 29 11:24 shutdown.bat
-rw-r----- 1 root root 3460 Jan 29 11:24 setclasspath.bat
-rw-r----- 1 root root 2091 Jan 29 11:24 digest.bat
-rw-r----- 1 root root 2040 Jan 29 11:24 configtest.bat
-rw-r----- 1 root root 25357 Jan 29 11:24 commons-daemon.jar
-rw-r----- 1 root root 2123 Jan 29 11:24 ciphers.bat
-rw-r----- 1 root root 16840 Jan 29 11:24 catalina.bat
-rw-r----- 1 root root 36311 Jan 29 11:24 bootstrap.jar
-rwxr-x--- 1 root root 1908 Jan 29 11:24 version.sh
-rwxr-x--- 1 root root 5540 Jan 29 11:24 tool-wrapper.sh
-rwxr-x--- 1 root root 1904 Jan 29 11:24 startup.sh
-rwxr-x--- 1 root root 1902 Jan 29 11:24 shutdown.sh
-rwxr-x--- 1 root root 3708 Jan 29 11:24 setclasspath.sh
-rwxr-x--- 1 root root 1965 Jan 29 11:24 digest.sh
-rwxr-x--- 1 root root 9100 Jan 29 11:24 daemon.sh
-rwxr-x--- 1 root root 1922 Jan 29 11:24 configtest.sh
-rwxr-x--- 1 root root 1997 Jan 29 11:24 ciphers.sh
-rwxr-x--- 1 root root 25294 Jan 29 11:24 catalina.sh
-rw-r----- 1 root root 423135 Jan 29 11:24 tomcat-native.tar.gz
-rw-r----- 1 root root 207420 Jan 29 11:24 commons-daemon-native.tar.gz
-rw-r----- 1 root root 1664 Jan 29 11:25 catalina-tasks.xml
root@ip-172-31-91-140 bin# chmod +x startup.sh
root@ip-172-31-91-140 bin# chmod +x shutdown.sh
root@ip-172-31-91-140 bin#
```


i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

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❖ Create a soft link :

```
➤ echo $ PATH
```



```
last login: Mon Feb  8 10:30:34 2021 from ec2-18-206-107-25.compute-1.amazonaws.com

 _ _ | _ _ | _ _ |
 _ _ | _ _ | _ _ | /
 _ _ | _ _ | _ _ |

Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
ec2-user@ip-172-31-91-140: ~$ aws --version
aws-cli/1.18.1 Python/3.6.8 Linux/4.18.0-345.el8.x86_64 botocore/1.19.0
root@ip-172-31-91-140 ec2-user]# echo $PATH
/sbin:/bin:/usr/sbin:/usr/bin
root@ip-172-31-91-140 ec2-user]#
```

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

- ln -s /opt/apache-tomcat-8.5.63/bin/startup.sh /usr/bin/tomcatup.
- ln -s /opt/apache-tomcat-8.5.63/bin/shutdown.sh /usr/bin/tomcatdown.

```
← → ↺ console.aws.amazon.com/ec2/v2/connect/ec2-user/fi-Of999cb9b70991fb8 🔍 ☆ ☰ P ⋮
Apps chrome://newtab Launch Meeting - Z... EPFO LinkedIn: Log In or... AWS Storage Servic... AWS DevOps Servic... WhatsApp AWS Essentials Trai... Loading... »

Last login: Mon Feb  8 10:30:34 2021 from ec2-18-206-107-25.compute-1.amazonaws.com

 _ | _ | _ |
 _ | _ | _ |  Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-91-140 ~]$ sudo su
[root@ip-172-31-91-140 ec2-user]# echo $PATH
/sbin:/bin:/usr/sbin:/usr/bin
[root@ip-172-31-91-140 ec2-user]# find / -name startup.sh
/opt/apache-tomcat-8.5.63/bin/startup.sh
[root@ip-172-31-91-140 ec2-user]# ln -s /opt/apache-tomcat-8.5.63/bin/startup.sh /usr/bin/tomcatup
[root@ip-172-31-91-140 ec2-user]# ln -s /opt/apache-tomcat-8.5.63/bin/shutdown.sh /usr/bin/tomcatdown
```

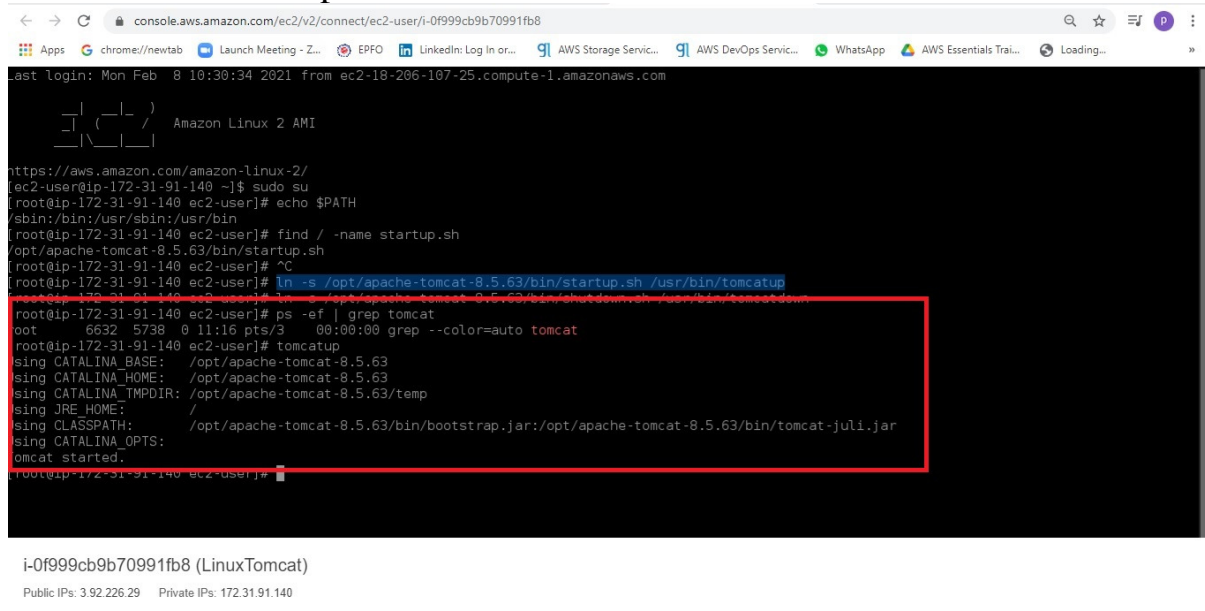
i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

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Using the following command for startup the tomcat apache machine

➤ tomcatup



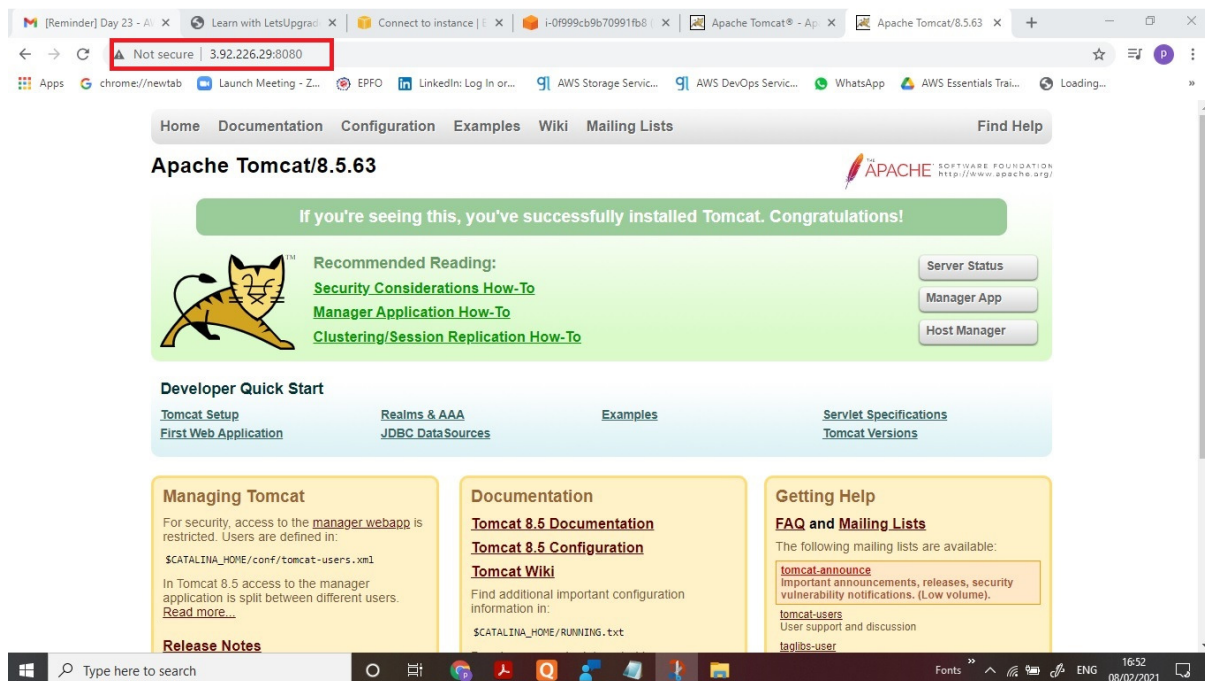
```
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-91-140 ~]$ sudo su
[root@ip-172-31-91-140 ec2-user]# echo $PATH
/sbin:/bin:/usr/sbin:/usr/bin
[root@ip-172-31-91-140 ec2-user]# find / -name startup.sh
/opt/apache-tomcat-8.5.63/bin/startup.sh
[root@ip-172-31-91-140 ec2-user]# ^C
[root@ip-172-31-91-140 ec2-user]# ln -s /opt/apache-tomcat-8.5.63/bin/startup.sh /usr/bin/tomcatup
[root@ip-172-31-91-140 ec2-user]# ps -ef | grep tomcat
root      6632   5738   0 11:16 pts/3    00:00:00 grep --color=auto tomcat
[root@ip-172-31-91-140 ec2-user]# tomcatup
sing CATALINA_BASE:   /opt/apache-tomcat-8.5.63
sing CATALINA_HOME:   /opt/apache-tomcat-8.5.63
sing CATALINA_TMPDIR: /opt/apache-tomcat-8.5.63/temp
sing JRE_HOME:        /
sing CLASSPATH:       /opt/apache-tomcat-8.5.63/bin/bootstrap.jar:/opt/apache-tomcat-8.5.63/bin/tomcat-juli.jar
sing CATALINA_OPTS:
omcat started.
[root@ip-172-31-91-140 ec2-user]#
```

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

Now machine tomcat started and showing the result port no 8080.

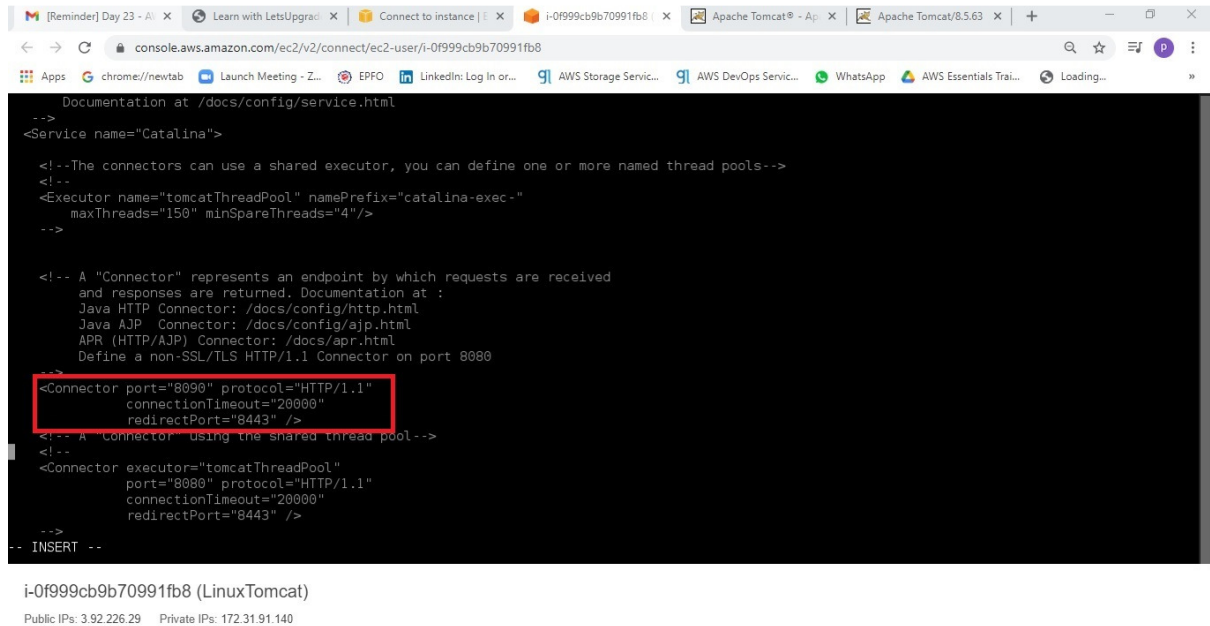
Using public ip for created the link is 3.92.226.29:8080.



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❖ Change the port to 8090

- edit server.xml
- vi server.xml



```
-->
Documentation at /docs/config/service.html
<!--
-->
<Service name="Catalina">

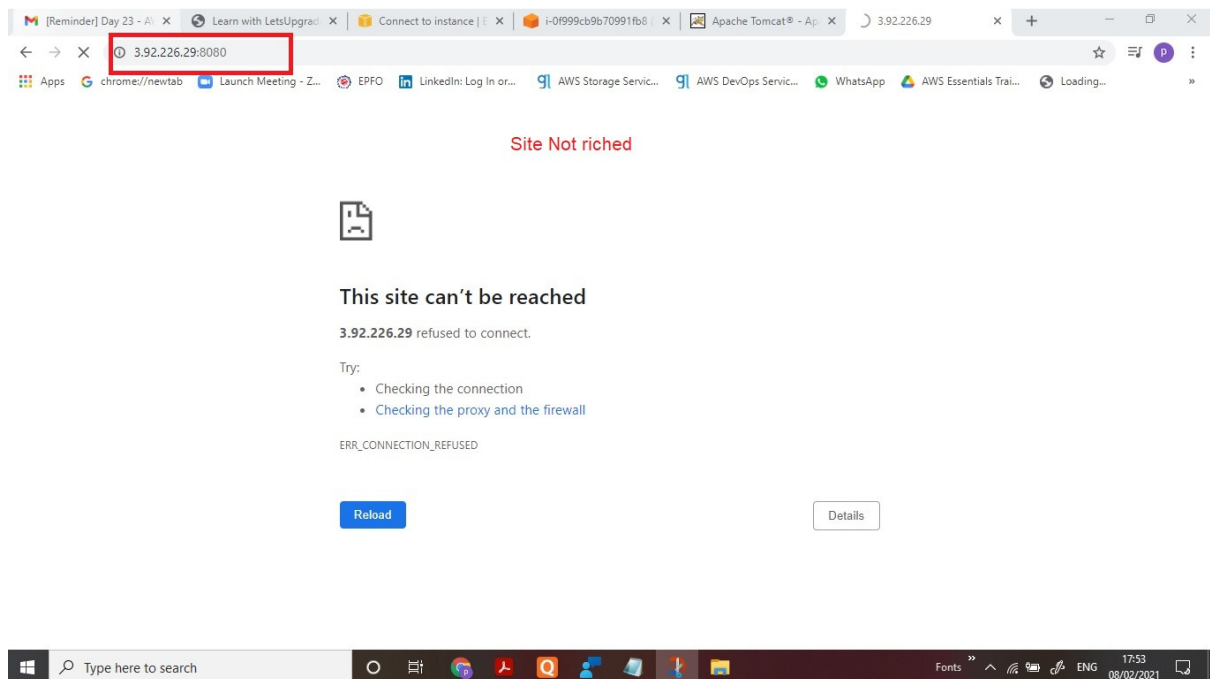
  <!--The connectors can use a shared executor, you can define one or more named thread pools-->
  <!--
  <Executor name="tomcatThreadPool" namePrefix="catalina-exec-"
    maxThreads="150" minSpareThreads="4"/>
  -->

  <!-- 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" />
  -->
-- INSERT --
```

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

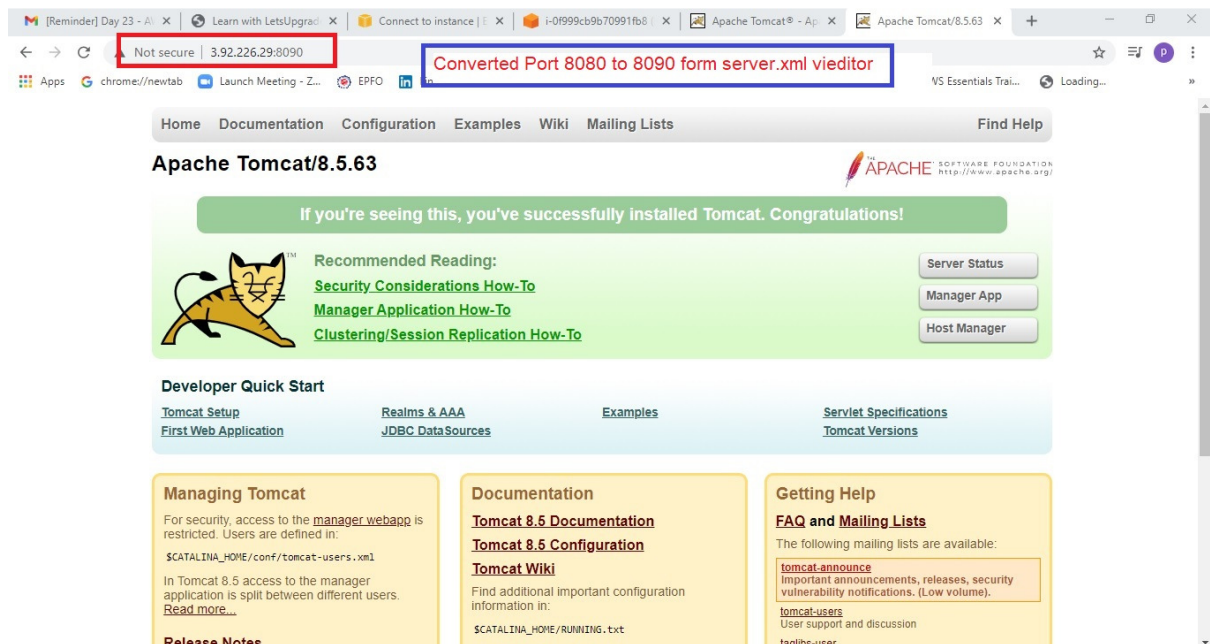
Now when user is using link is 3.92.226.29:8080 then system not showing result because we change the port 8080 to 8090 in VI editor above screen.



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❖ Check configuration in 8090.

Now when user is using link is 3.92.226.29:80890 then system showing following result screen.



Advance AWS Cloud Computing With DevOps Fundamentals

- ❖ Edit context.xml to allow manager apps access
- ❖ vi context.xml

In below screen use the find command for context.xml file.

- Find / -name context.xml.

```

console.aws.amazon.com/ec2/v2/console?connect=0-f999cb9b70991fb8
Apps chrome://newtab Launch Meeting - Z... EPFO LinkedIn Log In or... AWS Storage Servic... AWS DevOps Servic... WhatsApp AWS Essentials Trai... Loading...

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the License. You may obtain a copy of the License at

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

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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.

-->
<!-- Note: A "Server" is not itself a "Container", so you may not
define subcomponents such as "Valves" at this level.
Documentation at /docs/config/server.html
-->
<Server port="8005" shutdown="SHUTDOWN">
  <listener className="org.apache.catalina.startup.VersionLoggerListener" />
  <!-- Security listener. Documentation at /docs/config/listeners.html
  <listener className="org.apache.catalina.security.SecurityListener" />
  -->
  <!-- APR library loader. Documentation at /docs/apr.html -->
  <listener className="org.apache.catalina.core.AprLifecycleListener" SSLEngine="on" />
  <<!-- JMX enabled by default. This can be disabled by uncommenting
  <listener className="org.apache.catalina.mbeans.ServerLifecycleListener" />
  </-->
  <context path="/172.31.91.140"
  root@ip-172-31-91-140 conf# find / -name context.xml
/opt/apache-tomcat-8.5.63/conf/context.xml
/opt/apache-tomcat-8.5.63/webapps/examples/META-INF/context.xml
/opt/apache-tomcat-8.5.63/webapps/host-manager/META-INF/context.xml
/opt/apache-tomcat-8.5.63/webapps/manager/META-INF/context.xml
root@ip-172-31-91-140 conf# █

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

```

- ❖ **Comment Valve:** In this screen comment the selected Valve class name path.

```

--> console.aws.amazon.com/ec2/v2/connect/ec2-user/i-0f999cb9b70991fb8
Apps chrome://newtab Launch Meeting - Z... EPFO LinkedIn: Log In or... AWS Storage Servic... AWS DevOps Servic... WhatsApp AWS Essentials Trai... Loading...
<?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

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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\.\d+\.\d+\.\d+:::[0:0:0:0:0:0:1]" --> -->
    <Manager className="org.apache.catalina.manager.Manager" />
    <Filter className="org.apache.catalina.filters.CsrfPreventionFilter"
      initParams="$LruCache(?:\\$1)?java\\.util\\.(?:Linked)?HashMap"/>
</Context>

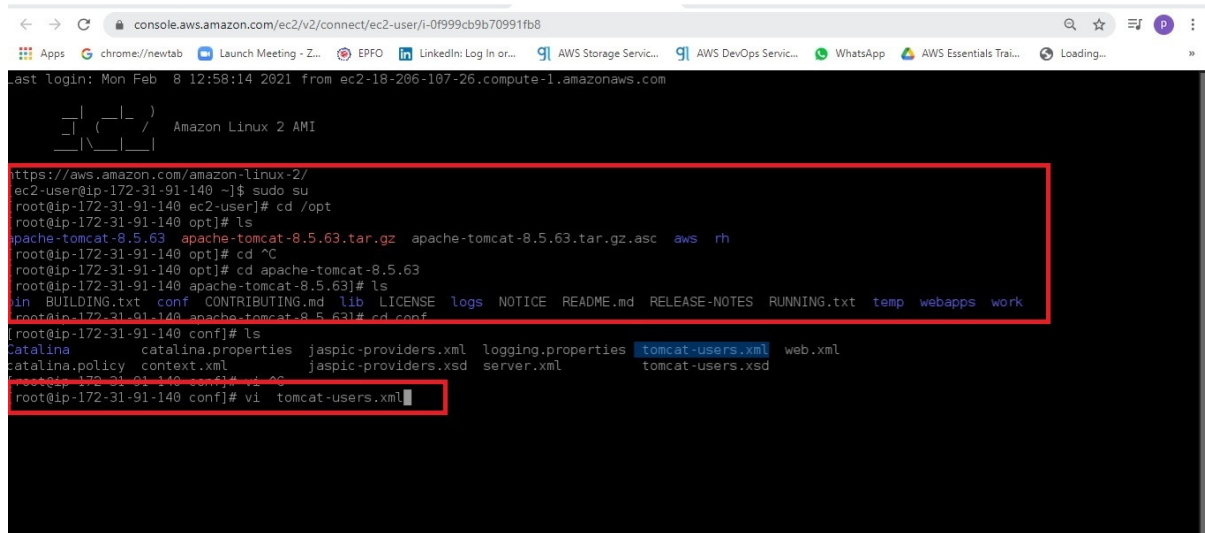
-- INSERT --

```

Advance AWS Cloud Computing With DevOps Fundamentals

❖ Add users and roles to tomcat-users.xml.

➤ vi tomcat-users.xml



```
https://aws.amazon.com/amazon-linux-2/
ec2-user@ip-172-31-91-140 ~]$ sudo su
root@ip-172-31-91-140 ec2-user]$ cd /opt
root@ip-172-31-91-140 opt]$ ls
apache-tomcat-8.5.63  apache-tomcat-8.5.63.tar.gz  apache-tomcat-8.5.63.tar.gz.asc  aws  rh
root@ip-172-31-91-140 opt]$ cd ^C
root@ip-172-31-91-140 opt]$ cd apache-tomcat-8.5.63
root@ip-172-31-91-140 apache-tomcat-8.5.63]$ ls
bin  BUILDING.txt  conf  CONTRIBUTING.md  lib  LICENSE  logs  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  temp  webapps  work
root@ip-172-31-91-140 apache-tomcat-8.5.63]$ cd conf
root@ip-172-31-91-140 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-172-31-91-140 conf]$ vi tomcat-users.xml
```

i-0f999cb9b70991fb8 (LinuxTomcat)

Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

Open the VI editor tomcat users.xml and add on users roles in below screen.

❖ Add the following roles

<role rolename="manager-gui"/>

<role rolename="manager-script"/>

<role rolename="manager-jmx"/>


<role rolename="manager-status"/>

<user username="admin" password="vino123"

roles="manager-gui,manager-script,manager-jmx,manager-status"/>

<user username="deployer" password="vino123" roles="manager-script"/>

<user username="tomcat" password="vino123" roles="manager-gui"/>



```
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.

-->
tomcat-users.xml<role rolename="manager-gui"/>
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user username="admin" password="vino123" roles="manager-gui,manager-script,manager-jmx,manager-status"/>
<user username="deployer" password="vino123" roles="manager-script"/>
<user username="tomcat" password="vino123" roles="manager-gui"/>

<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password="<must-be-changed>" roles="tomcat"/>
<user username="both" password="<must-be-changed>" roles="tomcat,role1"/>
<user username="role1" password="<must-be-changed>" roles="role1"/>
-->
/tomcat-users>

tomcat-users.xml" 53L, 2583C written
root@ip-172-31-91-140 conf]$
```

i-0f999cb9b70991fb8 (LinuxTomcat)



Public IPs: 3.92.226.29 Private IPs: 172.31.91.140

Advance AWS Cloud Computing With DevOps Fundamentals

❖ Give a restart and check for web application manager

Not secure | 3.92.226.29:8090/manager/html

Final Result Output

Tomcat Web Application Manager

Message: OK

Manager

[List Applications](#) [HTML Manager Help](#) [Manager Help](#) [Server Status](#)

Applications

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

Public IP	3.92.226.29
Private IP	172.31.91.140
Link	3.92.226.29:8090

Changed the Public ip but same as Private Ip every screen and verify the output.

End of Project