CI CD

CI

In continuous integration after a code commit the software is build abd tested immediately ,In a large projects many developers commits are made many times during a day,with each commit code is build and tested,if the test is passed build is tested for deployment,if deployment is a success the code is pushed to production,this commit,build,test and deply is a continupous process and hence the name is continuous integration.

1)Launch ubuntu 20 machine and allow the port no.8080 in security groups I.e., click on add rule and allow port no.like below:

 Custom tcp rule 8080 anywhere

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Click on connect and type the below

commands:

    1)sudo –i

  2)apt-get update

  3)apt-get install default-jdk-y

   -) java –version

```
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-35-108:~$ sudo -i
root@ip-172-31-35-108:~# apt-get update
Hit:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:5 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:6 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:7 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:8 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]
Get:9 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:10 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:11 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [1680 kB]
Get:12 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal-updates/main Translation-en [317 kB]
```

i-00deded8b1b26d2bb (Jenkins1)

CI CD

```
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for ca-certificates (20210119~20.04.2) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up openjdk-11-jre-headless:amd64 (11.0.14.1+1-0ubuntu1~20.04) ...
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/java to provide /usr/bin/java (java) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jjs to provide /usr/bin/jjs (jjs) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/keytool to provide /usr/bin/keytool (keytool) in auto mo
de
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/rmid to provide /usr/bin/rmid (rmid) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/rmiregistry to provide /usr/bin/rmiregistry (rmiregistry
) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/pack200 to provide /usr/bin/pack200 (pack200) in auto mo
de
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/unpack200 to provide /usr/bin/unpack200 (unpack200) in a
uto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/lib/jexec to provide /usr/bin/jexec (jexec) in auto mode
root@ip-172-31-35-108:~# java -version
openjdk version "11.0.14.1" 2022-02-08
OpenJDK Runtime Environment (build 11.0.14.1+1-Ubuntu-0ubuntu1.20.04)
OpenJDK 64-Bit Server VM (build 11.0.14.1+1-Ubuntu-0ubuntu1.20.04, mixed mode, sharing)
root@ip-172-31-35-108:~#
```

4)Google search install jenkins on ubuntu 20 and click on first link I.e digital ocean and

follow the steps. wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo

apt-key add -

sudo sh -c 'echo deb http://pkg.jenkins.io/debian-stable binary/ >
/etc/apt/sources.list.d/jenkins.list

'sudo apt update

sudo apt install jenkins

Sudo systemctl start

jenkins

sudo systemctl status jenkins

CI CD


```
Setting up libsisu-inject-java (0.3.3-1) ...
Setting up libsisu-plexus-java (0.3.3-3) ...
Setting up libmaven3-core-java (3.6.3-1) ...
Setting up maven (3.6.3-1) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
root@ip-172-31-35-108:~# mvn -version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.14.1, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.11.0-1022-aws", arch: "amd64", family: "unix"
root@ip-172-31-35-108:~# git --version
git version 2.25.1
root@ip-172-31-35-108:~# wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
OK
root@ip-172-31-35-108:~#
```

i-00deded8b1b26d2bb (Jenkins1)

Public IPs: 18.191.193.136   Private IPs: 172.31.35.108


```
The following NEW packages will be installed:
  ca-certificates-java fontconfig-config fonts-dejavu-core java-common libavahi-client3 libavahi-common-data
  libavahi-common3 libcups2 libfontconfig1 libgraphite2-3 libharfbuzz0b libjpeg-turbo8 libjpeg8 liblcms2-2 libpcsclite1
  openjdk-11-jre-headless
0 upgraded, 16 newly installed, 0 to remove and 91 not upgraded.
The following additional packages will be installed:
  net-tools
The following NEW packages will be installed:
  jenkins net-tools
0 upgraded, 2 newly installed, 0 to remove and 91 not upgraded.
Need to get 91.4 MB of archives.
After this operation, 95.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+git20180626.aebd88e-1ubuntu1 [1
96 kB]
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.332.1 [91.2 MB]
Fetched 91.4 MB in 6s (14.5 MB/s)
Selecting previously unselected package net-tools.
(Reading database ... 65359 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20180626.aebd88e-1ubuntu1_amd64.deb ...
Unpacking net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Selecting previously unselected package jenkins.
Preparing to unpack .../jenkins_2.332.1_all.deb ...
Unpacking jenkins (2.332.1) ...
Setting up net-tools (1.60+git20180626.aebd88e-1ubuntu1) ...
Setting up jenkins (2.332.1) ...
```

i-00deded8b1b26d2bb (Jenkins1)

Public IPs: 18.191.193.136   Private IPs: 172.31.35.108

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```
Setting up jenkins (2.332.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /lib/systemd/system/jenkins.service.
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu3.13) ...
root@ip-172-31-35-108:~# systemctl start jenkins
root@ip-172-31-35-108:~# systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
     Active: active (running) since Wed 2022-03-30 04:51:00 UTC; 2min 6s ago
   Main PID: 18940 (java)
      Tasks: 35 (limit: 1147)
     Memory: 304.6M
     CGroup: /system.slice/jenkins.service
             └─18940 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins>

Mar 30 04:50:31 ip-172-31-35-108 jenkins[18940]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 30 04:50:31 ip-172-31-35-108 jenkins[18940]: *************************************************************
Mar 30 04:50:31 ip-172-31-35-108 jenkins[18940]: *************************************************************
Mar 30 04:50:31 ip-172-31-35-108 jenkins[18940]: *************************************************************
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.783+0000 [id=29]          INFO          jenkins.InitReac>
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.817+0000 [id=22]          INFO          hudson.lifecycle>
Mar 30 04:51:00 ip-172-31-35-108 systemd[1]: Started Jenkins Continuous Integration Server.
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.945+0000 [id=44]          INFO          h.m.DownloadServ>
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.946+0000 [id=44]          INFO          hudson.util.Retr>
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.953+0000 [id=44]          INFO          hudson.model.Asy>
lines 1-19/19 (END)
```

i-00deded8b1b26d2bb (Jenkins1)

Public IPs: 18.191.193.136   Private IPs: 172.31.35.108


```
Mar 30 04:51:00 ip-172-31-35-108 systemd[1]: Started Jenkins Continuous Integration Server.
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.945+0000 [id=44]          INFO          h.m.DownloadServ>
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.946+0000 [id=44]          INFO          hudson.util.Retr>
Mar 30 04:51:00 ip-172-31-35-108 jenkins[18940]: 2022-03-30 04:51:00.953+0000 [id=44]          INFO          hudson.model.Asy>
lines 1-19/19 (END)
root@ip-172-31-35-108:~# ufw allow 8080
Rules updated
Rules updated (v6)
root@ip-172-31-35-108:~# ufw allow OpenSSH
Rules updated
Rules updated (v6)
root@ip-172-31-35-108:~# ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
root@ip-172-31-35-108:~# ufw status
Status: active

To                         Action      From
--                         ------      ----
8080                       ALLOW       Anywhere
OpenSSH                    ALLOW       Anywhere
8080 (v6)                  ALLOW       Anywhere (v6)
OpenSSH (v6)               ALLOW       Anywhere (v6)

root@ip-172-31-35-108:~#
```
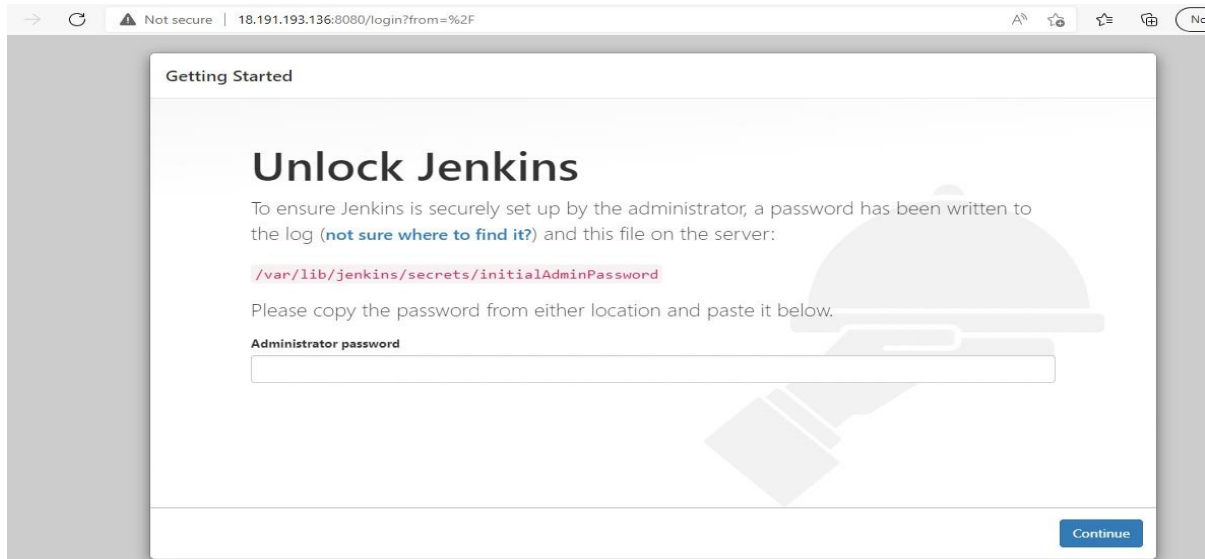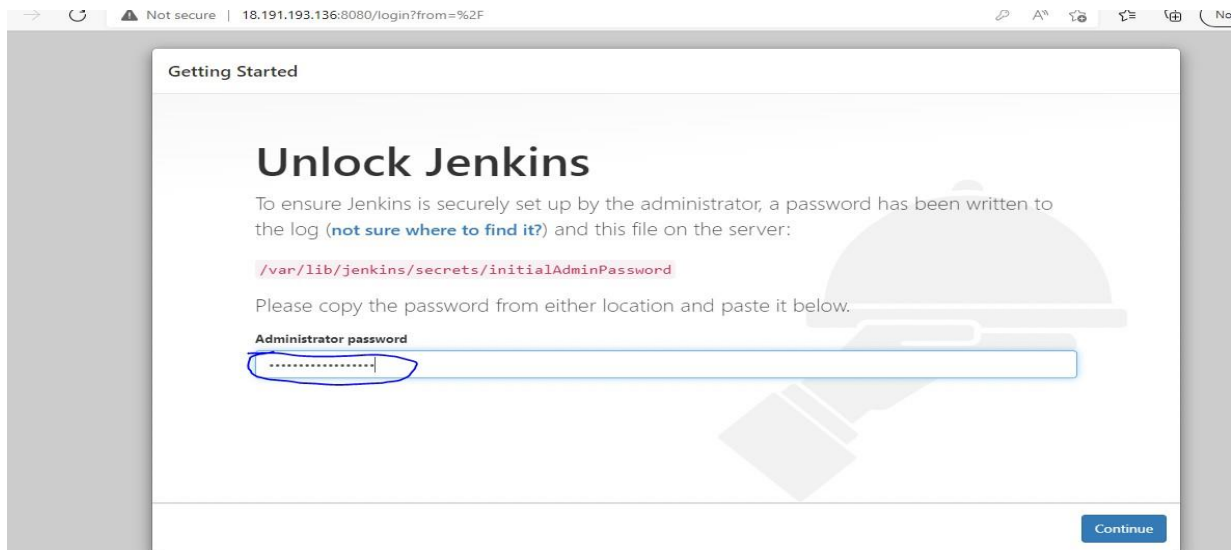
CI CD

5)Now open AWS console copy public ip of jenkins server instance.

i-00deded8b1b26d2bb (Jenkins1)

6)To access jenkins http://<public ip>:8080
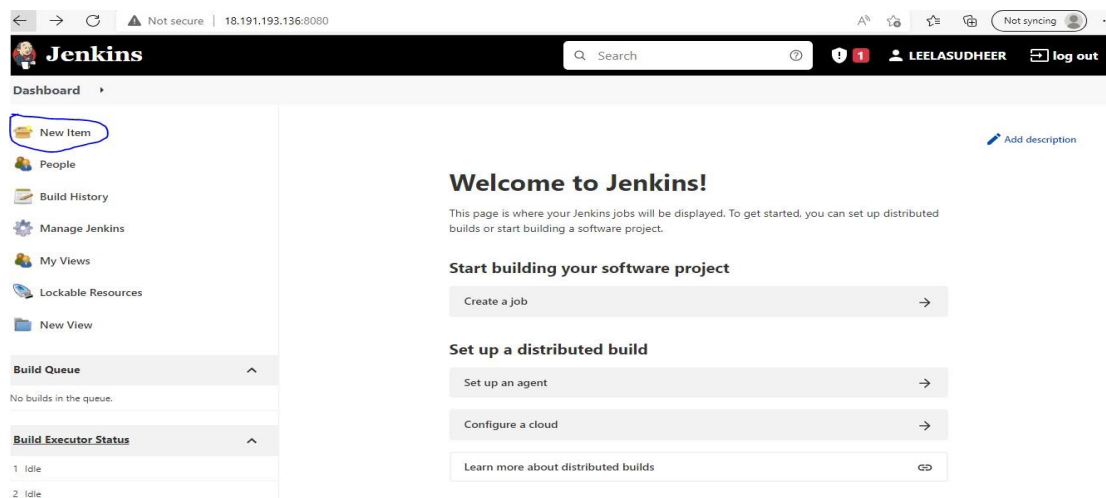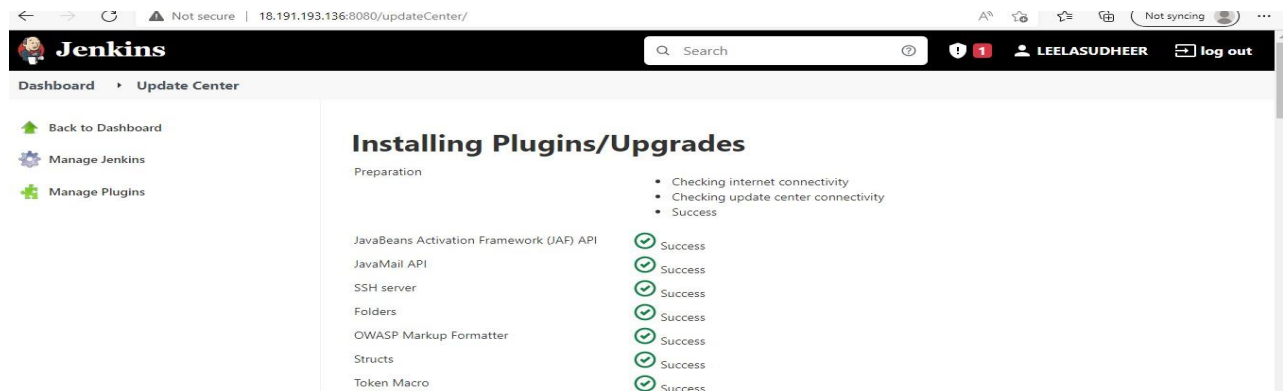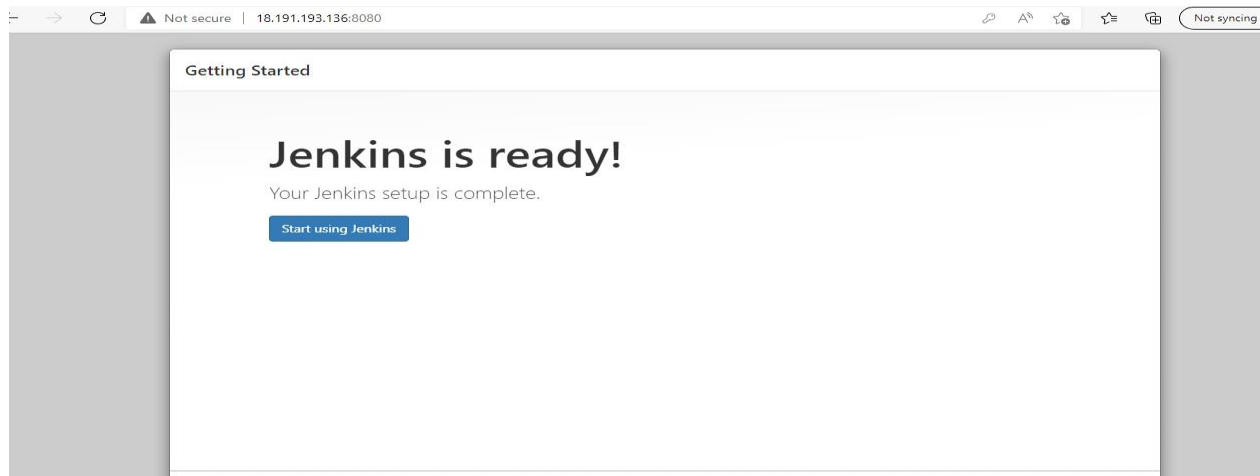
7)Click on the "install suggested plugins"button
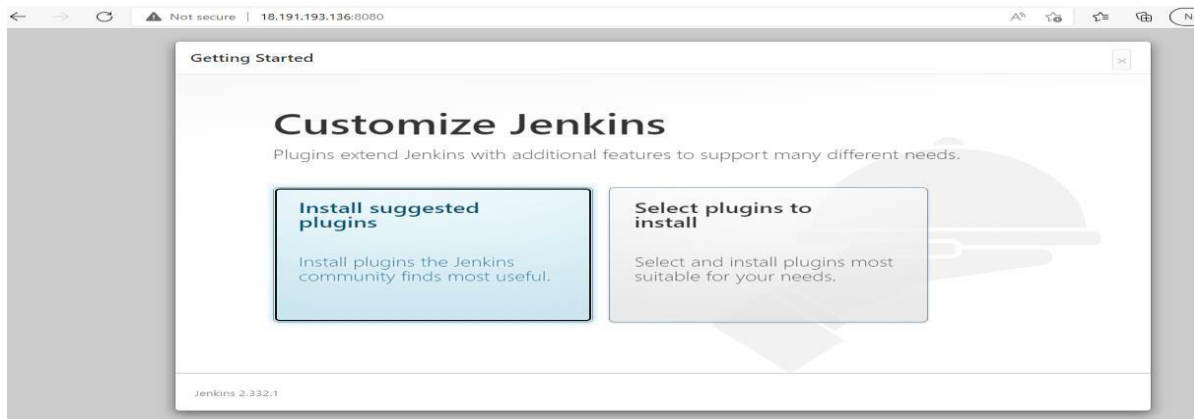
CI CD

CI CD

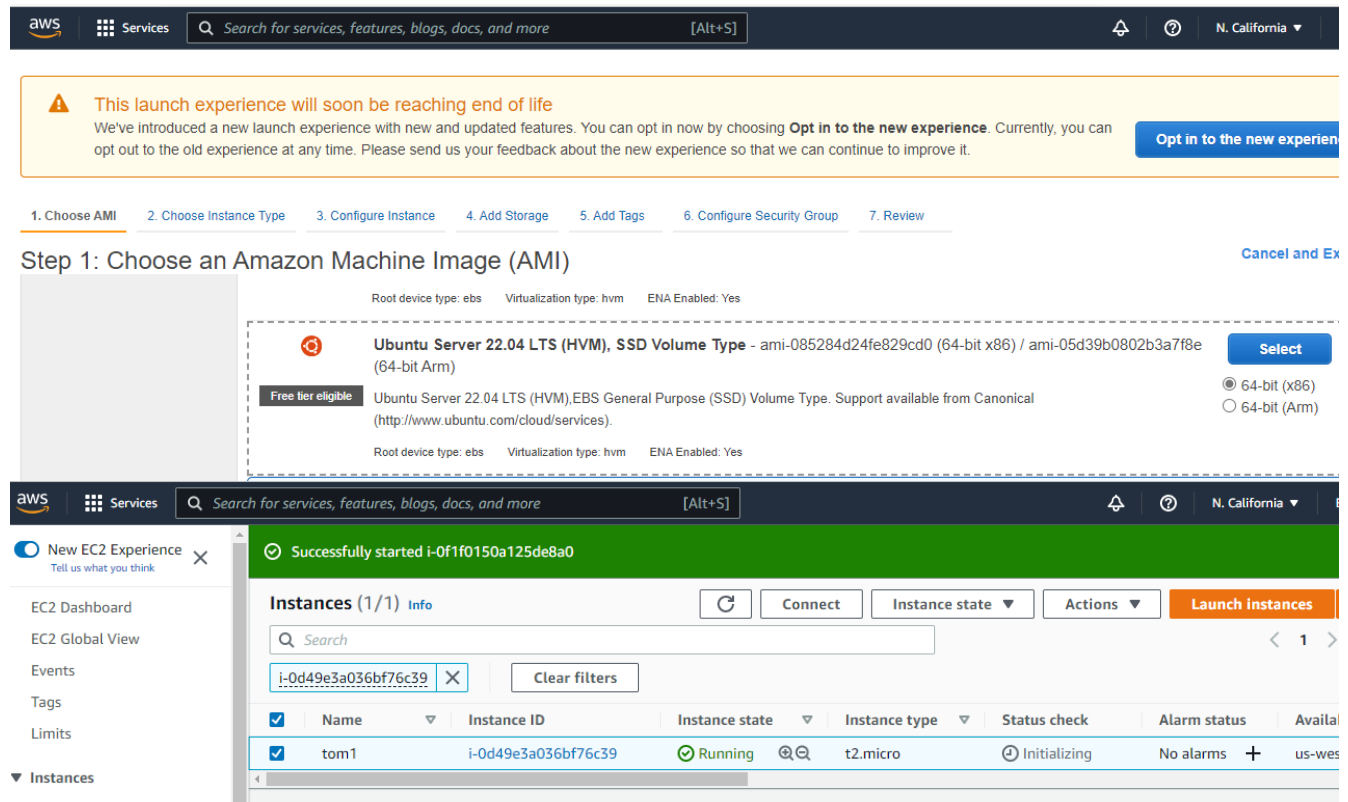# CI CD

Install tomcat:

1)Launch ubuntu 20 machine and allow the port no.8080 in security groups I.e., click on add rule and allow port no.like below:

2) Download tomcat packages from https://tomcat.apache.org/download-80.cgi onto /opt on EC2 instance
Note: Make sure you change <version> with the tomcat version which you download.
 Copy the tomcat8 tar.gz file

KEYS | 8.5.81 | Browse | Archives

Release Integrity

You **must** verify the integrity of the downloaded files. We provide OpenPGP signatures for every release file. This signature should be matched against the KEYS file which contains the OpenPGP keys of Tomcat's Release Managers. We also provide SHA-512 checksums for every release file. After you download the file, you should calculate a checksum for your download, and make sure it is the same as ours.

Mirrors

You are currently using **https://dlcdn.apache.org/**. If you encounter a problem with this mirror, please select another mirror. If all mirrors are failing, there are *backup* mirrors (at the end of the mirrors list) that should be available.

Other mirrors: [https://dlcdn.apache.org/] [Change]

8.5.81

Please see the README file for packaging information. It explains what every distribution contains.

Binary Distributions

- Core:
  - zip (pgp, sha512)
  - tar.gz (pgp, sha512)
  - 32-bit Windows zip (pgp, sha512)
  - 64-bit Windows zip (pgp, sha512)
  - 32-bit/64-bit Windows Service Installer (pgp, sha512)
- Full documentation:
  - tar.gz (pgp, sha512)
- Deployer:
  - zip (pgp, sha512)
  - tar.gz (pgp, sha512)
- Extras:

```
* Documentation:   https://help.ubuntu.com
* Management:      https://landscape.canonical.com
* Support:         https://ubuntu.com/advantage

 System information as of Wed Jul 13 09:26:00 UTC 2022

 System load:   0.0          Processes:              98
 Usage of /:    19.2% of 7.58GB   Users logged in:        0
 Memory usage:  21%          IPv4 address for eth0:  172.31.31.239
 Swap usage:    0%


 updates can be applied immediately.


he list of available updates is more than a week old.
o check for new updates run: sudo apt update

ast login: Wed Jul 13 05:44:33 2022 from 14.143.3.38
o run a command as administrator (user "root"), use "sudo <command>".
ee "man sudo_root" for details.

buntu@ip-172-31-31-239:~$ wget https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.81
bin/apache-tomcat-8.5.81.tar.gz
```

```
*** System restart required ***
Last login: Wed Jul 13 06:22:30 2022 from 14.143.3.38
ubuntu@ip-172-31-6-92:~$ ls
apache-tomcat-8.5.81   apache-tomcat-8.5.81.tar.gz
ubuntu@ip-172-31-6-92:~$
```

```
*** System restart required ***
Last login: Wed Jul 13 06:22:30 2022 from 14.143.3.38
ubuntu@ip-172-31-6-92:~$ ls
apache-tomcat-8.5.81  apache-tomcat-8.5.81.tar.gz
ubuntu@ip-172-31-6-92:~$ cd apache-tomcat-8.5.81
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81$ ls
BUILDING.txt     LICENSE   README.md      RUNNING.txt   conf   logs   webapps
CONTRIBUTING.md  NOTICE    RELEASE-NOTES  bin           lib    temp   work
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81$ cd bin
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/bin$ ls
bootstrap.jar         ciphers.sh              daemon.sh           shutdown.bat      tomcat-native.tar.gz
catalina-tasks.xml    commons-daemon-native.tar.gz  digest.bat    shutdown.sh       tool-wrapper.bat
catalina.bat          commons-daemon.jar      digest.sh           startup.bat       tool-wrapper.sh
catalina.sh           configtest.bat          setclasspath.bat    startup.sh        version.bat
ciphers.bat           configtest.sh           setclasspath.sh     tomcat-juli.jar   version.sh
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/bin$ ./startup.sh
Using CATALINA_BASE:   /home/ubuntu/apache-tomcat-8.5.81
Using CATALINA_HOME:   /home/ubuntu/apache-tomcat-8.5.81
Using CATALINA_TMPDIR: /home/ubuntu/apache-tomcat-8.5.81/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /home/ubuntu/apache-tomcat-8.5.81/bin/bootstrap.jar:/home/ubuntu/apache-tomcat-8.5.81/bin/tomcat-ju
li.jar
Using CATALINA_OPTS:
Tomcat started.
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/bin$
```

```
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/bin$ cd ..
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81$ cd conf
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/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
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/conf$ sudo vi tomcat-user.xml
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/conf$ sudo vi tomcat-users.xml
ubuntu@ip-172-31-6-92:~/apache-tomcat-8.5.81/conf$
```

```
  The users below are wrapped in a comment and are therefore ignored. If you
  wish to configure one or more of these users for use with the manager web
  application, do not forget to remove the <!.. ..> that surrounds them. You
  will also need to set the passwords to something appropriate.
-->
<!--
  <user username="admin" password="<must-be-changed>" roles="manager-gui"/>
  <user username="robot" password="<must-be-changed>" roles="manager-script"/>
-->
<!--
  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="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"/>
-->
 <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="admin" password="admin" roles="manager-gui"/>
</tomcat-users>
```

3)copy the public ip and paste it browser tomcat started.

4)Then open Jenkins console click on manage Jenkins,manage credintials add tomcat credintials.

5)Click on manage Jenkins manage plugins and click on available tab to select deploy to war container plugin move Jenkins dash board click on new item and select ok and sourcecodemanagement give git hub repository url and build section select invoke top level maven select give maven version under goals clean install package and post-build actions give WAR/EAR FILE give **/*.war and add tomcat credintials and tomcat url click on apply and save.

CI CD

Jenkins

Dashboard > All

Enter an item name

Cicd

» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.
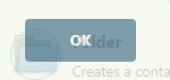
OK Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a

---

Dashboard > Cicd >

General   **Source Code Management**   Build Triggers   Build Environment   Build   Post-build Actions

○ None

● Git ?

Repositories ?

Repository URL ?   ✕

https://github.com/Leelasudheer/Hello-World.git

Credentials ?

- none -   ⌄

＋ Add

Advanced...

Add Repository

Save   Apply

CI CD

Dashboard > Cicd >

| General | Source Code Management | Build Triggers | Build Environment | **Build** | Post-build Actions |

Build

☰ Invoke top-level Maven targets ?

Maven Version

Maven3.8.1 ▾

Goals

clean install package ▾

Advanced...

Add build step ▾

Post-build Actions

Dashboard > Cicd >

| General | Source Code Management | Build Triggers | Build Environment | Build | **Post-build Actions** |

Post-build Actions

☰ Deploy war/ear to a container

WAR/EAR files ?

**/*.war

Context path ?

Containers

☰ Tomcat 8.x Remote

Credentials

deployer/****** (tomcat-logins) ▾

6)Click on build now build is success.

CI CD

7)Check your tomcat cmd cd webapps prompt war file is moved are not.

8)Copy tomcat public ip paste browser 54.67.85.114:8090/webapp/

← → C ⚠ Not secure | 54.67.85.114:8090/webapp/

Hello All, !!!

this is my master branch new

Tomcat installation using these commands.
  1 sudo apt-get update -y
    2 sudo apt-get install openjdk-8*
    3 https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.81/bin/apache-tomcat-8.5.81.tar.gz
    4 sudo wget https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.81/bin/apache-tomcat-8.5.81.tar.gz
    5 wget https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.81/bin/apache-tomcat-8.5.81.tar.gz
    6 ls
    7 tar-xvzf apache-tomcat-8.5.81.tar.gz
    8 tar -xvzf apache-tomcat-8.5.81.tar.gz
    9 ls
   10 cd apache-tomcat-8.5.81/
   11 ls
   12 cd bin/
   13 ls
   14 cd ./shutdown.sh
   15 ./shutdown.sh
   16 ./startup.sh
   17 sudo find / -name context.xml
   18 sudo vi /home/ubuntu/apache-tomcat-8.5.81/webapps/host-manager/META-INF/context.xml
   19 sudo vi /home/ubuntu/apache-tomcat-8.5.81/webapps/manager/META-INF/context.xml
   20 sudo vi /home/ubuntu/apache-tomcat-8.5.81/webapps/examples/META-INF/context.xml
   21 sudo vi /home/ubuntu/apache-tomcat-8.5.81/conf/context.xml
   22 ./shutdown.sh
   23 ./startup.sh

CI CD

```
24  cd ..
25  cd conf/
26  ls
27  sudo vi tomcat-users.xml
28  cd ..
29  ls
30  cd bin
31  ./shutdown.sh
32  ./startup.sh
```