Experiment 3: Jenkins Installation and Setup For CICD

Uninstall any version of java

$java_version=`java -version 2>&1 | head -n 1 | awk -F'"\"" '{print $2}'`

-Remove all the Java related packages (Sun, Oracle, OpenJDK, IcedTea plugins, GIJ):
$ sudo apt-get update
$ apt-cache search java | awk '{print($1)}' | grep -E -e '^(ia32-)?(sun|oracle)-java' -e '^openjdk-' -e '^icedtea' -e '^(default|gcj)-j(re|dk)' -e '^gcj-(.*)-j(re|dk)' -e 'java-common' | xargs sudo apt-get -y remove
$ sudo apt-get -y autoremove

-Purge config files:
$ dpkg -l | grep ^rc | awk '{print($2)}' | xargs sudo apt-get -y purge

-Remove Java config and cache directory:
$ sudo bash -c 'ls -d /home/*/.java' | xargs sudo rm -rf

-Remove manually installed JVMs:
$ sudo rm -rf /usr/lib/jvm/*

Intall java : Jenkins requires Java to run. Install the OpenJDK package by running:

```
sudo apt-get install openjdk-11-jdk
            or
sudo apt install openjdk-11-jdk -y

java -version
```

```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ java --version
openjdk 11.0.24 2024-07-16
OpenJDK Runtime Environment (build 11.0.24+8-post-Ubuntu-1ubuntu322.04)
OpenJDK 64-Bit Server VM (build 11.0.24+8-post-Ubuntu-1ubuntu322.04, mixed mode, sharing)
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$
```

Install Jenkins

1. Before installing Jenkins, ensure your system package list is updated:

```
sudo apt update
```

```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ sudo apt update
Get:1 https://download.docker.com/linux/ubuntu jammy InRelease [48.8 kB]
Hit:2 https://apt.releases.hashicorp.com jammy InRelease
Ign:3 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:4 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:5 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Hit:8 http://archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:9 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [2113 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1896 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [911 kB
```

```
sudo apt upgrade -y
```

```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ sudo apt upgrade -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following package was automatically installed and is no longer required:
  htop
Use 'sudo apt autoremove' to remove it.
Get more security updates through Ubuntu Pro with 'esm-apps' enabled:
  maven libheif1 imagemagick libmaven3-core-java libopenexr25
  libmagickcore-6.q16-6-extra traceroute libmagickwand-6.q16-6
  imagemagick-6.q16 libmagickcore-6.q16-6 imagemagick-6-common libde265-0
Learn more about Ubuntu Pro at https://ubuntu.com/pro
#
# Patches available for packages affected by CUPS Remote Code Execution issue
# tracked by CVE-2024-47076, CVE-2024-47175, CVE-2024-47176, and CVE-2024-47177
# For more see: https://ubuntu.com/blog/cups-remote-code-execution
#
The following NEW packages will be installed:
  bc cloud-guest-utils cloud-init eatmydata fdisk gdisk landscape-client landscape-com
  python-babel-localedata python3-attr python3-automat python3-babel python3-bcrypt py
  python3-constantly python3-debconf python3-hamcrest python3-hyperlink python3-increm
  python3-json-pointer python3-jsonpatch python3-jsonschema python3-markupsafe python3
  python3-pycurl python3-pyrsistent python3-serial python3-service-identity python3-tw
  python3-zope.interface
```

2. As a prerequisite add the Jenkins repository to your system with:

```
wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
add –
```

```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.ke
y | sudo apt-key add -
```

3. Then, append the Jenkins repository to your system's sources list:

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

4. After adding the repository, install Jenkins:

```
sudo apt update
sudo apt install jenkins -y
```

5. To start Jenkins and enable it to run at boot, use:

```
sudo systemctl start jenkins
sudo systemctl enable Jenkins
```

```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ sudo systemctl start jenkins
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ sudo systemctl enable jenkins
Synchronizing state of jenkins.service with SysV service script with /lib/systemd/systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable jenkins
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$
```

6. Adjust Firewall settings : If you have a firewall enabled, allow traffic on port 8080:

```
sudo ufw allow 8080
```

```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ sudo ufw allow 8080
Skipping adding existing rule
Skipping adding existing rule (v6)
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$
```

7. Check UFW status to confirm the change:

```
sudo ufw status
```

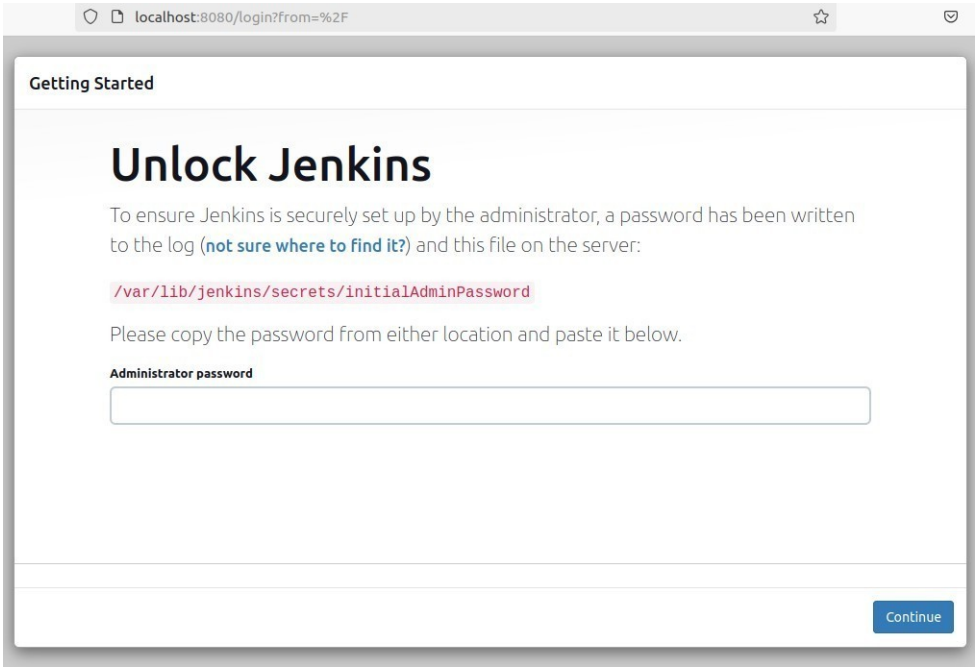
```
onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$ sudo ufw status
Status: active

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

onkar@DESKTOP-D1SJIU7:~/mavenprojects/FirstMavenProject$
```

`8. Configure Jenkins`

To access Jenkins, navigate to `http://localhost:8080` or http://localhost:8080 in your web browser. You'll be prompted to enter the Administrator password, which can be retrieved from:



Get the password or the key to acess Jenkins using the path suggested along with sudo cat command

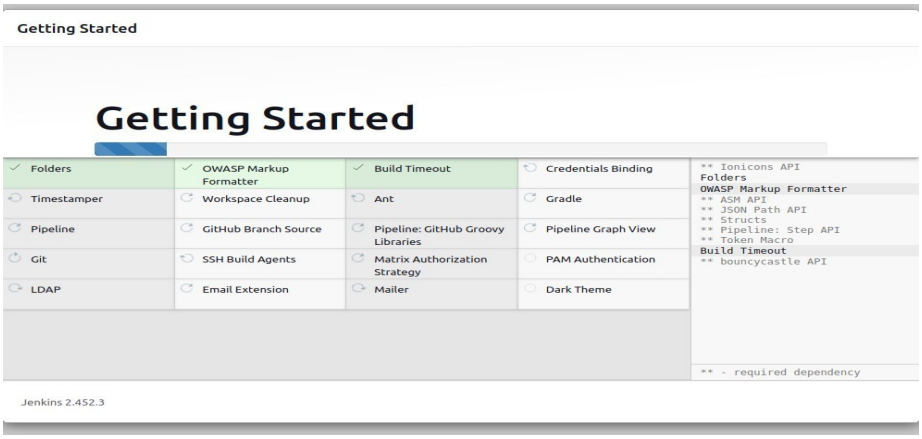
```
$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```

`9. Initial Setup Wizard`

Upon entering the Administrator password, you'll be greeted by the Initial Setup Wizard. Here, you can install the suggested plugins or select specific ones according to your needs.

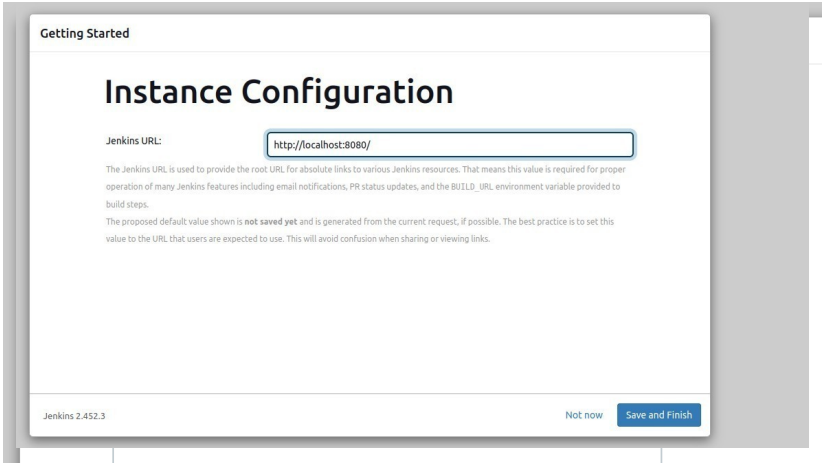
```
  253  java -v
  254  sudo apt-get install openjdk-11-jdk
  255  java -v
  256  java --version
  257  sudo apt update
  258  sudo apt upgrade -y
  259  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  260  add –
  261  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  262  add –sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ >
/etc/apt/sources.list.d/jenkins.list'
  263  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  264  add –sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ >
/etc/apt/sources.list.d/jenkins.list'
  265  add –
  266  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key
  267*
  268  add –
  269  add – sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ >
/etc/apt/sources.list.d/jenkins.list'
  270  add
  271  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  272  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add
https://pkg.jenkins.io/debian-stable binary/ >
  273  /etc/apt/sources.list.d/jenkins.list'

  274  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  275  add –
  276  wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  277  sudo apt-key add - wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key
  278  add –
  279  sudo apt install jenkins -y
  280  curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee
/usr/share/keyrings/jenkins-keyring.asc > /dev/null
  281  echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable
binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list > /dev/null
  282  sudo apt update
  283  sudo apt install jenkins -y
  284  sudo systemctl start jenkins
  285  sudo systemctl enable Jenkins
  286  sudo systemctl enable jenkins
  287  sudo systemctl start jenkins
  288  sudo ufw allow 8080
  289  sudo ufw status
  290  sudo ufw allow 8080
  291  sudo ufw status
  292  $ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
  293  sudo cat /var/lib/jenkins/secrets/initialAdminPassword
```



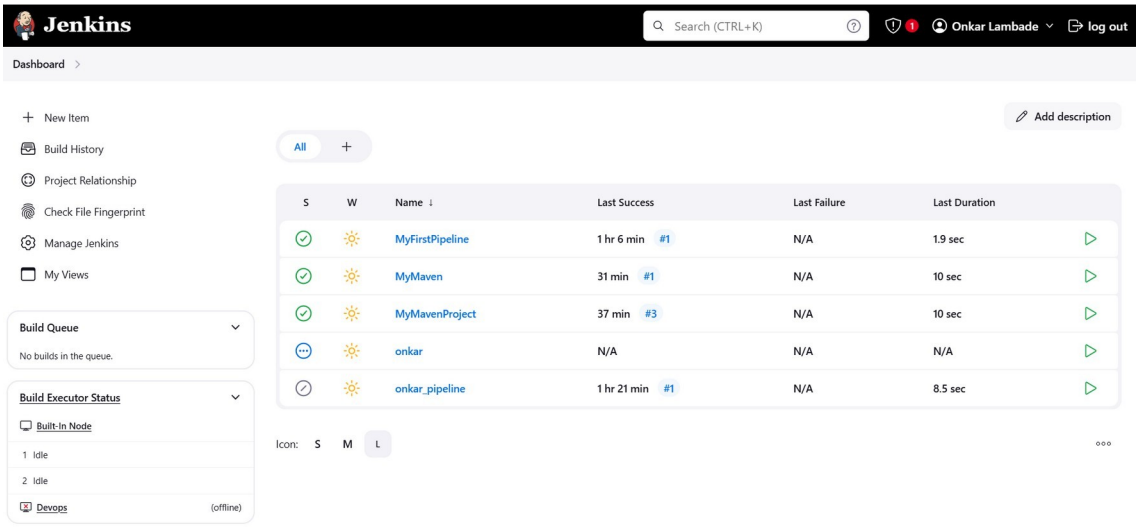
10. Create Admin User

After plugin installation, create an admin user with a username, password, and relevant details. (always give user name as dbit, and password dbit and email as dbit@one.com)



11. Instance configuration

Finally, confirm the Jenkins URL and complete the setup. You're now ready to start creating your CI/CD pipelines!



Conlusion :

With Jenkins installed on your Ubuntu 22 system, you've taken a significant leap in automating your development processes.

References :

1. https://reintech.io/blog/installing-configuring-jenkins-ubuntu-22