

Perfect 👍 — here is your **FINAL FULL SETUP** again with EVERYTHING included:

- Multi-instance
- ec2-user
- Docker-based
- Maven manual install
- Tomcat install
- Docker CLI inside Jenkins** (your new step)
- Home directories + where to install

Order kept exactly:

👉 Jenkins → SonarQube → Nexus → Maven → Tomcat → Pipeline

STEP 1 — JENKINS SERVER (EC2 #1)

👉 Install on **Jenkins EC2**

Install Docker on EC2

```
sudo dnf install docker -y
sudo systemctl start docker
sudo systemctl enable docker
sudo usermod -aG docker ec2-user
exit
```

Login again.

Run Jenkins Container

```
docker run -d \
--name jenkins \
-p 8080:8080 -p 50000:50000 \
-v jenkins_home:/var/jenkins_home \
-v /var/run/docker.sock:/var/run/docker.sock \
jenkins/jenkins:lts
```

Open:

<http://JENKINS-IP:8080>

Unlock:

```
docker logs jenkins
```

Install suggested plugins.

Jenkins HOME

Inside container:

/var/jenkins_home

Host path:

/var/lib/docker/volumes/jenkins_home/_data

Workspace:

/var/jenkins_home/workspace/

Install Jenkins Plugins

Manage Jenkins → Plugins:

- Git
- Maven Integration
- SonarQube Scanner
- Slack Notification

Restart Jenkins.

NEW STEP — Install Docker CLI inside Jenkins (IMPORTANT)

Enter container as root:

```
docker exec -u 0 -it jenkins bash
```

Install docker command:

```
apt update  
apt install docker.io -y  
docker --version
```

Exit:

```
exit
```

 Now Jenkins can run:

```
docker cp
```

STEP 2 — SONARQUBE SERVER (EC2 #2)

Install Docker:

```
sudo dnf install docker -y  
sudo systemctl start docker  
sudo usermod -aG docker ec2-user  
exit
```

Install Sonarqube:

```
docker run -d --name sonarqube \  
-p 9000:9000 \  
-v sonarqube_data:/opt/sonarqube/data \  
-v sonarqube_extensions:/opt/sonarqube/extensions \  
-v sonarqube_logs:/opt/sonarqube/logs \  
sonarqube:25.1.0.102122-community
```

Open:

<http://SONAR-IP:9000>

Login:

admin/admin

Create token.

SonarQube HOME

/opt/sonarqube

STEP 3 — NEXUS SERVER (EC2 #3)

Install Docker:

```
sudo dnf install docker -y  
sudo systemctl start docker
```

```
sudo usermod -aG docker ec2-user  
exit
```

Run Nexus:

```
docker run -d \  
--name nexus \  
-p 8081:8081 \  
-v nexus-data:/nexus-data \  
sonatype/nexus3
```

Open:

<http://NEXUS-IP:8081>

Get password:

```
docker exec nexus cat /nexus-data/admin.password
```

Create repo:

```
maven2 (hosted)  
Release
```

Nexus HOME

/nexus-data

Host:

/var/lib/docker/volumes/nexus-data/_data

STEP 4 — MAVEN MANUAL INSTALL (Inside Jenkins)

Enter:

```
docker exec -u 0 -it jenkins bash
```

Install:

```
apt update  
apt install maven -y
```

Check:

```
mvn -v
```

Maven HOME:

```
/usr/share/maven
```

Exit.

STEP 5 — TOMCAT SERVER (Install on Jenkins EC2)

Run:

```
docker run -d \  
--name tomcat-container \  
-p 8082:8080 \  
tomcat
```

Open:

<http://JENKINS-IP:8082>

Tomcat HOME

/usr/local/tomcat

Deploy folder:

/usr/local/tomcat/webapps/

STEP 6 — CONNECT JENKINS → SONAR

Manage Jenkins → Configure System:

<http://SONAR-IP:9000>

Add token.

STEP 7 — FREESTYLE PIPELINE

Create Freestyle Job.

✓ Git Clone

<https://github.com/betawins/hiring-app.git>

Workspace:

/var/jenkins_home/workspace/Project-01

✓ SonarQube Scan

Add:

Execute SonarQube Scanner

✓ Maven Build

clean install

WAR output:

target/hiring.war

✓ Upload to Nexus

```
curl -u admin:PASS -T target/*.war http://NEXUS-IP:8081/repository/maven-releases/
```

✓ Deploy to Tomcat

```
docker cp target/*.war tomcat-container:/usr/local/tomcat/webapps/
```

(No restart needed)

Open:

<http://JENKINS-IP:8082/hiring>

✓ Slack Notification

Post-build → Slack.

FINAL HOME DIRECTORY SUMMARY

Service	Home
Jenkins	/var/jenkins_home
SonarQube	/opt/sonarqube
Nexus	/nexus-data
Maven	/usr/share/maven
Tomcat	/usr/local/tomcat

Interview One-Liner

“I built a multi-instance Docker CI/CD setup where Jenkins with Docker CLI builds using Maven, scans via SonarQube, uploads artifacts to Nexus and deploys WAR files to a Tomcat container.”