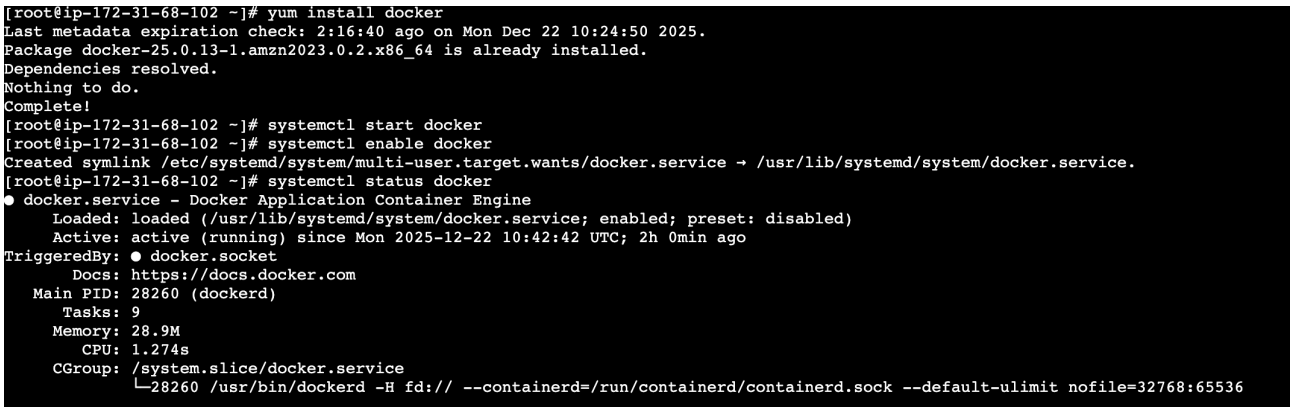
Challenges of ec2 using amazon linux

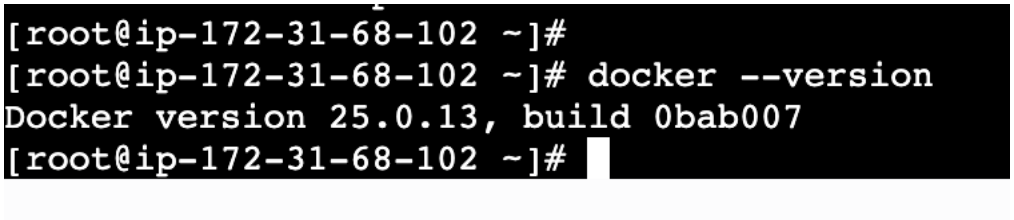
1. Launch one EC2 instance using Amazon Linux 2

2. Install Docker

>>yum install docker >> systemctl start docker >> systemctl enable docker



>> docker —version



3. Install jenkins

>> we need to Install Java (mandatory for Jenkins) >> sudo yum (or) dnf install java-17-amazon-corretto -y will install java packages.

```
[root@ip-172-31-68-102 ~]# sudo dnf install java-17-amazon-corretto -y
Last metadata expiration check: 2:30:25 ago on Mon Dec 22 10:24:50 2025.
Dependencies resolved.
================================================================================
 Package                  Architecture  Version                  Repository  Size
================================================================================
Installing:
 java-17-amazon-corretto  x86_64        1:17.0.17+10-1.amzn2023.1  amazonlinux  219 k
Installing dependencies:
 alsa-lib                 x86_64        1.2.7.2-1.amzn2023.0.2     amazonlinux  504 k
 cairo                    x86_64        1.18.0-4.amzn2023.0.3      amazonlinux  717 k
 dejavu-sans-fonts        noarch        2.37-16.amzn2023.0.2       amazonlinux  1.3 M
 dejavu-sans-mono-fonts   noarch        2.37-16.amzn2023.0.2       amazonlinux  467 k
 dejavu-serif-fonts       noarch        2.37-16.amzn2023.0.2       amazonlinux  1.0 M
 fontconfig               x86_64        2.13.94-2.amzn2023.0.2     amazonlinux  273 k
 fonts-filesystem         noarch        1:2.0.5-12.amzn2023.0.2    amazonlinux  9.5 k
 freetype                 x86_64        2.13.2-5.amzn2023.0.1      amazonlinux  423 k
 giflib                   x86_64        5.2.1-9.amzn2023.0.2       amazonlinux   48 k
 google-noto-fonts-common noarch        20240401-1.amzn2023.0.2    amazonlinux   17 k
 google-noto-sans-vf-fonts noarch       20240401-1.amzn2023.0.2    amazonlinux  593 k
 graphite2                x86_64        1.3.14-7.amzn2023.0.2      amazonlinux   97 k
```

>> now, add the official jenkis repo by using wget and paste the jenkis repo

```
Complete!
[root@ip-172-31-68-102 ~]# java --version
openjdk 17.0.17 2025-10-21 LTS
OpenJDK Runtime Environment Corretto-17.0.17.10.1 (build 17.0.17+10-LTS)
OpenJDK 64-Bit Server VM Corretto-17.0.17.10.1 (build 17.0.17+10-LTS, mixed mode, sharing)
[root@ip-172-31-68-102 ~]# sudo wget -O /etc/yum.repos.d/jenkins.repo \
https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2025-12-22 13:04:04--  https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.38.133, 2a04:4e42:79::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.38.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 192 [application/octet-stream]
Saving to: '/etc/yum.repos.d/jenkins.repo'

/etc/yum.repos.d/jenkins.repo              100%[=========================================================================================>]     192  --.-KB/s    in 0s

2025-12-22 13:04:05 (8.02 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [192/192]

[root@ip-172-31-68-102 ~]#
```

>> here, we are installing Jenkins package by giving “yum install Jenkins -y”

```
Jenkins-stable
Dependencies resolved.
================================================================================
 Package                    Architecture                  Version
================================================================================
Installing:
 jenkins                    noarch                        2.528.3-1.1

Transaction Summary
================================================================================
Install  1 Package

Total download size: 91 M
Installed size: 91 M
Downloading Packages:
jenkins-2.528.3-1.1.noarch.rpm
--------------------------------------------------------------------------------
Total
Jenkins-stable
Importing GPG key 0xEF5975CA:
 Userid     : "Jenkins Project <jenkinsci-board@googlegroups.com>"
 Fingerprint: 6366 7EE7 4BBA 1F0A 08A6 9872 5BA3 1D57 EF59 75CA
 From       : https://pkg.jenkins.io/redhat-stable/repodata/repomd.xml.key
Key imported successfully
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :
  Running scriptlet: jenkins-2.528.3-1.1.noarch
  Installing       : jenkins-2.528.3-1.1.noarch
  Running scriptlet: jenkins-2.528.3-1.1.noarch
  Verifying        : jenkins-2.528.3-1.1.noarch

Installed:
  jenkins-2.528.3-1.1.noarch

Complete!
```

>> here we have changed the port number to 8082

```
# Arguments for the Jenkins JVM
Environment="JAVA_OPTS=-Djava.awt.headless=true"

# Unix Domain Socket to listen on for local HTTP requests. Default is disabled.
#Environment="JENKINS_UNIX_DOMAIN_PATH=/run/jenkins/jenkins.socket"

# IP address to listen on for HTTP requests.
# The default is to listen on all interfaces (0.0.0.0).
#Environment="JENKINS_LISTEN_ADDRESS="

# Port to listen on for HTTP requests. Set to -1 to disable.
# To be able to listen on privileged ports (port numbers less than 1024),
# add the CAP_NET_BIND_SERVICE capability to the AmbientCapabilities
# directive below.
Environment="JENKINS_PORT=8082"

# IP address to listen on for HTTPS requests. Default is disabled.
#Environment="JENKINS_HTTPS_LISTEN_ADDRESS="

# Port to listen on for HTTPS requests. Default is disabled.
# To be able to listen on privileged ports (port numbers less than 1024),
# add the CAP_NET_BIND_SERVICE capability to the AmbientCapabilities
# directive below.
#Environment="JENKINS_HTTPS_PORT=443"
```

>> systemctl daemon-reload >> systemctl start jenkins >> systemctl status jenkins

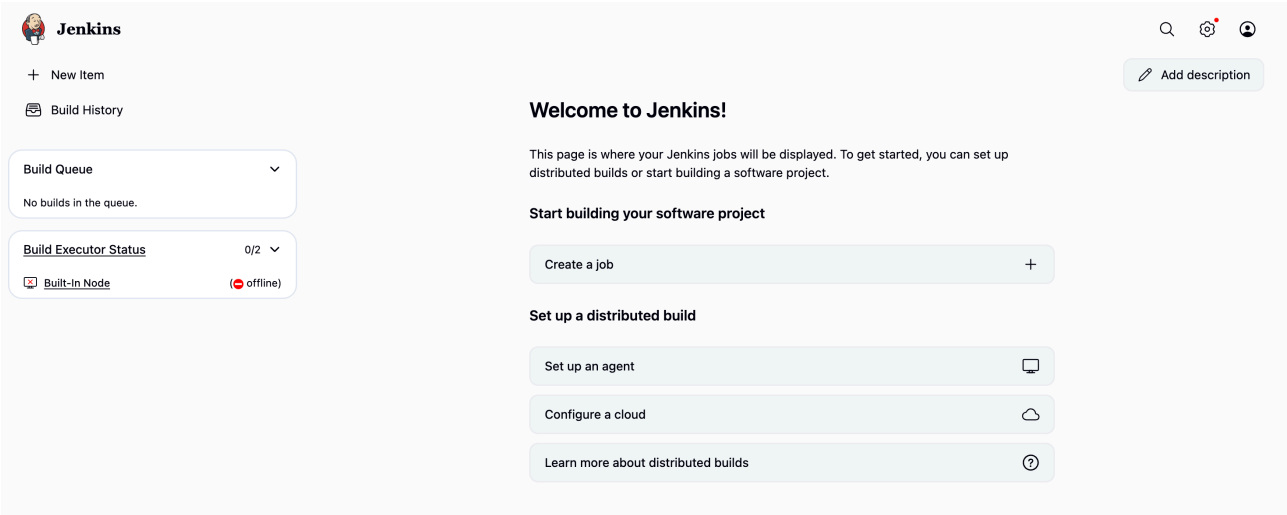
```
[root@ip-172-31-68-102 ~]# sudo vi /etc/sysconfig/jenkins
[root@ip-172-31-68-102 ~]# vi /usr/lib/systemd/system/jenkins.service
[root@ip-172-31-68-102 ~]# systemctl daemon-reload
[root@ip-172-31-68-102 ~]# systemctl start jenkins
[root@ip-172-31-68-102 ~]# systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/usr/lib/systemd/system/jenkins.service; disabled; preset: disabled)
     Active: active (running) since Mon 2025-12-22 13:18:24 UTC; 13s ago
   Main PID: 33382 (java)
      Tasks: 42 (limit: 1067)
     Memory: 351.5M
        CPU: 20.002s
     CGroup: /system.slice/jenkins.service
             └─33382 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8082

Dec 22 13:18:20 ip-172-31-68-102.ec2.internal jenkins[33382]: [LF]>
Dec 22 13:18:20 ip-172-31-68-102.ec2.internal jenkins[33382]: [LF]> ************************************************************
Dec 22 13:18:20 ip-172-31-68-102.ec2.internal jenkins[33382]: [LF]> ************************************************************
Dec 22 13:18:20 ip-172-31-68-102.ec2.internal jenkins[33382]: [LF]> ************************************************************
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.625+0000 [id=30]       INFO        jenkins.InitReactorRunner$1#onAttained: Completed initializa>
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.655+0000 [id=23]       INFO        hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and >
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.920+0000 [id=49]       INFO        h.m.DownloadService$Downloadable#load: Obtained the updated >
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.921+0000 [id=49]       INFO        hudson.util.Retrier#start: Performed the action check update>
Dec 22 13:18:29 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:29.710+0000 [id=69]       WARNING         h.n.DiskSpaceMonitorDescriptor#markNodeOfflineOrOnline: M>
```

>> copy public ip and add port 8082 it will open the page >> if the page is not opening then add inbound rule for port 8082 in security group

>> we can cat the password

```
[root@ip-172-31-68-102 ~]# cat /var/lib/jenkins/secrets/initialAdminPassword
86c79e447e7f430fad87220374d36f4d
```

>> we can use Jenkins now



4. Install Apache

>> httpd is active and running on port 80

```
Complete!
[root@ip-172-31-68-102 ~]# systemctl start httpd
[root@ip-172-31-68-102 ~]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-68-102 ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
     Active: active (running) since Mon 2025-12-22 13:50:43 UTC; 26s ago
       Docs: man:httpd.service(8)
   Main PID: 35587 (httpd)
     Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec:   0 B/sec"
      Tasks: 177 (limit: 1067)
     Memory: 13.7M
        CPU: 77ms
     CGroup: /system.slice/httpd.service
             ├─35587 /usr/sbin/httpd -DFOREGROUND
             ├─35602 /usr/sbin/httpd -DFOREGROUND
             ├─35605 /usr/sbin/httpd -DFOREGROUND
             ├─35606 /usr/sbin/httpd -DFOREGROUND
             └─35612 /usr/sbin/httpd -DFOREGROUND

Dec 22 13:50:43 ip-172-31-68-102.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Dec 22 13:50:43 ip-172-31-68-102.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Dec 22 13:50:43 ip-172-31-68-102.ec2.internal httpd[35587]: Server configured, listening on: port 80
[root@ip-172-31-68-102 ~]# vi /var/www/html/index.html
```

>> vi /var/www/html/index.html >> deployment location of httpd

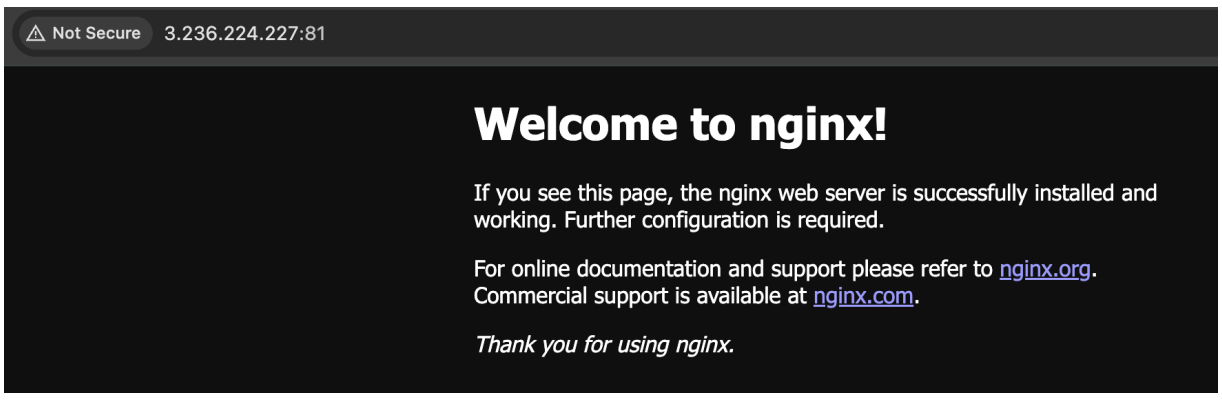
```
<h1>Amazon linux 2 - Apache from user data</h1>
~
~
~
~
~
~
~
```

>> here, we can see the httpd is running

5. Install nginx
>> yum install nginx -y

```
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing        :
  Running scriptlet: nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch
  Installing       : nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch
  Installing       : nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch
  Installing       : libunwind-1.4.0-5.amzn2023.0.3.x86_64
  Installing       : gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64
  Installing       : nginx-core-1:1.28.0-1.amzn2023.0.2.x86_64
  Installing       : nginx-1:1.28.0-1.amzn2023.0.2.x86_64
  Running scriptlet: nginx-1:1.28.0-1.amzn2023.0.2.x86_64
  Verifying        : gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64
  Verifying        : libunwind-1.4.0-5.amzn2023.0.3.x86_64
  Verifying        : nginx-1:1.28.0-1.amzn2023.0.2.x86_64
  Verifying        : nginx-core-1:1.28.0-1.amzn2023.0.2.x86_64
  Verifying        : nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch
  Verifying        : nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch

Installed:
  gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64      libunwind-1.4.0-5.amzn2023.0.3.x86_64
  nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch  nginx-mimetypes-2.1.49-3.amzn2023.0.3

Complete!
[root@ip-172-31-68-102 ~]#
```

>> For changing port open >> vi /etc/nginx/nginx.conf
>>we can see that the running the nginx on port 81 in same ec2



6. Install Apache tomcat

>> for installing tomcat >> need java After installing java >> use wget and past the tomcat app url and download its tar cvf of tomcat >> later extract that tar file using >> tar xvf

```
[ec2-user@ip-172-31-68-102 ~]$ cd apache-tomcat-9.0.113/
[ec2-user@ip-172-31-68-102 apache-tomcat-9.0.113]$ ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[ec2-user@ip-172-31-68-102 apache-tomcat-9.0.113]$ cd bin
[ec2-user@ip-172-31-68-102 bin]$ ls
bootstrap.jar       catalina.sh  commons-daemon-native.tar.gz  configtest.sh  digest.sh     setclasspath.bat  shutdown.sh  tomcat-juli.jar       tool-wrapper.sh
catalina-tasks.xml  ciphers.bat  commons-daemon.jar            daemon.sh      makebase.bat  setclasspath.sh   startup.bat  tomcat-native.tar.gz  version.bat
catalina.bat        ciphers.sh   configtest.bat                digest.bat     makebase.sh   shutdown.bat      startup.sh   tool-wrapper.bat      version.sh
[ec2-user@ip-172-31-68-102 bin]$ ./startup.sh
Using CATALINA_BASE:   /home/ec2-user/apache-tomcat-9.0.113
Using CATALINA_HOME:   /home/ec2-user/apache-tomcat-9.0.113
Using CATALINA_TMPDIR: /home/ec2-user/apache-tomcat-9.0.113/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /home/ec2-user/apache-tomcat-9.0.113/bin/bootstrap.jar:/home/ec2-user/apache-tomcat-9.0.113/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
[ec2-user@ip-172-31-68-102 bin]$
```

>> here, we can see the apache tomcat is running successfully