

Challenges of ec2 using amazon linux

1. Launch one EC2 instance using Amazon Linux 2

```
, _\ _###_          Amazon Linux 2023
-- \_\_####\_
--   \###|
--     \#/ __
--       V~' '-'>
--     /
--   --_.-
--   /_/
--   /_/
-- /m/'[ec2-user@ip-172-31-68-102 ~]$[ec2-user@ip-172-31-68-102 ~]$[ec2-user@ip-172-31-68-102 ~]$ sudo yum update -yAmazon Linux 2023 Kernel Livepatch repositoryDependencies resolved.Nothing to do.Complete![ec2-user@ip-172-31-68-102 ~]$ █
```

2. Install Docker

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

```
[root@ip-172-31-68-102 ~]# yum install docker
Last metadata expiration check: 2:16:40 ago on Mon Dec 22 10:24:50 2025.
Package docker-25.0.13-1.amzn2023.0.2.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-68-102 ~]# systemctl start docker
[root@ip-172-31-68-102 ~]# systemctl enable docker
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
[root@ip-172-31-68-102 ~]# systemctl status docker
● docker.service - Docker Application Container Engine
    Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: disabled)
      Active: active (running) since Mon 2025-12-22 10:42:42 UTC; 2h 0min ago
        Docs: https://docs.docker.com
     Main PID: 28260 (dockerd)
        Tasks: 9
       Memory: 28.9M
          CPU: 1.274s
       CGroup: /system.slice/docker.service
               └─28260 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock --default-ulimit nofile=32768:65536
```

>> docker —version

```
[root@ip-172-31-68-102 ~]#
[root@ip-172-31-68-102 ~]# docker --version
Docker version 25.0.13, build 0bab007
[root@ip-172-31-68-102 ~]# █
```

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.

Package	Architecture	Version	Repository	Size
<hr/>				
Installing:				
java-17-amazon-corretto	x86_64	1:17.0.1+10-1.amzn2023.1	amazonlinux	219 k
<hr/>				
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
glib	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 jenkins repo by using wget and paste the jenkins 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="

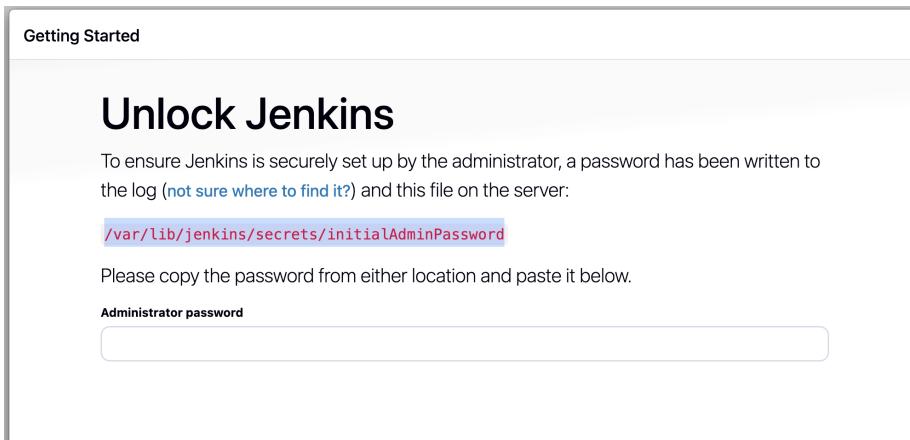
# Port to listen on for HTTPS requests. Default is disabled.
# To be able to listen on privileged ports (port numbers less than 1024),
# add the CAP_NET_BIND_SERVICE capability to the AmbientCapabilities
# directive below.
#Environment="JENKINS_HTTPS_PORT=443"
```

>> 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 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.625+0000 [id=30]      INFO      jenkins.InitReactorRunner$1#onAttained: Completed initialization
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.655+0000 [id=23]      INFO      hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: Started jenkins.service - Jenkins Continuous Integration Server.
Dec 22 13:18:24 ip-172-31-68-102.ec2.internal jenkins[33382]: 2025-12-22 13:18:24.920+0000 [id=49]      INFO      h.m.DownloadService$Downloadable#load: Obtained the updated configuration
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.Retriger#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
```

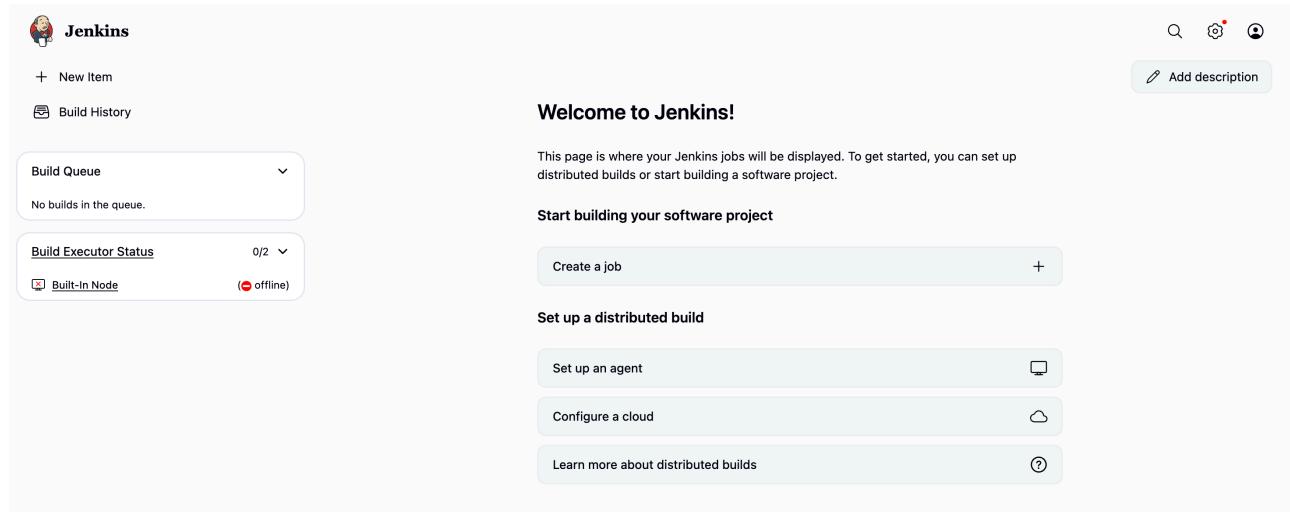
>> copy public ip and add port 8082 it will open the page >> if the page is not opening then add inbound rule for port 8082 in security group



>> we can cat the password

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

>> we can use Jenkins now

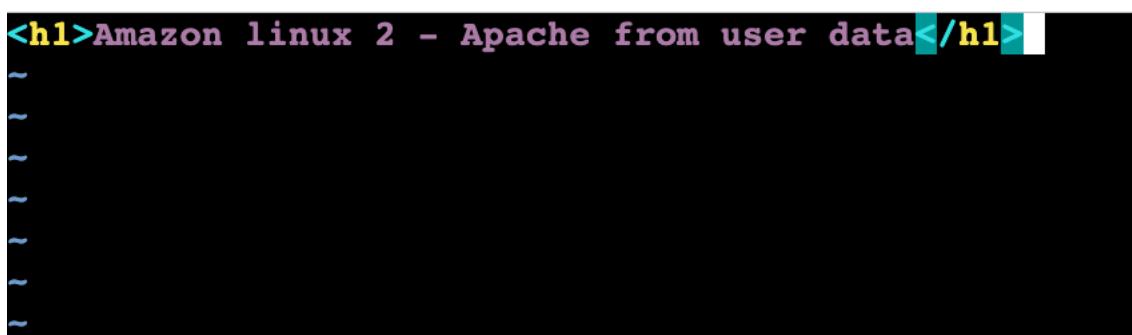


4. Install Apache

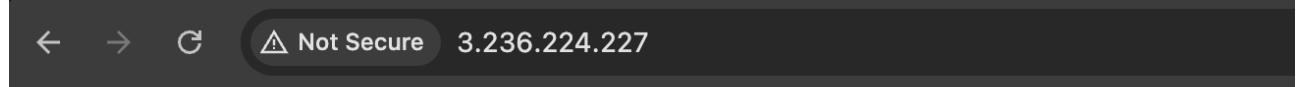
>> httpd is active and running on port 80

```
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:htpd.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



>> here, we can see the httpd is running



Amazon linux 2 - Apache from user data

5. Install nginx

>> yum install nginx -y

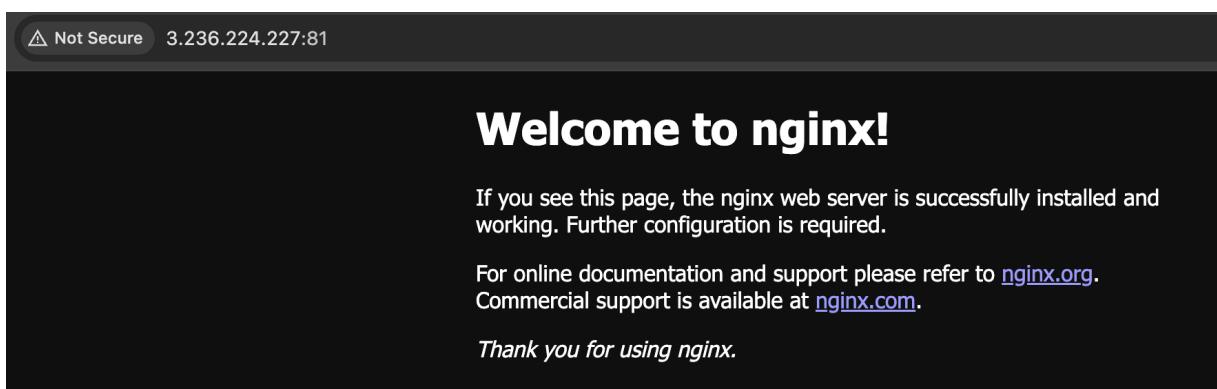
```
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing           :
  Running scriptlet: nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch
  Installing        : nginx-filesystem-1:1.28.0-1.amzn2023.0.2.noarch
  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

The screenshot shows the Apache Tomcat 9.0.113 homepage. At the top, there's a navigation bar with links to Home, Documentation, Configuration, Examples, Wiki, and Mailing Lists. To the right of the navigation is a "Find Help" search bar. The main content area features a green banner with the text "If you're seeing this, you've successfully installed Tomcat. Congratulations!" Below the banner is a cartoon cat icon. To the right of the cat, there's a "Recommended Reading" section with links to Security Considerations How-To, Manager Application How-To, and Clustering/Session Replication How-To. On the far right, there are three buttons: Server Status, Manager App, and Host Manager. Below this, there's a "Developer Quick Start" section with links to Tomcat Setup, First Web Application, Realms & AAA, JDBC DataSources, Examples, Servlet Specifications, and Tomcat Versions. The main content area is divided into three columns: "Managing Tomcat" (with links to Release Notes, Changelog, Migration Guide, and Security Notices), "Documentation" (with links to Tomcat 9.0 Documentation, Tomcat 9.0 Configuration, and Tomcat Wiki), and "Getting Help" (with links to FAQ and Mailing Lists, and information about mailing lists like tomcat-announce, tomcat-users, taglibs-user, and tomcat-dev). At the bottom, there's a footer with links to Other Downloads (Tomcat Connectors, Tomcat Native, Taglibs), Other Documentation (Tomcat Connectors, mod_ajp Documentation, Tomcat Native), Get Involved (Overview, Source Repositories, Mailing Lists), Miscellaneous (Contact, Legal, Sponsorship), and Apache Software Foundation (Who We Are, Heritage).