

EC2 (Challenge)

1. Launching one EC2 instance using amazon linux 2.

- Installed instance by simply clicking launch then used amazon and selected key pem which I have created already. And kept all things default.

The screenshot shows the AWS Management Console interface for selecting an Amazon Machine Image (AMI). The 'Application and OS Images (Amazon Machine Image)' section is active, displaying a search bar and a grid of operating system logos including Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. The 'Amazon Linux 2023 kernel-6.12 AMI' is selected, showing details like 'ami-0f00d706c4a80fd93' and 'Free tier eligible'. The 'Summary' panel on the right shows 'Number of instances: 1', 'Software Image (AMI): Amazon Linux 2023 AMI 2023.9.2...', 'Virtual server type (instance type): t2.micro', 'Firewall (security group): New security group', and 'Storage (volumes): 1 volume(s) - 8 GiB'. A 'Launch instance' button is visible at the bottom right.

Success
Successfully initiated launch of instance (i-0c61af57d0a722c6b)

► Launch log

2. Installing docker

- I have installed docker using command `sudo yum install docker -y`, then start the docker using `sudo systemctl start docker`, then checked the status `sudo systemctl status docker`.

```
Nothing to do.
Complete!
[ec2-user@ip-172-31-16-194 ~]$ sudo amazon-linux-extras install docker -y
sudo: amazon-linux-extras: command not found
[ec2-user@ip-172-31-16-194 ~]$ sudo yum install docker -y
No such command: install. Please use /usr/bin/yum --help
It could be a YUM plugin command, try: "yum install 'dnf-command(install)'"
[ec2-user@ip-172-31-16-194 ~]$ sudo install docker -y
sudo: install: command not found
[ec2-user@ip-172-31-16-194 ~]$ sudo yum install -y docker
Last metadata expiration check: 0:03:58 ago on Thu Nov 20 06:33:05 2025.
Dependencies resolved.

```

Package	Architecture	Version	Repository	Size
Installing:				
docker	x86_64	25.0.13-1.amzn2023.0.2	amazonlinux	46 M
Installing dependencies:				
container-selinux	noarch	4:2.242.0-1.amzn2023	amazonlinux	58 k
containerd	x86_64	2.1.4-1.amzn2023.0.2	amazonlinux	23 M
iptables-libs	x86_64	1.8.8-3.amzn2023.0.2	amazonlinux	401 k
iptables-nft	x86_64	1.8.8-3.amzn2023.0.2	amazonlinux	183 k

- Checked the docker status its active

```
[ec2-user@ip-172-31-16-194 ~]$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: disabled)
   Active: active (running) since Thu 2025-11-20 06:38:56 UTC; 50s ago
     TriggeredBy: ● docker.socket
    Docs: https://docs.docker.com
   Main PID: 28313 (dockerd)
      Tasks: 7
```

- In below image I have checked whether docker is running or not by printing sudo docker ps, then sudo docker hello-world. (hello world should be in small latters)

```
ec2-user@ip-172-31-16-194 ~]$ sudo docker run Hello-World
docker: invalid reference format: repository name (library/Hello-World) must be lowercase.
See 'docker run --help'.
ec2-user@ip-172-31-16-194 ~]$ sudo docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED       STATUS        PORTS   NAMES
ec2-user@ip-172-31-16-194 ~]$ sudo docker run Hello-World
docker: invalid reference format: repository name (library/Hello-World) must be lowercase.
See 'docker run --help'.
ec2-user@ip-172-31-16-194 ~]$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
Docker: Pulling from library/hello-world
7eec7bbc9d7: Pull complete
Digest: sha256:f7931603f70e13dbd844253370742c4fc4202d290c80442b2e68706d8f33ce26
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
```

3. Jenkins installation.

- I have installed java for installing Jenkins then install jenkins packages and then jenkins installed.
- I have changed port number by following path
/opt/lib/systemd/system/jenkins.xml

```
Install 1 Package
Total download size: 91 M
Installed size: 91 M
Downloading Packages:
jenkins-2.528.2-1.1.noarch.rpm                                     5.1 MB/s
-----
Total                                                             5.1 MB/s
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      :
  Running scriptlet: jenkins-2.528.2-1.1.noarch
  Installing     : jenkins-2.528.2-1.1.noarch
  Running scriptlet: jenkins-2.528.2-1.1.noarch
  Verifying      : jenkins-2.528.2-1.1.noarch

Installed:
jenkins-2.528.2-1.1.noarch

Complete!
[ec2-user@ip-172-31-16-194 ~]$ jenkins --version
2.528.2
[ec2-user@ip-172-31-16-194 ~]$
```

Getting Started

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

```
/var/lib/jenkins/secrets/initialAdminPassword
```

Please copy the password from either location and paste it below.

Administrator password

Continue

Jenkins

+ New Item

Build History

Build Queue

No builds in the queue.

Build Executor Status

0/2

Built-In Node

offline

Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project

Create a job

Set up a distributed build

Set up an agent

Configure a cloud

Learn more about distributed builds

Activate Windows

Go to Settings to activate Windows

REST API

Jenkins

4. Installed apache

- installed apache by using command `sudo yum install httpd -y`
- to change port number `'vi /etc/httpd/conf/httpd.conf`

```

dfn-mkcache.timer multi-user.target.wants
docker.service network-online.target
docker.socket network-pre.target
dracut-cmdline.service network.target
dracut-initqueue.service nfs-blkio.service
dracut-mount.service nfs-client.target
dracut-pre-mount.service nfs-convert.service
dracut-pre-udev.service nfs-1dmq.service
dracut-pre-trigger.service nfs-mount.service
dracut-pre-udev.service nfs-server.service
dracut-shutdown-analysa.service nfs-utils.service
dracut-shutdown.service nfsdcl.service
emergency.service nss-domainname.service
emergency.target nss-lookup.target
exit.target nss-user-lookup.target
factory-reset.target pam_namesap.service
final.target paths.target
firstboot-complete.target policy-runtime.service
fstirm.service poweroff.target
fstirm.timer printer.target
getty-pre.target proc-fs-fsfd.mount
getty.target proc-sys-fs-binfmt_misc.automount
[ec2-user@ip-172-31-16-194 ~]$ cat /etc/httd/
[ec2-user@ip-172-31-16-194 httpd]$ ls
conf conf.d conf.modules.d logs modules run state
[ec2-user@ip-172-31-16-194 httpd]$ cd conf
[ec2-user@ip-172-31-16-194 conf]$ ls
httd.conf magic
[ec2-user@ip-172-31-16-194 conf]$ vi httd.conf
[ec2-user@ip-172-31-16-194 conf]$ chmod 755 httd.conf
[ec2-user@ip-172-31-16-194 conf]$ cat /etc/httd.conf
[ec2-user@ip-172-31-16-194 conf]$ sudo chmod 755 httd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httd.conf
[ec2-user@ip-172-31-16-194 conf]$ sudo chmod 777 httd.conf
[ec2-user@ip-172-31-16-194 conf]$ cat /etc/httd.conf
[ec2-user@ip-172-31-16-194 conf]$ sudo systemctl restart httd

```

It works!

5. Installed nginx

- I have installed nginx by using command `sudo yum install nginx -y`, then `sudo systemctl nginx`, then `sudo systemctl status`. And confirmed with browser. By pasting our instance public key.
- To change nginx tomcat number `cd /etc/nginx/nginx.conf`

```

mc2-user@172.17.1.16-194 ~$ sudo systemctl status nginx
nginx.service - The nginx HTTP and reverse proxy server
   Loaded: loaded /usr/lib/systemd/system/nginx.service; disabled; preset: disabled
   Active: active (running) since Thu 2023-11-20 10:29:17 UTC; 2h 5min ago
   Process: 916 ExecStartPre=/usr/sbin/nginx -t (code=exited, status=0/SUCCESS)
   Process: 9169 ExecStartPre=/usr/sbin/nginx -t (code=exited, status=0/SUCCESS)
   Process: 9170 ExecStart=/usr/sbin/nginx (code=exited, status=0/SUCCESS)
   Main PID: 9172 (nginx)
   Tasks: 2 (limit: 1151)
   Memory: 2.3M
   CPU: 43ms
   CGroup: /systemd/system/nginx.service
           └─9171 "nginx: master process /usr/sbin/nginx"
             └─9172 "nginx: worker process"

Nov 20 10:29:17 ip-172-17-1.16-194.mc2.internal systemd[1]: Starting nginx.service - The nginx HTTP and reverse proxy server...
Nov 20 10:29:17 ip-172-17-1.16-194.mc2.internal nginx[9169]: nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
Nov 20 10:29:17 ip-172-17-1.16-194.mc2.internal nginx[9169]: nginx: configuration file /etc/nginx/nginx.conf test is successful
Nov 20 10:29:17 ip-172-17-1.16-194.mc2.internal systemd[1]: Started nginx.service - The nginx HTTP and reverse proxy server.
mc2-user@172.17.1.16-194 ~$

```

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

6. Installation of tomcat


- I have installed tomcat. I went to browser of tomcat and installed tar link and pasted in in ec2 terminal and untar the file and then went in the bin and start thr process and I have checked on browser it is opening now.

```
apache-tomcat-9.0.112 apache-tomcat-9.0.112.tar.gz aws containerd jenkins
[ec2-user@ip-172-31-16-194 opt]$ mv apache-tomcat-9.0.112
mv: missing destination file operand after 'apache-tomcat-9.0.112'
try 'mv --help' for more information.
[ec2-user@ip-172-31-16-194 opt]$ mv apache-tomcat-9.0.112 tomcat
mv: cannot move 'apache-tomcat-9.0.112' to 'tomcat': Permission denied
[ec2-user@ip-172-31-16-194 opt]$ sudo mv apache-tomcat-9.0.112 tomcat
[ec2-user@ip-172-31-16-194 opt]$ ls
apache-tomcat-9.0.112.tar.gz aws containerd jenkins tomcat
[ec2-user@ip-172-31-16-194 opt]$ cd tomcat
[ec2-user@ip-172-31-16-194 tomcat]$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
[ec2-user@ip-172-31-16-194 tomcat]$ cd bin
-bash: cd: bin: Permission denied
[ec2-user@ip-172-31-16-194 tomcat]$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
[ec2-user@ip-172-31-16-194 tomcat]$ sudo cd bin
[ec2-user@ip-172-31-16-194 tomcat]$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
[ec2-user@ip-172-31-16-194 tomcat]$ sudo cd webapps
[ec2-user@ip-172-31-16-194 tomcat]$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
[ec2-user@ip-172-31-16-194 tomcat]$ sudo su
cd /opt/tomcat/bin
[root@ip-172-31-16-194 tomcat]# sudo su
cd /opt/tomcat/bin
[root@ip-172-31-16-194 tomcat]# ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
[root@ip-172-31-16-194 tomcat]# cd bin
[root@ip-172-31-16-194 bin]# sudo ./startup.sh
/usr/bin/cd: line 2: cd: bin: No such file or directory
[root@ip-172-31-16-194 bin]# ls
bootstrap.jar catalina.bat ciphers.bat commons-daemon-native.tar.gz configtest.bat daemon.sh digest.sh makebase.sh setclasspath.sh shutdown.sh startup.sh tomcat-native.tar.gz tool-wrapper.sh version.sh
catalina-tasks.xml catalina.sh ciphers.sh commons-daemon.jar configtest.sh digest.bat makebase.bat setclasspath.bat shutdown.bat startup.bat tomcat-juli.jar tool-wrapper.bat version.bat
[root@ip-172-31-16-194 bin]# cd ..
[root@ip-172-31-16-194 tomcat]# cd bin
[root@ip-172-31-16-194 bin]# sudo ./startup.sh
using CATALINA_BASE: /opt/tomcat
using CATALINA_HOME: /opt/tomcat
using CATALINA_TMPDIR: /opt/tomcat/temp
using JRE_HOME: /usr
using CLASSPATH: /opt/tomcat/bin/bootstrap.jar:/opt/tomcat/bin/tomcat-juli.jar
using CATALINA_OPTS:
tomcat started.
[root@ip-172-31-16-194 bin]#
```


- To change tomcat port number we need to go following path 'cd /opt/conf/server.xml'

[Home](#) [Documentation](#) [Configuration](#) [Examples](#) [Wiki](#) [Mailing Lists](#) [Find Help](#)

Apache Tomcat/9.0.112



If you're seeing this, you've successfully installed Tomcat. Congratulations!



Recommended Reading:

- [Security Considerations How-To](#)
- [Manager Application How-To](#)
- [Clustering/Session Replication How-To](#)

Server Status

Manager App

Host Manager

[Tomcat Setup](#)
[First Web Application](#)

[Realms & AAA](#)
[JDBC DataSources](#)

[Examples](#)

[Servlet Specifications](#)
[Tomcat Versions](#)

Managing Tomcat

For security, access to the [manager webapp](#) is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 9.0 access to the manager application is split between different users.

[Read more...](#)

[Release Notes](#)
[Changelog](#)
[Migration Guide](#)
[Security Notices](#)

Documentation

[Tomcat 9.0 Documentation](#)
[Tomcat 9.0 Configuration](#)
[Tomcat Wiki](#)

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

- [Tomcat 9.0 Bug Database](#)
- [Tomcat 9.0 JavaDocs](#)
- [Tomcat 9.0 Git Repository at GitHub](#)

Getting Help

[FAQ and Mailing Lists](#)

The following mailing lists are available:

[tomcat-announce](#)
Important announcements, releases, security vulnerability notifications. (Low volume).

[tomcat-users](#)
User support and discussion

[taglibs-user](#)
User support and discussion for [Apache Taglibs](#)

[tomcat-dev](#)
Development mailing list, including commit messages

Activate Windows
Go to Settings to activate W