

# EC2 (Challenge)

## 1. Launching one EC2 instance using amzon 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 CloudFormation console. At the top, there's a search bar and a navigation menu with tabs for 'Recent' and 'Quick Start'. Below the search bar, there are icons for various operating systems: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian. A 'Browse more AMIs' button is also present. On the right side, there's a 'Summary' section showing 'Number of instances: 1'. It details the 'Software Image (AMI)' as 'Amazon Linux 2023 kernel-6.12 AMI' (ami-0f00d706c4a80f993) and the 'Virtual server type (instance type)' as 't2.micro'. It also lists 'Firewall (security group)', 'Storage (volumes)', and a note about the 'Free tier'. At the bottom, there are 'Cancel' and 'Launch instance' buttons, along with a link to 'Activate Windows'.

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

## 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 amzn-linux-extras istall docker -y
sudo: amzn-linux-extras: command not found
[ec2-user@ip-172-31-16-194 ~]$ sudo yum istall docker -y
No such command. Please use /usr/bin/yum --help
It could be a YUM plugin command, try: "yum install 'dnf-command(istall)'"
[ec2-user@ip-172-31-16-194 ~]$ sudo istall docker -y
sudo: istall: 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
Installig:
 docker           x86_64    25.0.13-1.amzn2023.0.2  amazonlinux  46 M
Installig dependencies:
 container-selinux  noarch    4.2.242.0-1.amzn2023
 containerd        x86_64    2.1.4-1.amzn2023.0.2  amazonlinux  23 M
 iptables-libc     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
     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 ~]$ 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
attempting to pull latest...
7eec7bbc9d7: Pull complete
digest: sha256:f7931603f70e13dbd844253370742c4fc4202d290c80442b2e68706d8f33ce26
status: Downloaded newer image for hello-world:latest

Hello from Docker!
```

### 3. Jenkins installation.

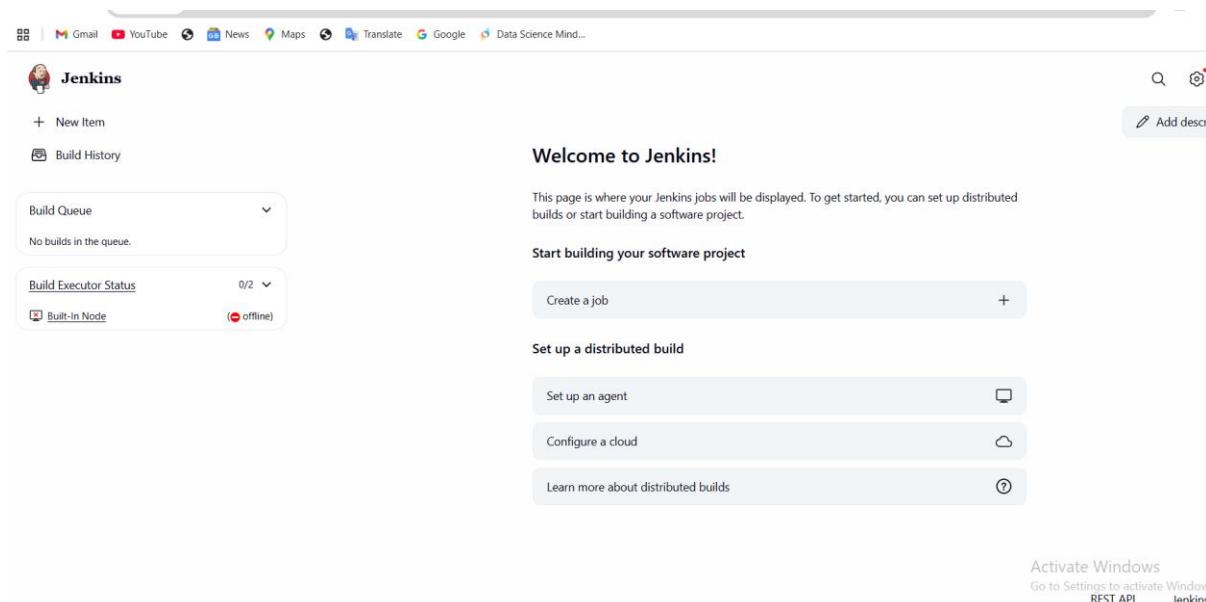
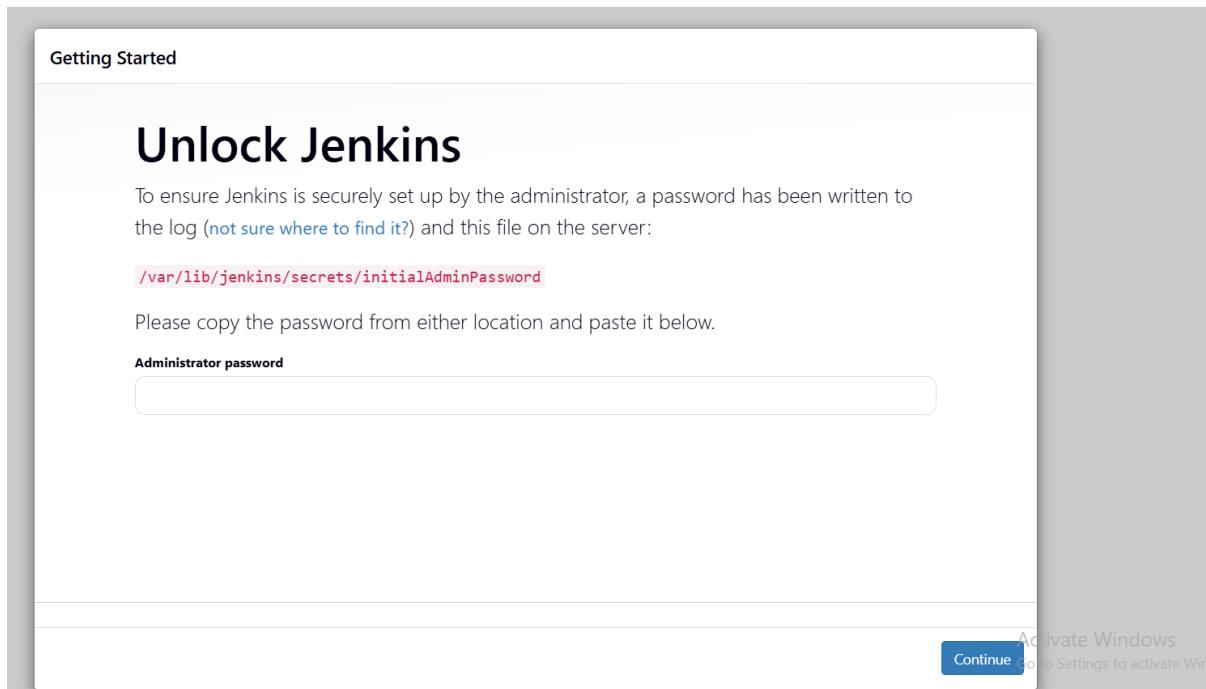
- I have installed java for installing Jenkins then install jenkin packages and then jenkin installed.
- I have changed port number by following path  
`/opt/lib/systemd/system/jenkin.xml`

```
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
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
5.1 MB/s

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 ~]$
```



#### 4. Installed apachee

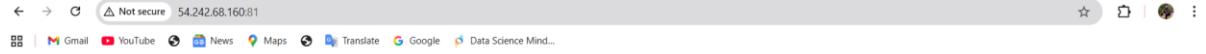
- installed apachee bys using command sudo yum install httpd -y
- to change port number 'vi /etc/httpd/conf/httpd.conf'

```

df-makecache.timer          multi-user.target.wants      sockets.target           systemd-hybrid-sleep.service   time-set.target
docker.service              network-online.target    sound.target             systemd-journal-catalog-update.service  time-sync.target
docker.socket               network-pre.target       sshd-keygen.target      systemd-journal-flush.service  timers.target
dracut-cmdline.service     nft-client.service       sshd-keygen@.service   systemd-journald-flush@.service  tmp.mount
dracut-initqueue.service   nft-kamip.service        sshd-keygen@.socket   systemd-journald-log-service-timer  update-etc.target
dracut-pre-udev.service    nft-convert.service     sshd.service            systemd-journald-varlog@.socket  update-motd.service
dracut-pre-pivot.service   nft-idmapd.service      sshd@.service          systemd-journald-varlog@.socket  update-motd.timer
dracut-pre-trigger.service nft-server.service       sshd-audit.socket    systemd-journald-varlog@.socket  usb-gadget.target
dracut-pre-udev.service    nft-table.service       sshd-auth@.socket    systemd-journald-varlog@.socket  user-slice.d
dracut-shutdown.service   nftd@.service          sshd-kcm.socket      systemd-journald-varlog@.socket  user.slice
emergency.service          nis-domainname.service  sshd-kcm@.socket      systemd-journald-varlog@.socket  user.slice
exit-target                nis-lookup.target      sshd-nss.socket       systemd-jexec.service         user.slice
factory-reset.target      nis-user-lookup.target  sshd-pac.socket      systemd-logger.service        user.service
final.target                pam-authenticate.service  sshd-pac@.socket     systemd-logind.service        user.service.d
first-boot-complete.target policy-routes@.service  sshd-pam-priv.socket  systemd-machine-id-commit.service  user@.service
fstrim.service              poweroff.target       sshd-pam@.service     systemd-modules-load.service  user@.service.d
fsck.service                proc-fs-fsck.mount   sshd-ssh.socket      systemd-network-generator-service  user@.service.d
getty-pre.target           proc-sys-fs-binfmt_misc.autounmount  sshd-ssh@.socket      systemd-networkd-wait-online.service  user@.service.d
getty.target                proc-sys-fs-binfmt_misc.autounmount  sshd-ssh@.socket      systemd-networkd@.service      user@.service.d
[ec2-user@ip-172-31-16-194 ~]$ cd /etc/httpd/
[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
httpd.conf magic
[ec2-user@ip-172-31-16-194 conf]$ vi httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ chmod 755 httpd.conf
chmod: changing permissions of 'httpd.conf': Operation not permitted
[ec2-user@ip-172-31-16-194 conf]$ sudo chmod 755 httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ chmod 755 httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ sudo chmod 777 httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ vi httpd.conf
[ec2-user@ip-172-31-16-194 conf]$ sudo systemctl restart httpd
[ec2-user@ip-172-31-16-194 conf]$ sudo systemctl restart httpd

Activate Windows
Go to Settings to activate Windows.


```



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

```

[ec2-user@ip-172-31-16-194 ~]$ 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 2025-11-20 10:29:17 UTC; 2h 3min ago
     Process: 9168 ExecStartPre=/usr/bin/nginx -t (code=exited, status=0/SUCCESS)
     Process: 9169 ExecStart=/usr/sbin/nginx (code=exited, status=0/SUCCESS)
     Process: 9170 ExecStart=/usr/sbin/nginx (code=exited, status=0/SUCCESS)
      Main PID: 9171 (nginx)
         Tasks: 1 (limit: 115)
        Memory: 2.3M
        CPU: 0.000 CPU(s)
       CGroup: /system.slice/nginx.service
           ├─9171 nginx: master process /usr/sbin/nginx
           └─9172 nginx: worker process

Nov 20 10:29:17 ip-172-31-16-194.ec2.internal systemd[1]: Starting nginx.service - the nginx HTTP and reverse proxy server...
Nov 20 10:29:17 ip-172-31-16-194.ec2.internal nginx[9169]: nginx configuration file /etc/nginx/nginx.conf test is successful
Nov 20 10:29:17 ip-172-31-16-194.ec2.internal systemd[1]: Started nginx.service - The nginx HTTP and reverse proxy server.

[ec2-user@ip-172-31-16-194 ~]$ 

Activate Windows
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```



## 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](https://nginx.org). Commercial support is available at [nginx.com](https://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 was contained 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 was contained 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]$ 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
[ec2-user@ip-172-31-16-194 tomcat]$ 
[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 tomcat]# ls
[root@ip-172-31-16-194 bin]$ sudo cp bin/juli.jar bin/juli.jar.bak
[root@ip-172-31-16-194 bin]$ rm bin/juli.jar
[root@ip-172-31-16-194 bin]$ cp bin/bootstrap.jar bin/bootstrap.jar.bak
[root@ip-172-31-16-194 bin]$ cp bin/bootstrap.jar bin/bootstrap.jar
[root@ip-172-31-16-194 bin]$ ./bootstrap.sh
Using CATALINA_HOME: /opt/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/temp
Using CATALINA_PID: /opt/tomcat/temp/tomcat.pid
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]$ 

```

Activate  
Go to Se

- 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](#)

**Developer Quick Start**

<a href="#">Tomcat Setup</a>	<a href="#">Realms &amp; AAA</a>	<a href="#">Examples</a>	<a href="#">Servlet Specifications</a>
<a href="#">First Web Application</a>	<a href="#">JDBC DataSources</a>		<a href="#">Tomcat Versions</a>

**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  
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