DevOps Project

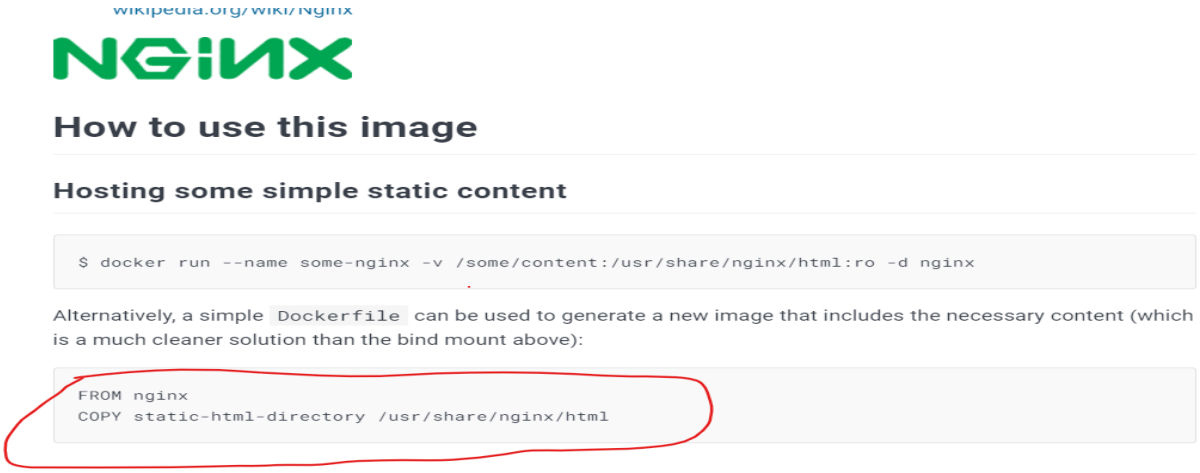
>> Creating Html file

Index.html simple app

```
<html>
<head>
 </head>
<body>
        <p>Welcome to HTML web page created by Aravindu Bodadasari</p>
 </body>
  </html>
```

>> Creating Dockerfile without any extension file…

Dockerfile for index.html app with help of nginx server from Docker account

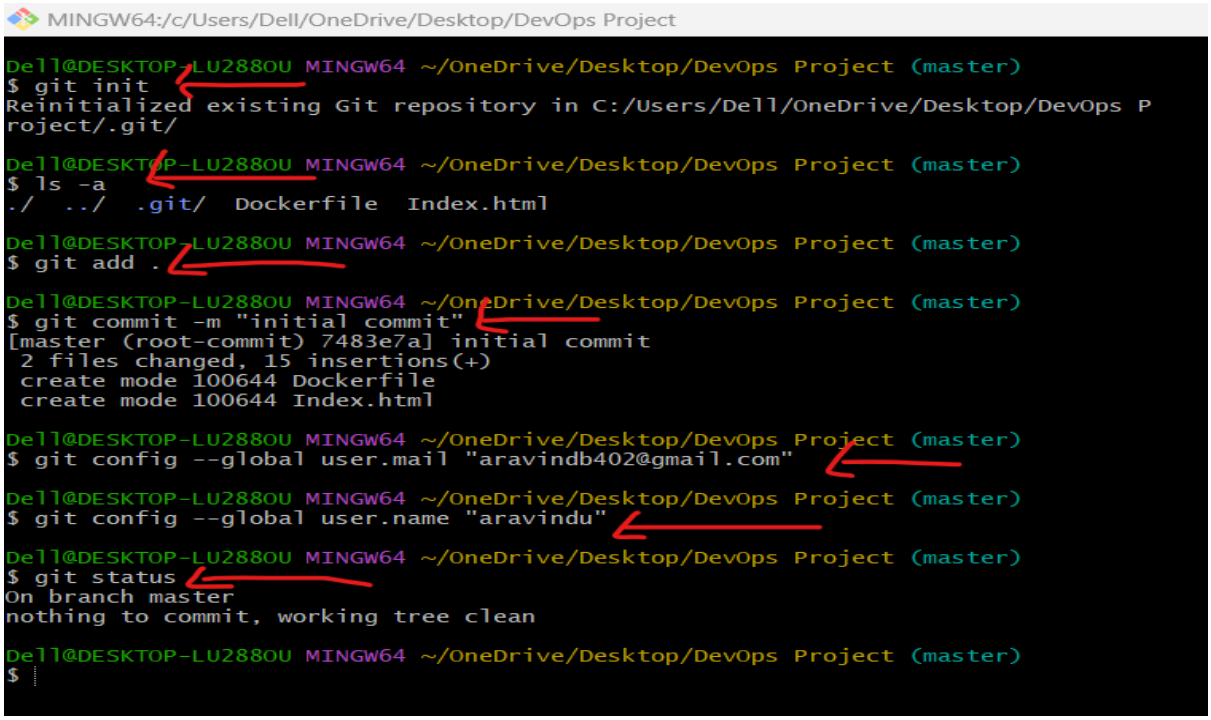


FROM nginx

COPY Index.html /usr/share/nginx/html

>> Pushing the index file code to git hub and making local folder as git repository

Git is from my local machine

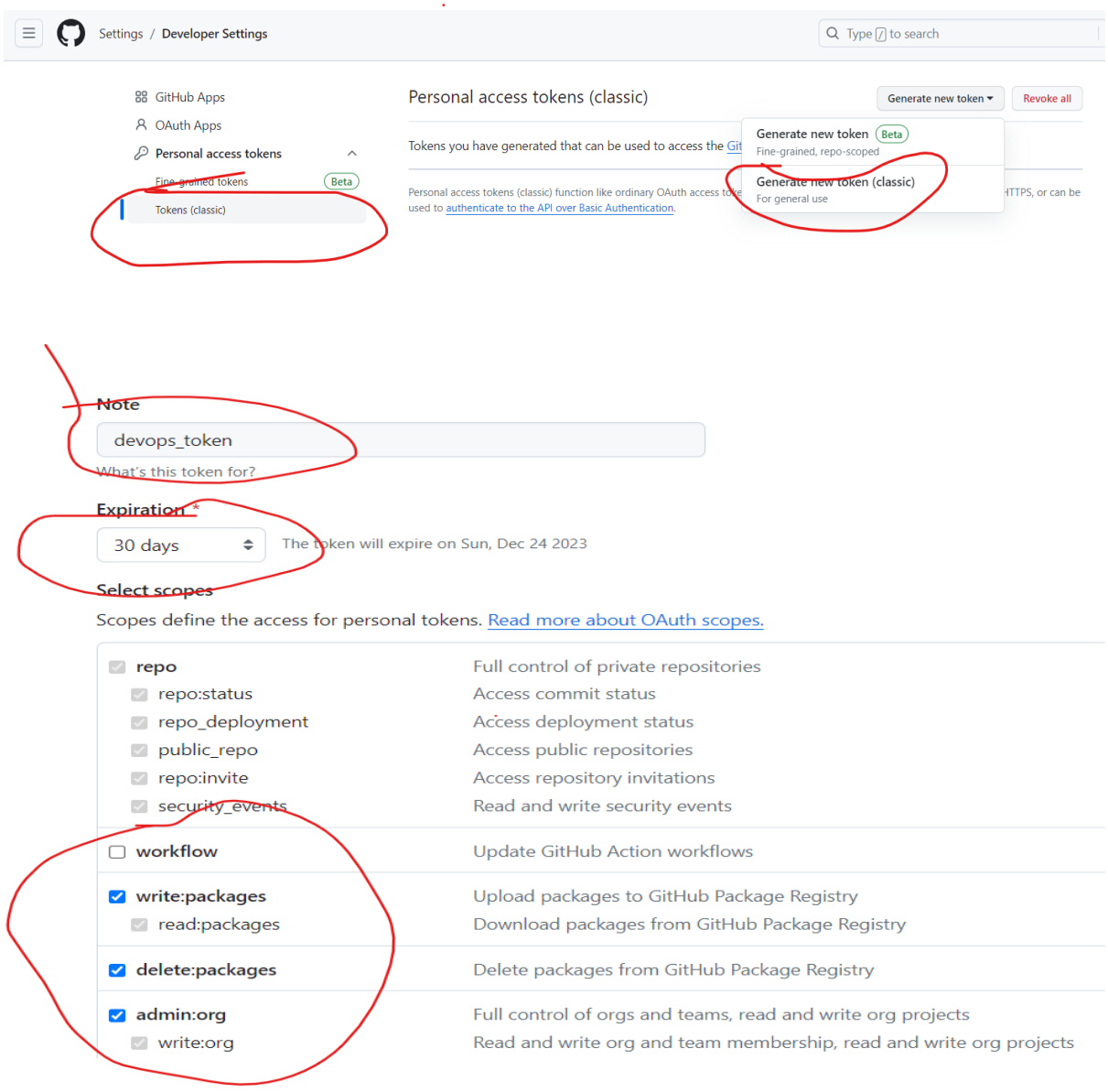


>> Creating new remote repository from git hub

>> Connecting remote repository from local repository

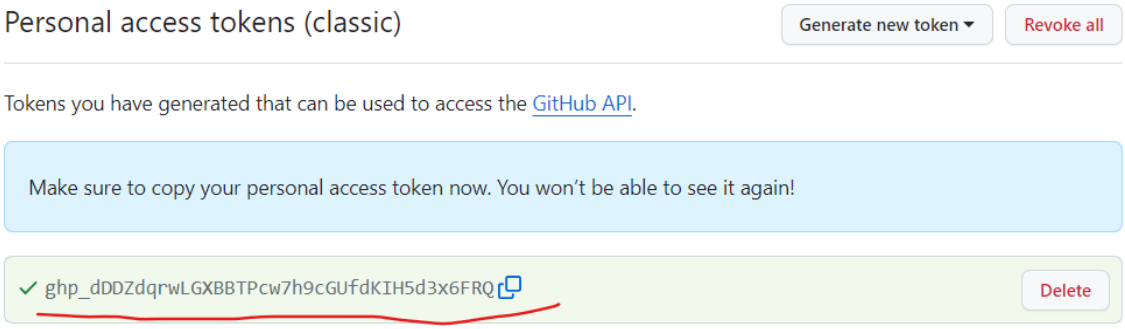
```
git remote add origin https://github.com/aravindubodadasari/devops_project.git
```

Setting up Token based authentication to my git URL and generating Token to git hub repository



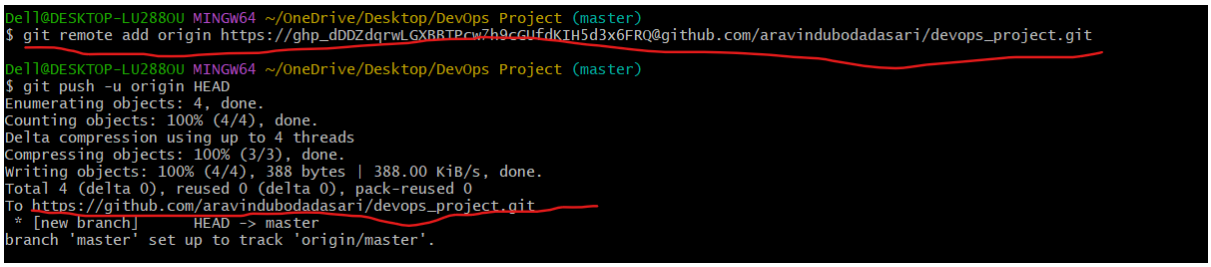

```
git remote add origin https://
Token@github.com/aravindubodadasari/devops_project.git
```

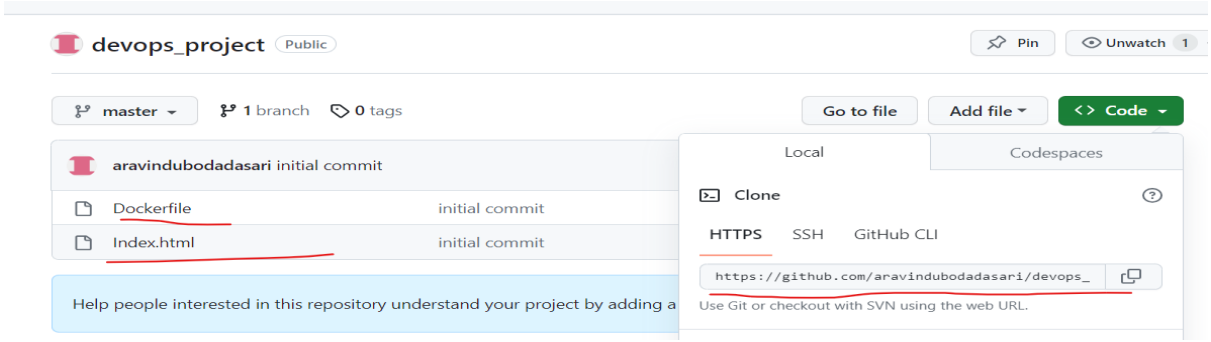
token: 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



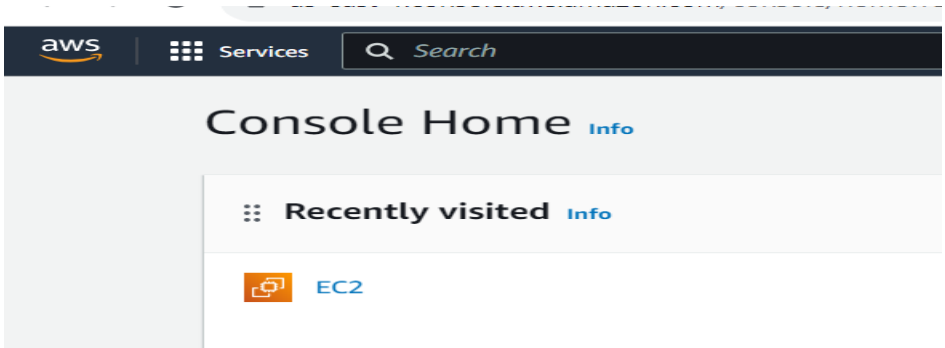
git remote add origin https://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github.com/aravindubodadasari/devops_project.git

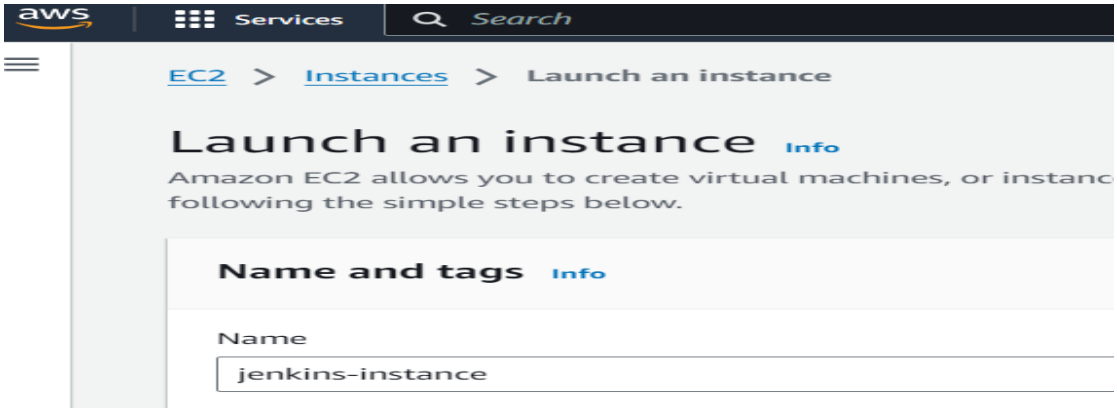
git push –u origin HEAD – last commit which changes happen in repository





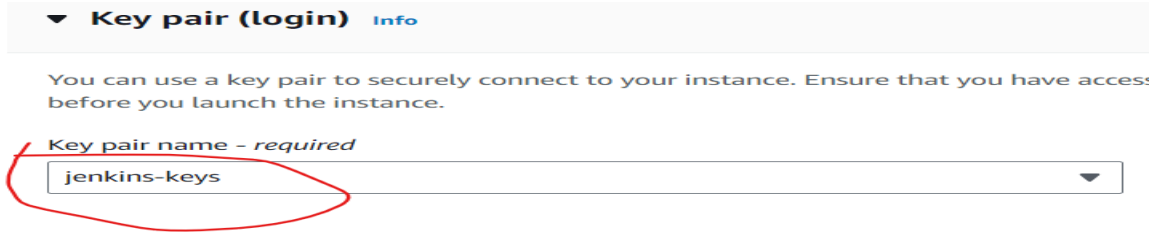
>> Creating EC2 instance from Git repository code to Jenkins



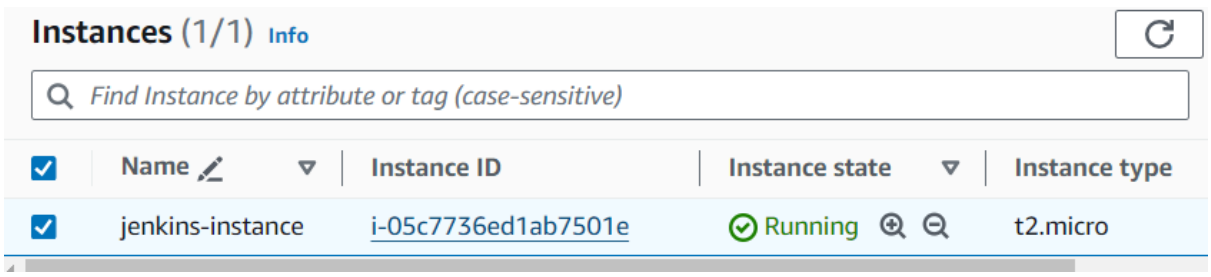


OS – Amazon Linux selected with one CPU because application is small

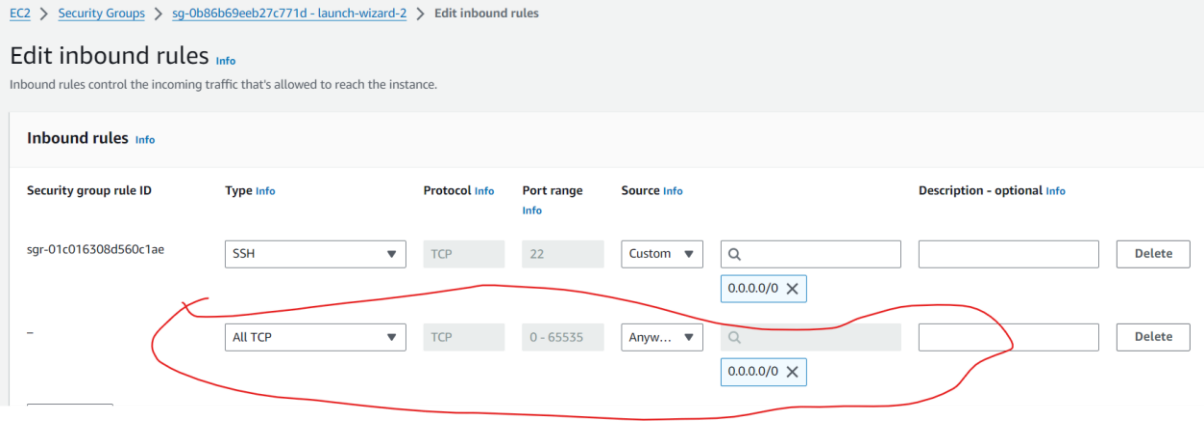
Created Key pairs…



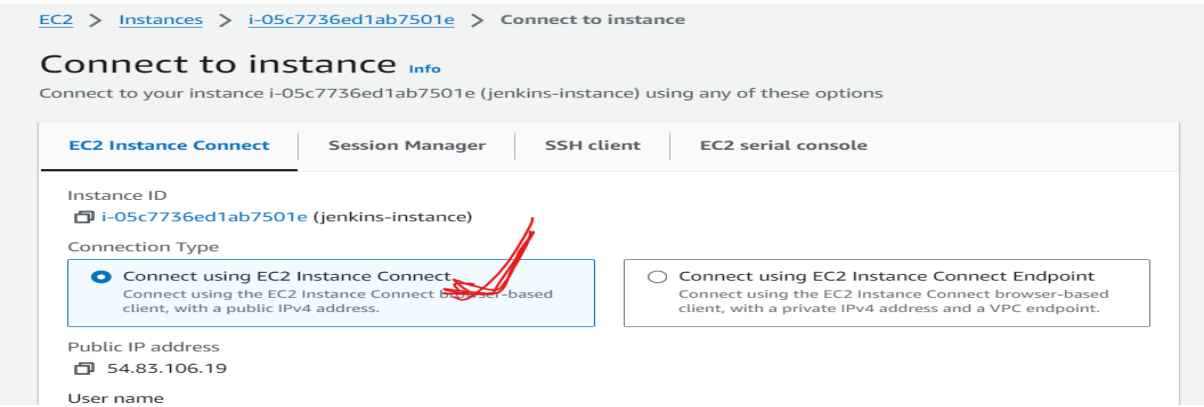
Jenkins Instance created

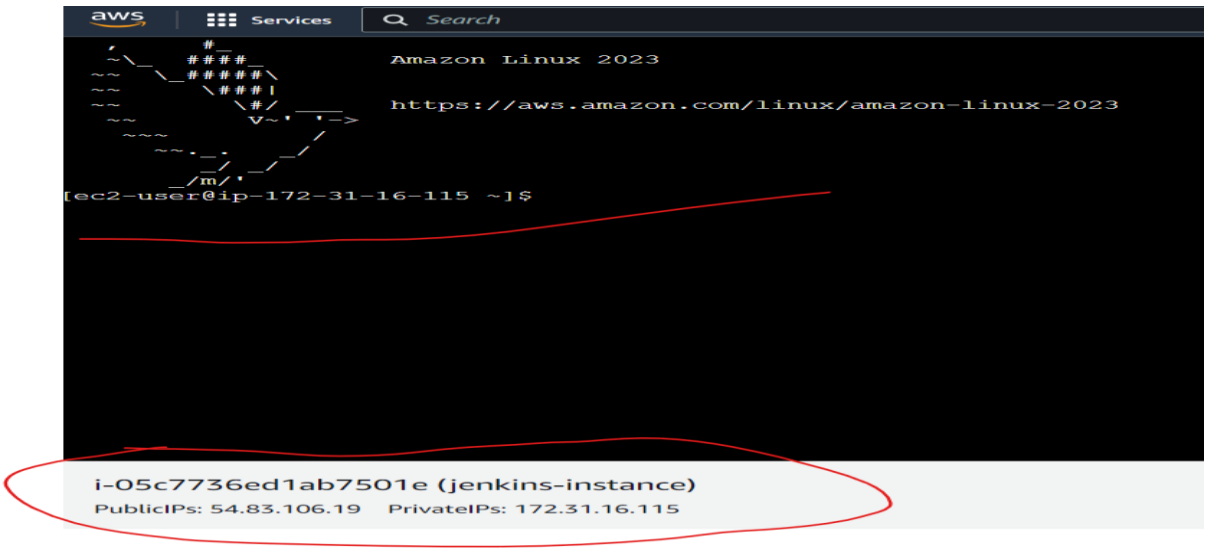


Added ports range in security group under inbound rules



Launching EC2 instance browser-based





>> Install required software in EC2.

Installing git

sudo yum -y update

sudo yum install git –y

```
Installed:
  git-2.40.1-1.amzn2023.0.1.x86_64
  perl-Error-1:0.17029-5.amzn2023.0.2.noarch
  perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64

Complete!
[ec2-user@ip-172-31-16-115 ~]$ git --version
git version 2.40.1
[ec2-user@ip-172-31-16-115 ~]$
```

>> pushing the remote repository URL into EC2 instance

```
[ec2-user@ip-172-31-16-115 ~]$ git clone https://github.com/aravindubodadasari/devops_project.git
Cloning into 'devops_project'...
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 4 (delta 0), reused 4 (delta 0), pack-reused 0
Receiving objects: 100% (4/4), done.
[ec2-user@ip-172-31-16-115 ~]$ ls
devops_project
[ec2-user@ip-172-31-16-115 ~]$ cd devops_project
[ec2-user@ip-172-31-16-115 devops_project]$ ls
Dockerfile  Index.html
```

>> Running and building of Docker image

Installing Docker software

sudo yum install docker

sudo service docker start

sudo docker info

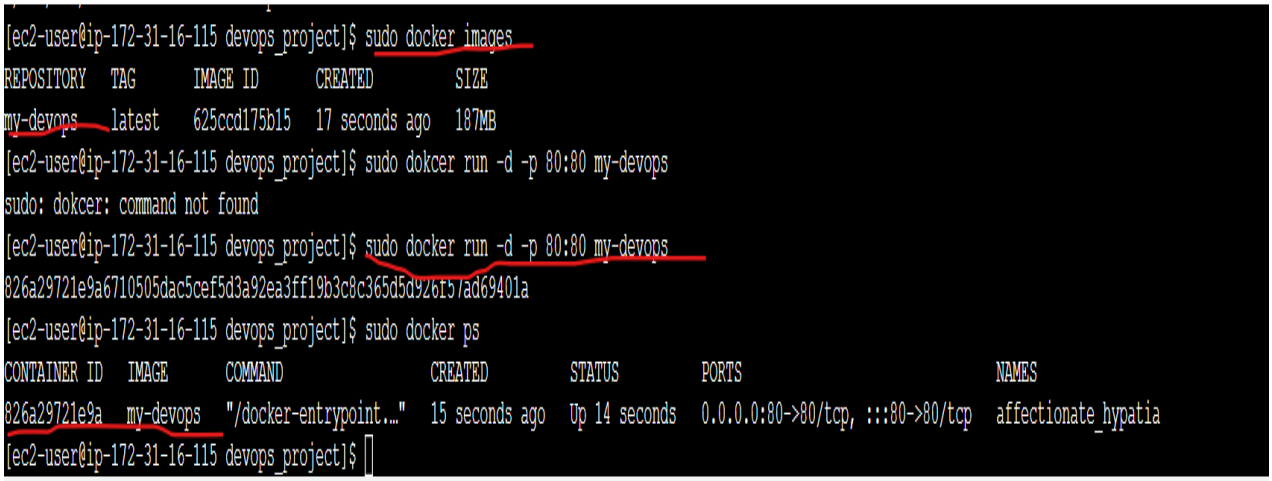
```
Installed:
  containerd-1.7.2-1.amzn2023.0.4.x86_64                docker-24.0.5-1.
  iptables-nft-1.8.8-3.amzn2023.0.2.x86_64              libcgroup-3.0-1.
  libnfnetlink-1.0.1-19.amzn2023.0.2.x86_64             libnftnl-1.2.2-2
  runc-1.1.7-1.amzn2023.0.3.x86_64

Complete!
[ec2-user@ip-172-31-16-115 devops_project]$ sudo service docker start
Redirecting to /bin/systemctl start docker.service
[ec2-user@ip-172-31-16-115 devops_project]$ sudo docker info
Client:
 Version:    24.0.5
 Context:    default
 Debug Mode: false
 Plugins:
  buildx: Docker Buildx (Docker Inc.)
    Version:  v0.0.0+unknown
    Path:     /usr/libexec/docker/cli-plugins/docker-buildx

Server:
 Containers: 0
  Running: 0
```

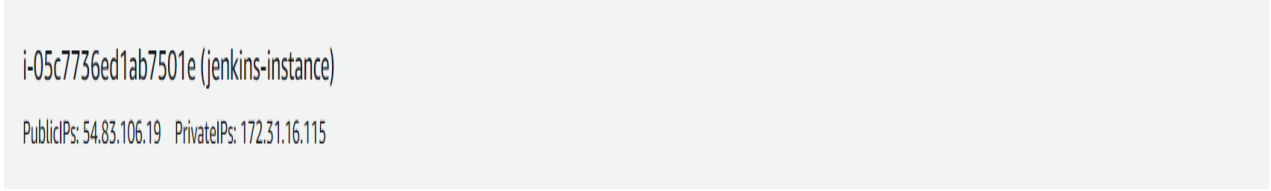
Building docker image

sudo docker build -t my-devops . -f Dockerfile

Running the image in order to run the application container

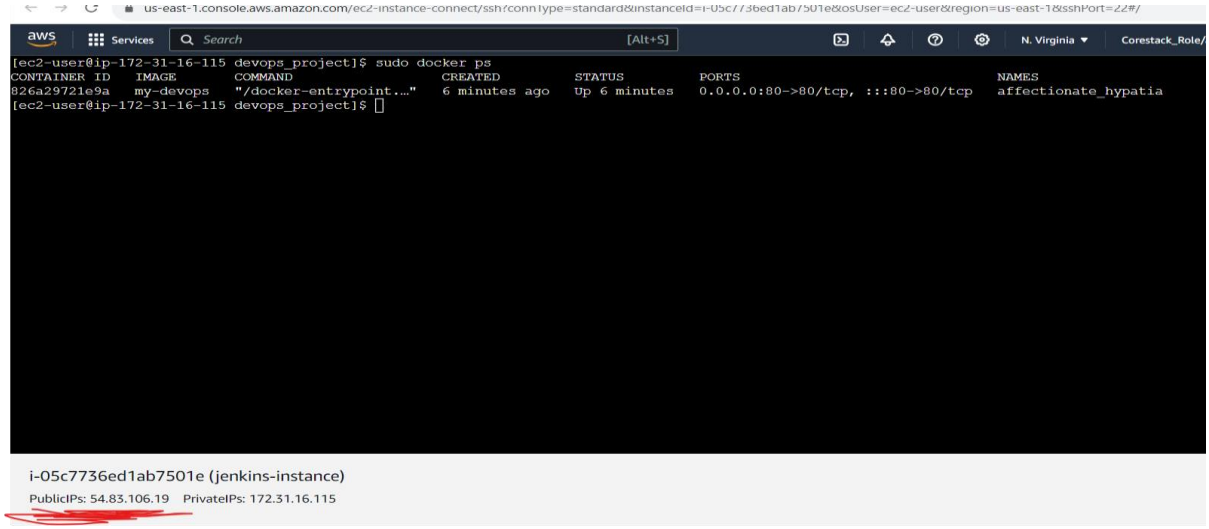
sudo docker run –d –p 80:80 my-devops



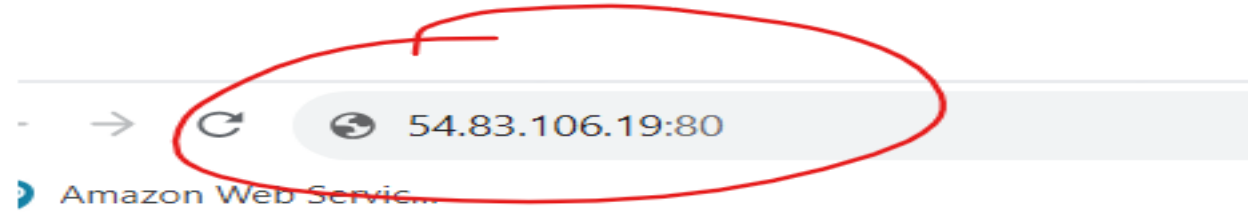


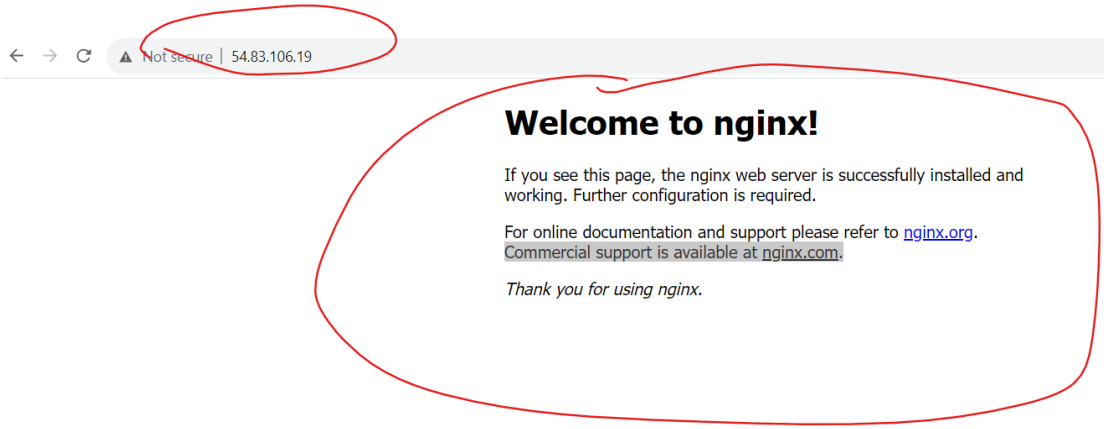
Checking the Application container

sudo docker ps



>> **Now checking application is whether running or not on web page from EC2 instance public IP address though 80 port number ..**





Got successfully launched ngnix server .....

>> Running docker container using Jenkins

Installing java 11 on EC2 instance because Jenkins internal logic is written on Java technologies..

sudo yum install java-11

```
Complete!
[ec2-user@ip-172-31-16-115 ~]$ java --version
openjdk 11.0.21 2023-10-17 LTS
OpenJDK Runtime Environment Corretto-11.0.21.9.1 (build 11.0.21+9-LTS)
OpenJDK 64-Bit Server VM Corretto-11.0.21.9.1 (build 11.0.21+9-LTS, mixed mode)
[ec2-user@ip-172-31-16-115 ~]$
```

i-05c7736ed1ab7501e (jenkins-instance)

PublicIPs: 54.83.106.19 PrivateIPs: 172.31.16.115

download the latest Jenkins package

sudo wget -O /etc/yum.repos.d/jenkins.repo https://pkg.jenkins.io/redhat/jenkins.repo

sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key

sudo yum install Jenkins

```
Installed:
  jenkins-2.426.1-1.1.noarch

Complete!
[ec2-user@ip-172-31-16-115 ~]$ sudo service jenkins start
Redirecting to /bin/systemctl start jenkins.service


[ec2-user@ip-172-31-16-115 ~]$
```

```
[ec2-user@ip-172-31-16-115 ~]$ sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/usr/lib/systemd/system/jenkins.service; disabled; preset: disabled)
     Active: active (running) since Fri 2023-11-24 12:51:08 UTC; 32min ago
   Main PID: 31032 (java)
      Tasks: 39 (limit: 1114)
     Memory: 376.0M
        CPU: 48.607s
     CGroup: /system.slice/jenkins.service
             └─31032 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/va
```

Downloading Java Jenkins war file

wget https://get.jenkins.io/war-stable/2.414.3/jenkins.war

java –jar Jenkins.war –-httpPort=9090

```
[ec2-user@ip-172-31-16-115 ~]$ wget https://get.jenkins.io/war-stable/2.414.3/jenkins.war
--2023-11-24 13:36:09--  https://get.jenkins.io/war-stable/2.414.3/jenkins.war
Resolving get.jenkins.io (get.jenkins.io)... 20.7.178.24, 2603:1030:408:5::15a
Connecting to get.jenkins.io (get.jenkins.io)|20.7.178.24|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://ftp-nyc.osuosl.org/pub/jenkins/war-stable/2.414.3/jenkins.war [following]
--2023-11-24 13:36:09--  https://ftp-nyc.osuosl.org/pub/jenkins/war-stable/2.414.3/jenkins.war
Resolving ftp-nyc.osuosl.org (ftp-nyc.osuosl.org)... 64.50.233.100, 2600:3404:200:237::2
Connecting to ftp-nyc.osuosl.org (ftp-nyc.osuosl.org)|64.50.233.100|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 89542047 (85M) [application/x-java-archive]
Saving to: 'jenkins.war'

jenkins.war                                 100%[=============================================

2023-11-24 13:36:10 (93.3 MB/s) - 'jenkins.war' saved [89542047/89542047]

[ec2-user@ip-172-31-16-115 ~]$ ls
devops_project  jenkins.war
[ec2-user@ip-172-31-16-115 ~]$
```

```
devops_project  jenkins.war
[ec2-user@ip-172-31-16-115 ~]$ java -jar jenkins.war
Running from: /home/ec2-user/jenkins.war
webroot: /home/ec2-user/.jenkins/war
2023-11-24 13:38:31.274+0000 [id=1]     INFO    winstone.Logger#logInternal: Beginning extraction from war file
2023-11-24 13:38:33.051+0000 [id=1]     WARNING o.e.j.s.handler.ContextHandler#setContextPath: Empty contextPath
```

Providing user permissions

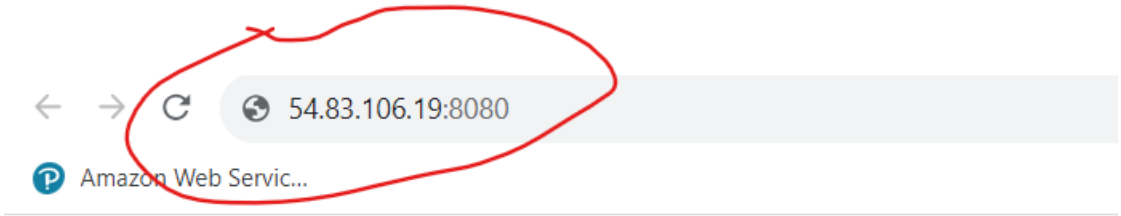
sudo usermod -a -G docker Jenkins

sudo usermod -a -G docker ec2-user

sudo chmod 777 /var/run/docker.sock

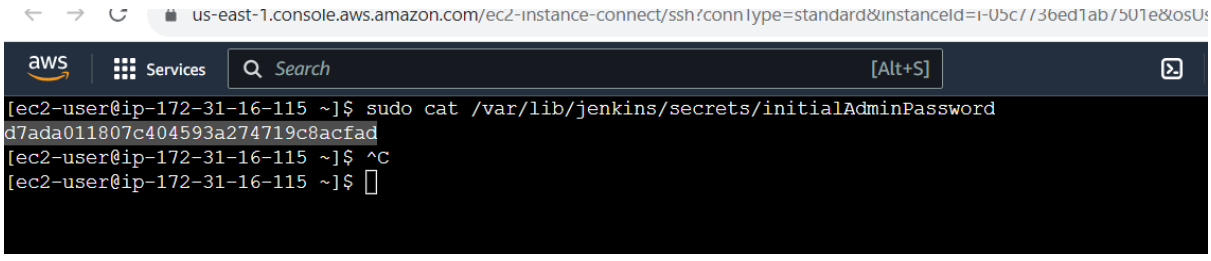
```
[ec2-user@ip-172-31-16-115 devops_project]$ sudo usermod -a -G docker jenkins
[ec2-user@ip-172-31-16-115 devops_project]$ sudo usermod -a -G docker ec2-user
[ec2-user@ip-172-31-16-115 devops_project]$ sudo chmod 777 /var/run/docker.sock
[ec2-user@ip-172-31-16-115 devops_project]$ sudo service jenkins restart
Redirecting to /bin/systemctl restart jenkins.service
[ec2-user@ip-172-31-16-115 devops_project]$
```

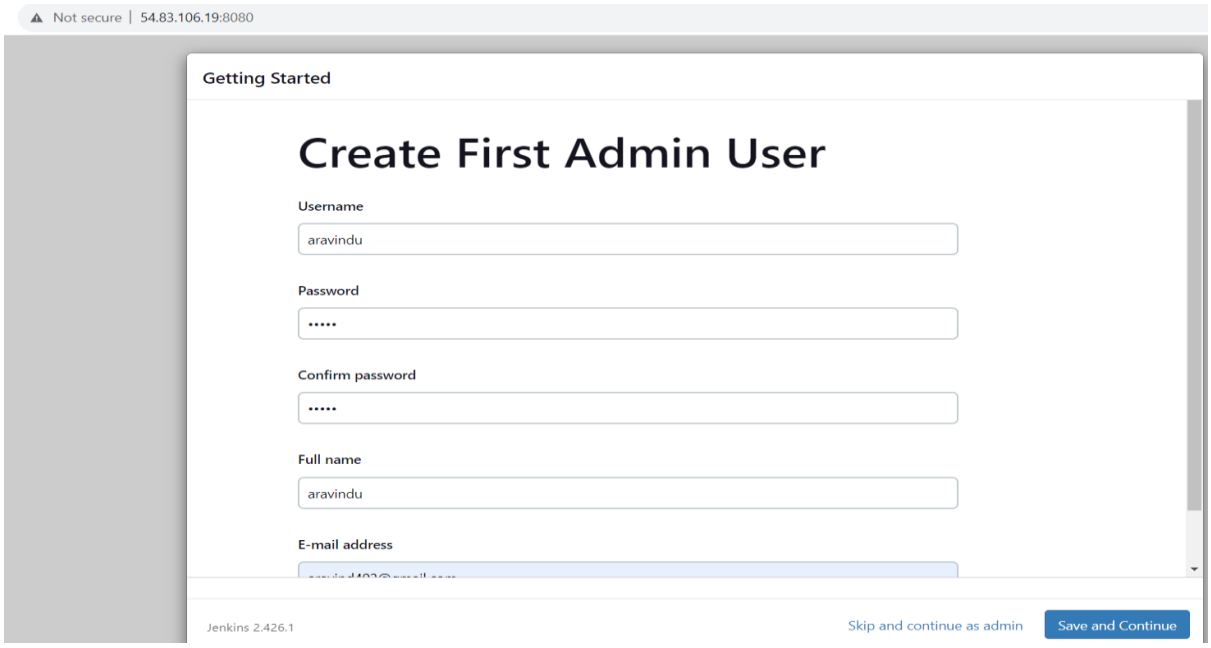
>> **Connecting Jenkins server by EC2 instance ip address with Jenkins default port number 8080**

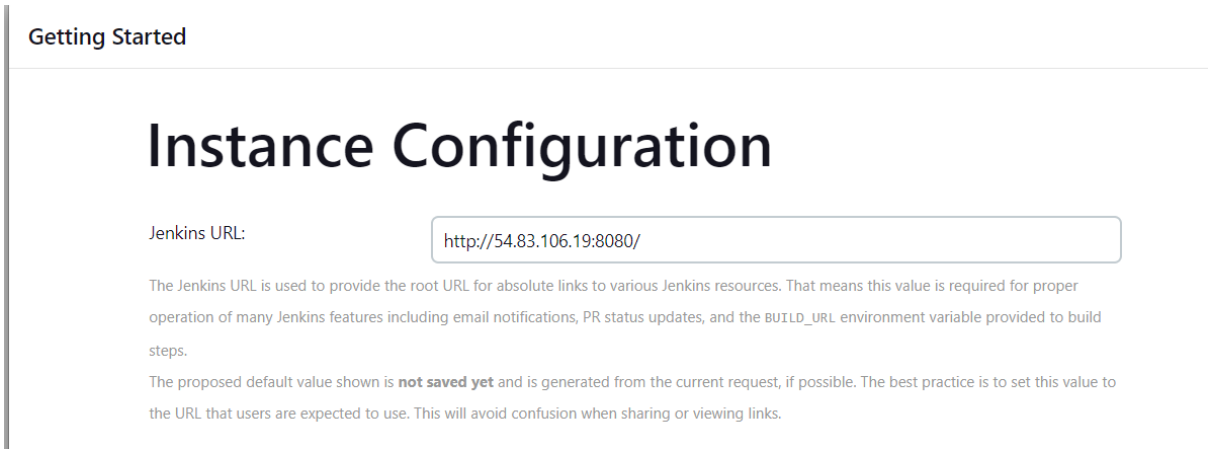


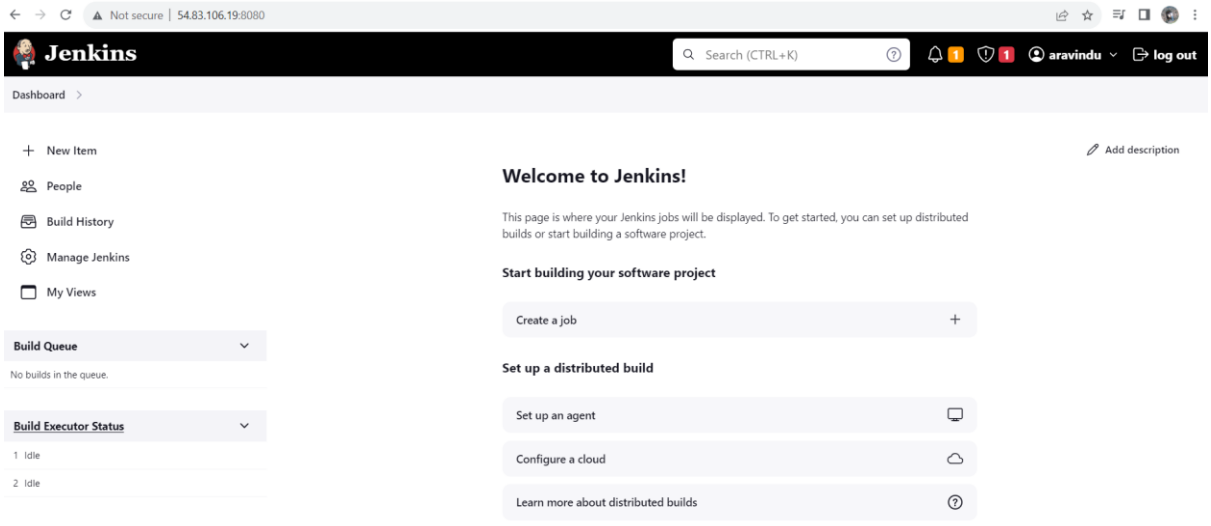
Getting password from below path

sudo cat /var/lib/jenkins/secrets/initialAdminPassword

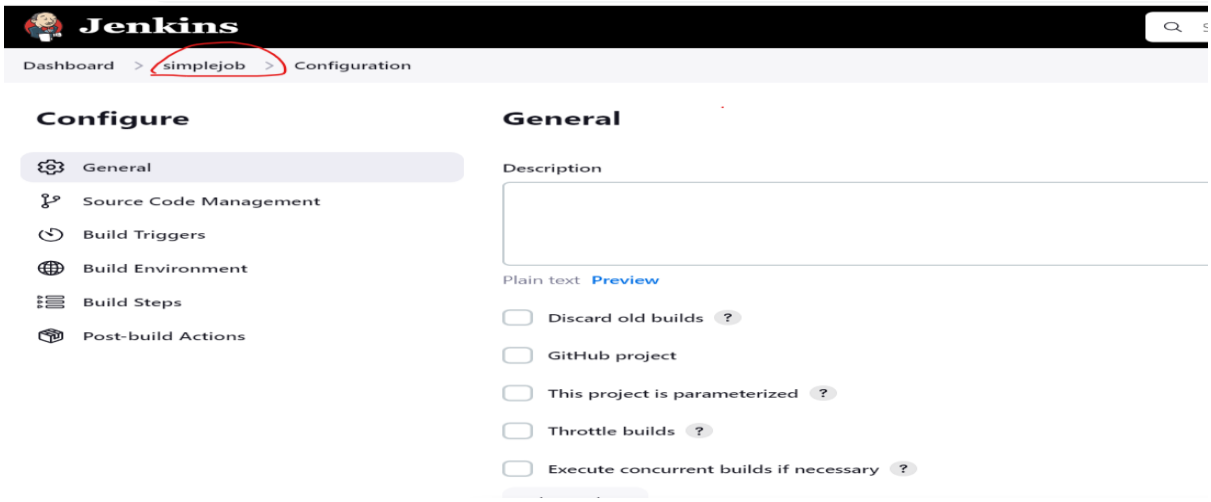



Not secure | 54.83.106.19:8080
Getting Started
Create First Admin User
Username
aravindu
Password
Confirm password
Full name
aravindu
E-mail address
Jenkins 2.426.1
Skip and continue as admin
Save and Continue

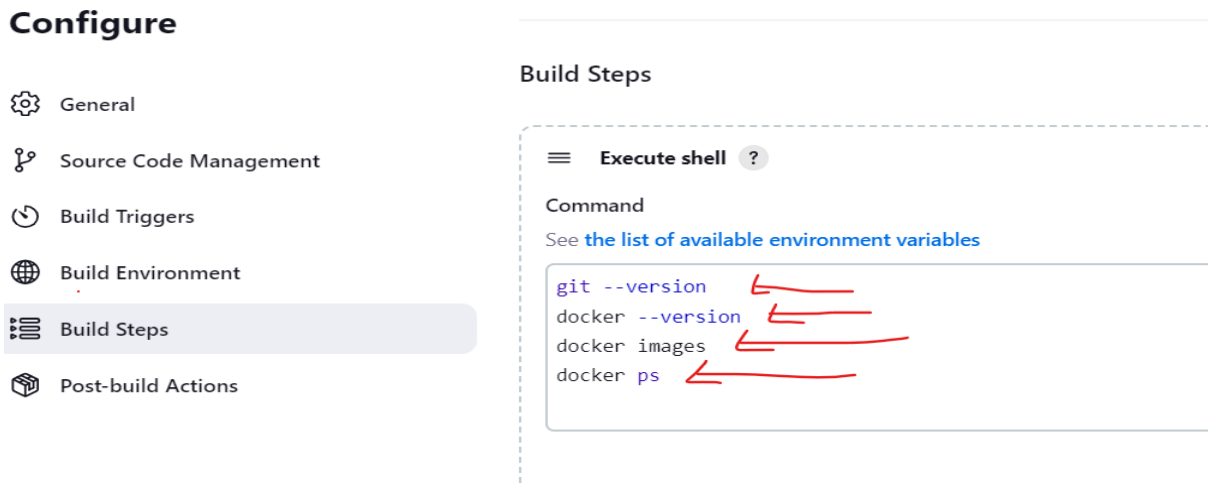

Getting Started
Instance Configuration
Jenkins URL:
http://54.83.106.19:8080/
The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.
The proposed default value shown is not saved yet and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

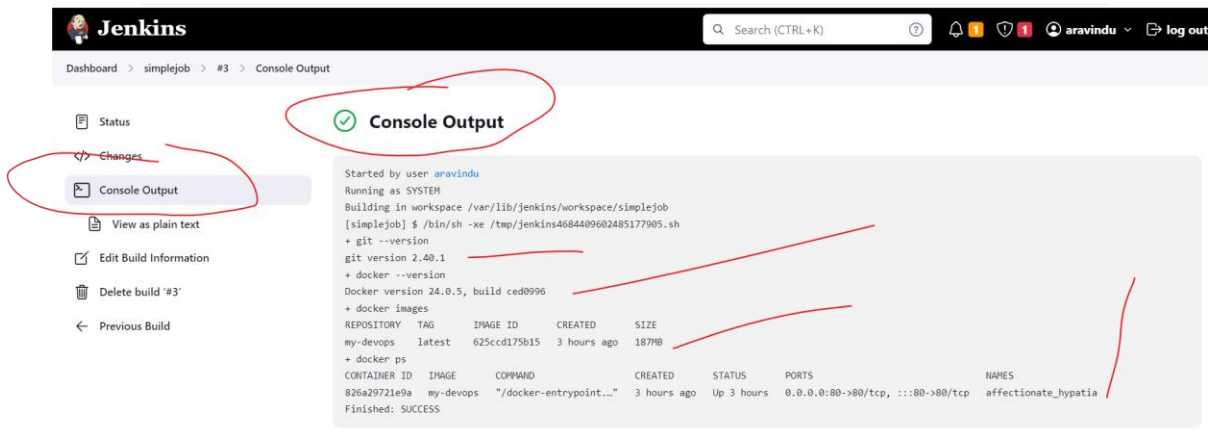

Not secure | 54.83.106.19:8080
Jenkins
Search (CTRL+K)
aravindu
log out
Dashboard
New Item
People
Build History
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status
1 Idle
2 Idle
Add description
Welcome to Jenkins!
This page is where your Jenkins jobs will be displayed. To 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

Build a Docker Jenkins Pipeline to Implement CI/CD Workflow



Building on execute shell





Job is gets successfully completed….