

Deployment of Online Food Ordering and Delivery Application |

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DATE OF SUBMISSION:16-12-2025

Project Overview

Zomato is a leading online food delivery and restaurant discovery platform. To handle increasing user demand and improve deployment efficiency, the company is transitioning from a monolithic architecture to a microservices-based architecture using DevOps practices. The goal is to implement a CI/CD pipeline, containerized deployments, and real-time monitoring to ensure high availability, faster releases, and automated scalability. AWS will be used as the primary cloud provider for hosting and deployment.

Github: <https://github.com/rishad3855/FoodAppZomato.git>

End-to-End CI/CD Pipeline Implementation:

Step1:Basic Setup ,Tools Installation:

1.1.Launch 1 VM

The screenshot shows the AWS Management Console with the EC2 Instances page open. A single instance named "Zomato-server" is listed, showing its details including Public IPv4 address (13.233.94.130) and Private IPv4 address (172.31.43.71).

1.2.Tools Installation

Install AWS CLI

The screenshot shows the AWS Management Console with a terminal window open. The user runs the following commands to install the AWS CLI:

```
root@ip-172-31-43-71:/home/ubuntu# sudo apt install unzip -y
curl "https://awscli.amazonaws.com/awscli-exe-linux-x86_64.zip" -o "awscliv2.zip"
unzip awscliv2.zip
sudo ./aws/install
```

The output shows the AWS CLI being installed.

The screenshot shows the AWS Management Console with a terminal window open. The user runs the following commands to install the AWS CLI:

```
root@ip-172-31-43-71:/home/ubuntu# curl https://awscli.amazonaws.com/awscli-exe-linux-x86_64.zip -o awscliv2.zip
root@ip-172-31-43-71:/home/ubuntu# unzip awscliv2.zip
root@ip-172-31-43-71:/home/ubuntu# sudo ./aws/install
```

The output shows the AWS CLI being installed.

Install Jenkins on Ubuntu

The screenshot shows a CloudShell session on an Amazon Linux 2 instance. The terminal window displays the following commands and their output:

```

root@ip-172-31-43-71:/home/ubuntu# sudo apt update -y
wget -O - https://packages.adoptium.net/artifactory/api/gpg/key/public | sudo tee /etc/apt/keyrings/adoptium.asc
echo "deb [signed-by=/etc/apt/keyrings/adoptium.asc] https://packages.adoptium.net/artifactory/deb $(awk -F= '/^VERSION_CODENAME/{print$2}' /etc/os-release) main" | sudo tee /etc/apt/sources.list.d/adoptium.list
sudo apt update -y
sudo apt install temurin-17-jdk -y
/usr/bin/java --version
curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc > /dev/null
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debian-stable binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update -y
sudo apt-get install jenkins -y
sudo systemctl start jenkins
sudo systemctl status jenkins

```

Logs from the Jenkins service show it starting up and becoming available:

```

Dec 03 06:41:18 ip-172-31-43-71 jenkins[3956]: 2025-12-03 06:41:18.452+0000 [id=33]      INFO    Jenkins.BootstrapReactor$InitialRunnables$1@main: Completed initialization
Dec 03 06:41:18 ip-172-31-43-71 jenkins[3956]: 2025-12-03 06:41:18.475+0000 [id=23]      INFO    hudson.lifecycle.Lifecycle#onReady: Jenkins is fully up and running
Dec 03 06:41:18 ip-172-31-43-71 systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
Dec 03 06:41:20 ip-172-31-43-71 jenkins[3956]: 2025-12-03 06:41:20.072+0000 [id=49]      INFO    h.m.DownloadService$Downloadable$load: Obtained the updated data file for hudson.td
Dec 03 06:41:20 ip-172-31-43-71 jenkins[3956]: 2025-12-03 06:41:20.072+0000 [id=49]      INFO    hudson.util.Retrier#start: Performed the action check updates server successfully >
lines 1-29/20 (END)
[1]+  Stopped                  sudo systemctl status jenkins
root@ip-172-31-43-71:/home/ubuntu# jenkins --version
2.528...
root@ip-172-31-43-71:/home/ubuntu# cat /var/lib/jenkins/secrets/initialAdminPassword
4730afa3fc94436fa7b836c6b271bb2
root@ip-172-31-43-71:/home/ubuntu#

```

The CloudShell interface includes tabs for CloudShell, Feedback, and Console Mobile App, along with a toolbar of icons.

Open Port No. 8080 for VM and access Jenkins

The screenshot shows a browser window displaying the Jenkins 'Getting Started' page. The URL is <http://13.233.94.130:8080/login?from=%2F>. The page content is:

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

(A red box highlights the password input field.)

Continue

The browser interface includes tabs for Launch an instance, Instance details, EC2 Instance Connect, FoodAppZomato/DevOps Project, Sign in - Jenkins, and a search bar. The bottom of the screen shows a taskbar with various application icons.

Install Docker on Ubuntu

The screenshot shows a terminal session in AWS CloudShell. The user is root on an Ubuntu EC2 instance. They run several commands to update the system, install Docker, and configure it. After installation, they check for services and containers, both of which are listed as 'No services need to be restarted.' and 'No containers need to be restarted.' respectively. The terminal ends with the Docker version command.

```

root@ip-172-31-43-71:/home/ubuntu# sudo apt-get update
sudo apt-get install ca-certificates curl
sudo install -m 0755 -d /etc/apt/keyrings
sudo curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor | sudo tee /etc/apt/keyrings/docker.asc
sudo chmod a+r /etc/apt/keyrings/docker.asc
# Add the repository to Apt sources:
echo \
"deb [arch=$dpkg --print-architecture] signed-by=/etc/apt/keyrings/docker.asc] https://download.docker.com/linux/ubuntu \
$(. /etc/os-release && echo "$VERSION_CODENAME") stable" | \
sudo tee /etc/apt/sources.list.d/docker.list >/dev/null
sudo apt-get update
sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin -y
sudo usermod -aG docker ubuntu
sudo chmod 777 /var/run/docker.sock
newgrp docker
sudo systemctl status docker

No services need to be restarted.
No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-43-71:/home/ubuntu# docker --version
Docker version 29.1.2, build 890dcca
root@ip-172-31-43-71:/home/ubuntu#

```

CloudShell interface elements are visible at the bottom, including tabs for CloudShell, Feedback, and Console Mobile App, along with a toolbar of common application icons.

Install Trivy on Ubuntu

The screenshot shows a terminal session in AWS CloudShell. The user is root on an Ubuntu EC2 instance. They use wget to download the Trivy GPG key and add it to the apt keyring. Then, they update the package list and install the Trivy package. After installation, they check for services and containers, both of which are listed as 'No services need to be restarted.' and 'No containers need to be restarted.' respectively. The terminal ends with the Trivy version command.

```

root@ip-172-31-43-71:/home/ubuntu# sudo apt-get install wget apt-transport-https gnupg
wget -qO - https://aquasecurity.github.io/trivy-repo/deb/public.key | gpg --dearmor | sudo tee /usr/share/keyrings/trivy.gpg > /dev/null
echo "deb [signed-by=/usr/share/keyrings/trivy.gpg] https://aquasecurity.github.io/trivy-repo/deb generic main" | sudo tee -a /etc/apt/sources.list.d/trivy.list
sudo apt-get update
sudo apt-get install trivy

No services need to be restarted.
No containers need to be restarted.

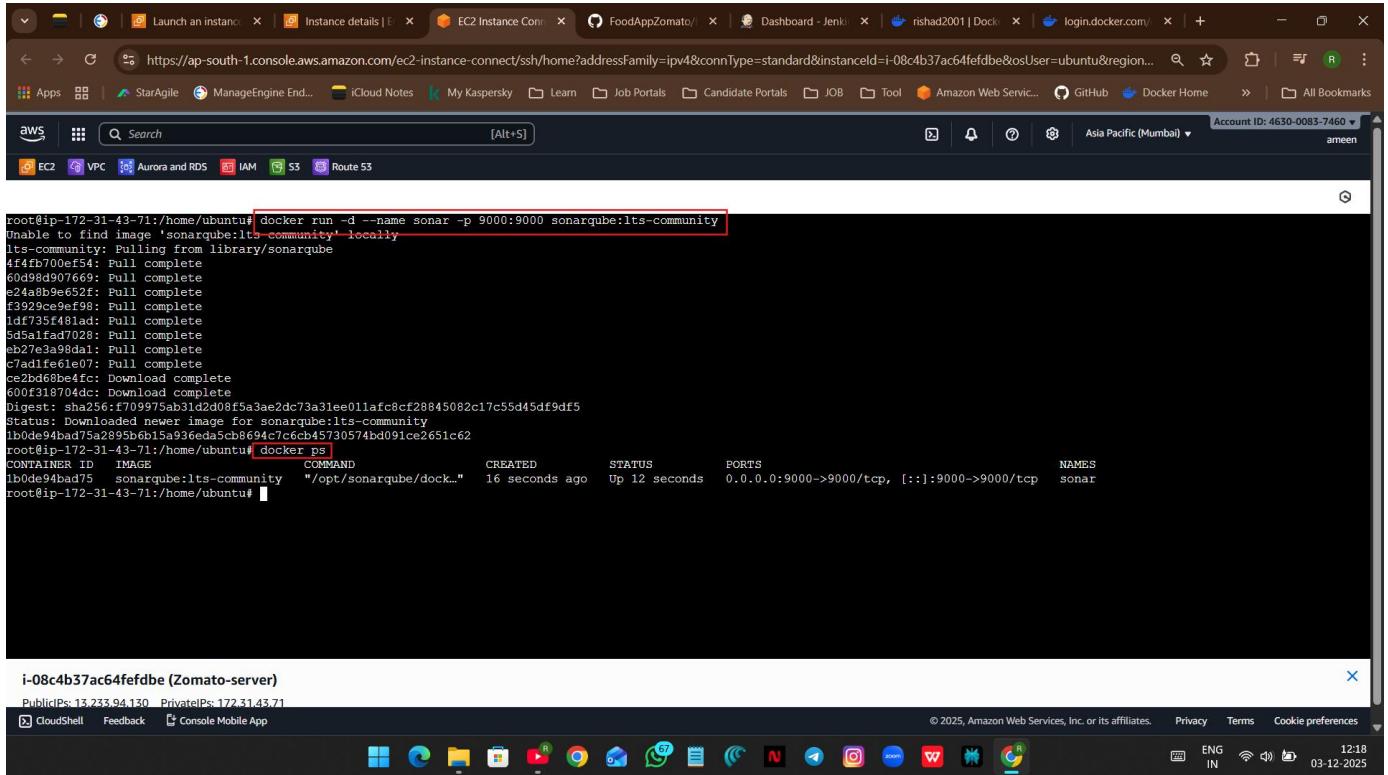
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-43-71:/home/ubuntu# trivy --version
Version: 0.67.2
root@ip-172-31-43-71:/home/ubuntu#

```

CloudShell interface elements are visible at the bottom, including tabs for CloudShell, Feedback, and Console Mobile App, along with a toolbar of common application icons.

Install SonarQube using Docker



```

root@ip-172-31-43-71:/home/ubuntu# docker run -d --name sonar -p 9000:9000 sonarqube:lts-community
Unable to find image 'sonarqube:lts_community' locally
lts-community: Pulling from library/sonarqube
4f4fb700ef54: Pull complete
60d98d907669: Pull complete
e24aab9ee52f: Pull complete
f3929ce9ef98: Pull complete
1df735f481ad: Pull complete
5d5a1fad7028: Pull complete
eb27e3a98da1: Pull complete
c7ad1fe61e07: Pull complete
ce2bd68be4fc: Download complete
600f318704dc: Download complete
Digest: sha256:f709975ab31d2d08f5a3ee02dc73a31ee01laf8cf28845082c17c55d45df9df
Status: Downloaded newer image for sonarqube:lts-community
1bbde94bad75a2895b6b15a936eda5cb8e94c7c6cb45730574bd091ce2651c62
root@ip-172-31-43-71:/home/ubuntu# docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
1bbde94bad75 sonarqube:lts-community "/opt/sonarqube/dock..." 16 seconds ago Up 12 seconds 0.0.0.0:9000->9000/tcp, [::]:9000->9000/tcp sonar
root@ip-172-31-43-71:/home/ubuntu#

```

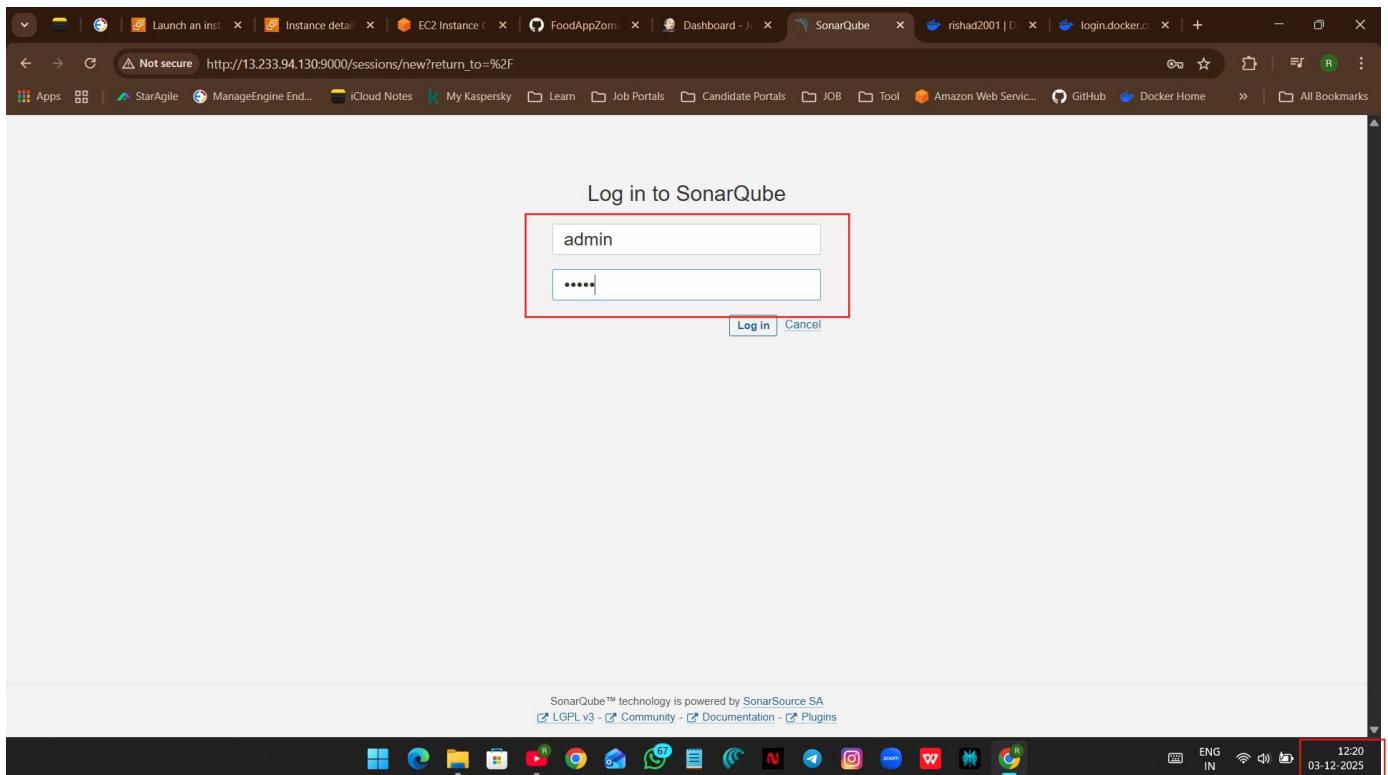
i-08c4b37ac64fefdbe (Zomato-server)

Public IPs: 13.233.94.130 Private IPs: 172.31.43.71

CloudShell Feedback Console Mobile App

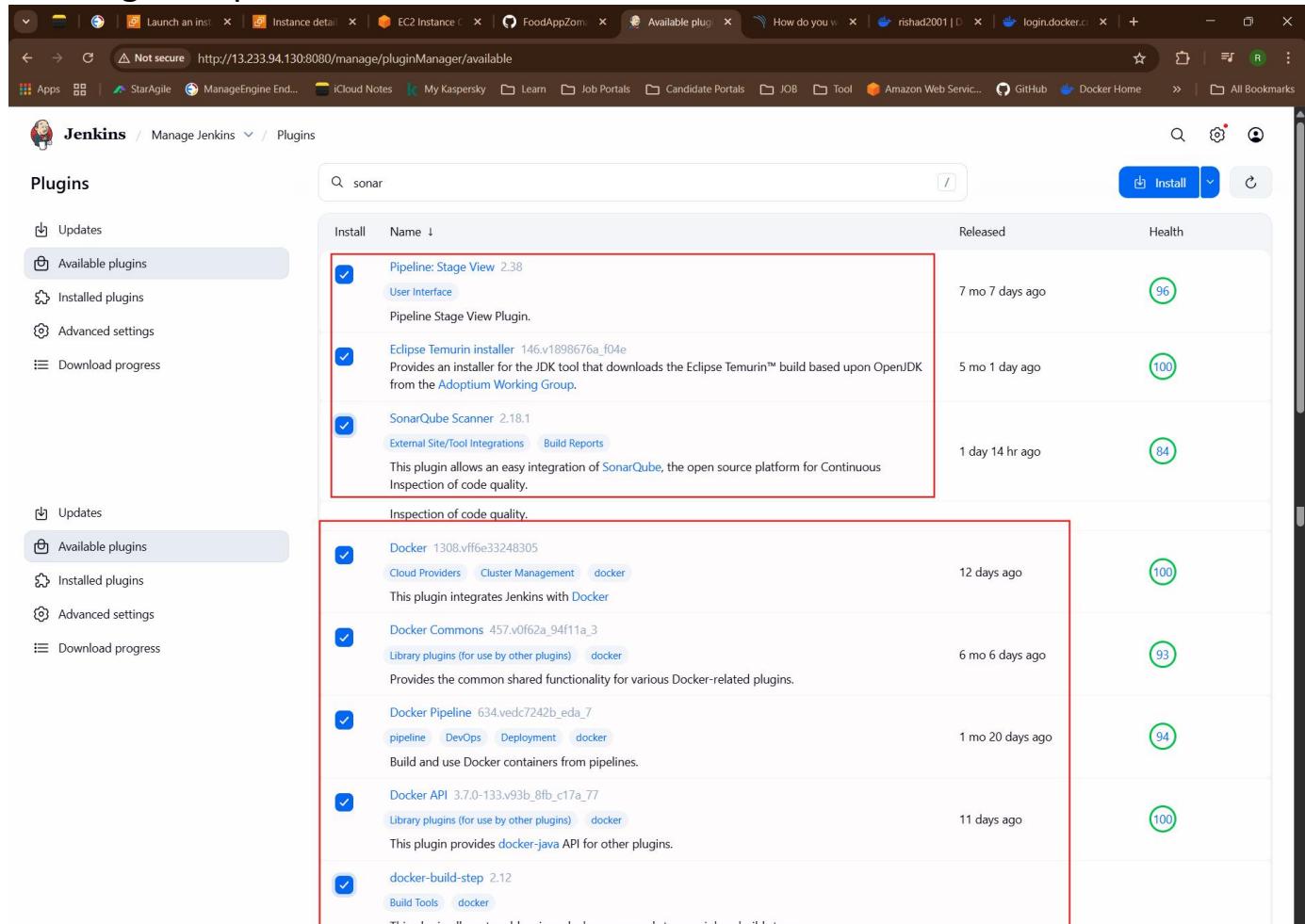
© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences ENG IN 12:18 03-12-2025

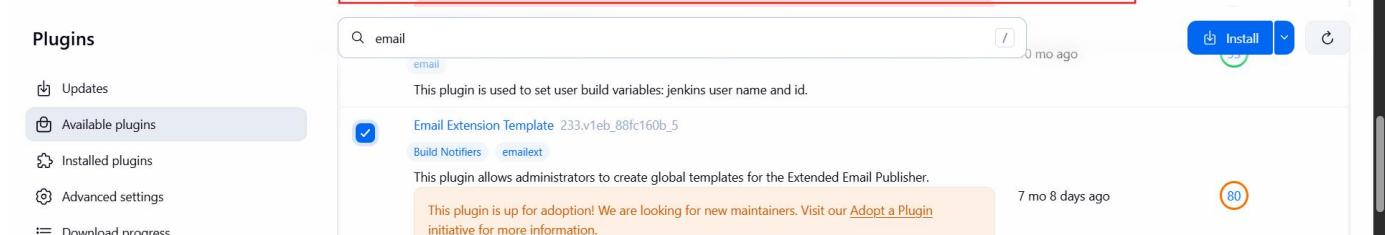
Open Port No. 9000 for VM and access SonarQube

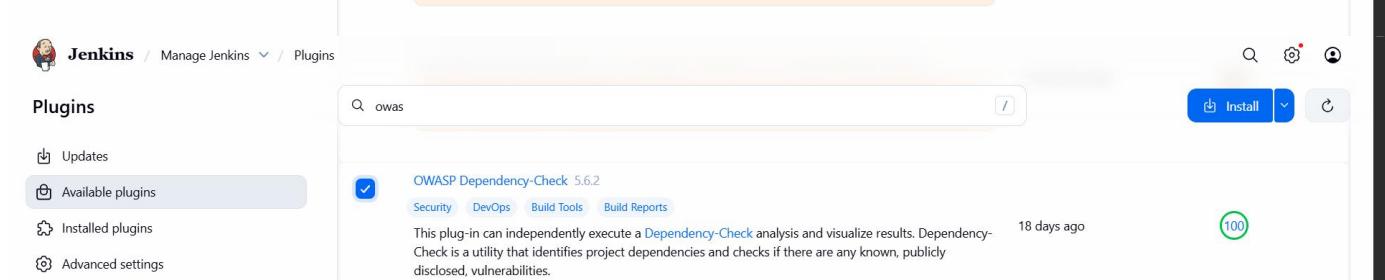


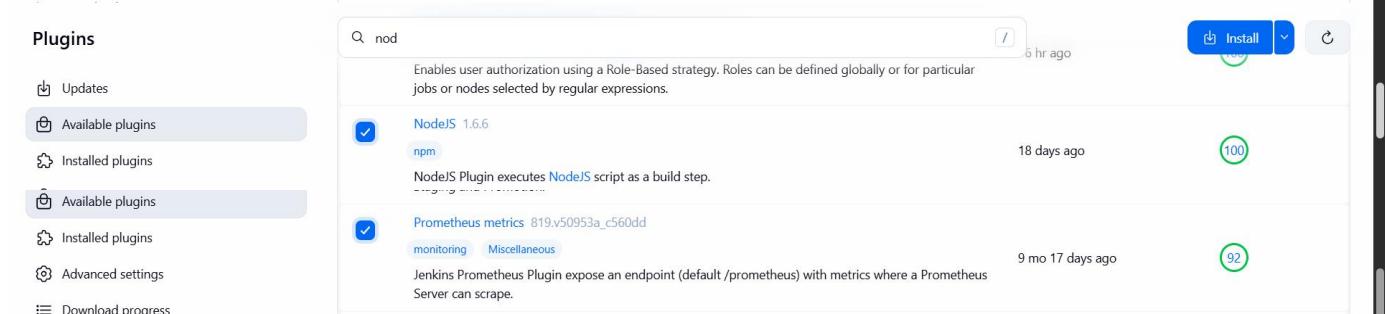
Step2.Jenkins Setup:

2.1.Plugin Requirements:

A screenshot of the Jenkins Plugin Manager interface. The search bar at the top contains "sonar". The left sidebar shows navigation links: Updates, Available plugins (selected), Installed plugins, Advanced settings, and Download progress. The main content area displays a table of available plugins. Three specific rows are highlighted with a red border: "Pipeline: Stage View 2.38", "Eclipse Temurin installer 146.v1898676a_f04e", and "SonarQube Scanner 2.18.1". The SonarQube Scanner row contains detailed information: "This plugin allows an easy integration of SonarQube, the open source platform for Continuous Inspection of code quality." Below this section, another set of highlighted rows includes "Docker 1308.vff6e33248305", "Docker Commons 457.v0f62a_94f11a_3", "Docker Pipeline 634.vedc7242b_eda_7", "Docker API 3.7.0-133.v93b_8fb_c17a_7", and "docker-build-step 2.12".

A screenshot of the Jenkins Plugin Manager interface. The search bar at the top contains "email". The left sidebar shows navigation links: Updates, Available plugins (selected), Installed plugins, Advanced settings, and Download progress. The main content area displays a table of available plugins. One row is highlighted with a red border: "Email Extension Template 233.v1eb_88fc160b_5". A callout box over this row states: "This plugin is up for adoption! We are looking for new maintainers. Visit our Adopt a Plugin initiative for more information." The number 80 is displayed in a circle next to the row.

A screenshot of the Jenkins Plugin Manager interface. The search bar at the top contains "owas". The left sidebar shows navigation links: Updates, Available plugins (selected), Installed plugins, Advanced settings, and Download progress. The main content area displays a table of available plugins. One row is highlighted with a red border: "OWASP Dependency-Check 5.6.2".

A screenshot of the Jenkins Plugin Manager interface. The search bar at the top contains "nod". The left sidebar shows navigation links: Updates, Available plugins (selected), Installed plugins, Advanced settings, and Download progress. The main content area displays a table of available plugins. Two rows are highlighted with a red border: "NodeJS 1.6.6" and "Prometheus metrics 819.v50953a_c560dd".

Jenkins / Manage Jenkins / Plugins

Plugins

Available plugins

Kubernetes 4392.v19cea_fdb_5913

Cloud Providers Cluster Management kubernetes Agent Management

This plugin integrates Jenkins with Kubernetes

ThinBackup 2.1.3

Miscellaneous

Backups the most important global and job specific configuration files.

Jenkins / Manage Jenkins / Plugins

Plugins

Available plugins

AWS Credentials 254.v978a_5e206a_d7

aws

Allows storing Amazon IAM credentials within the Jenkins Credentials API. Store Amazon IAM access keys (AWSAccessKeyId and AWSSecretKey) within the Jenkins Credentials API. Also support IAM Roles and IAM MFA Token.

Amazon Web Services SDK :: EC2 1.12.780-480.v4a_0819121a_9e

Library plugins (for use by other plugins) aws

EC2 module for the AWS SDK for Java.

2.2 Credentials : Sonar-token

Administration

Tokens of Administrator

Generate Tokens

Name	Expires in
Enter Token Name	30 days

New token "token" has been created. Make sure you copy it now, you won't be able to see it again!

Copy squ_2ddef94347b9f06e7fa88ad38b97f0cc079bf449

Name	Type	Project	Last use	Created	Expiration
token	User		Never	December 3, 2025	January 2, 2026

Done

Embedded database should be used for evaluation purposes only
The embedded database will not scale, it will not support upgrading to newer versions of SonarQube, and there is no support for migrating your data out of it into a different database engine.

SonarQube™ technology is powered by SonarSource SA
Community Edition - v9.9.8 (build 100196) NO LONGER ACTIVE - GPL v3 - Documentation - Plugins - Web API

12:31
03-12-2025

The screenshot shows the Jenkins 'New credentials' page for creating a 'Secret text' credential. The fields filled are:

- Kind:** Secret text
- Scope:** Global (Jenkins, nodes, items, all child items, etc)
- Secret:** Sonar-token
- ID:** Sonar-token
- Description:** Sonar-token

A blue 'Create' button is at the bottom left.

At the bottom right, it says REST API Jenkins 2.528.2. The system tray shows ENG IN, 12:44, and 03-12-2025.

Docker:

The screenshot shows the Jenkins 'New credentials' page for creating a 'Username with password' credential. The fields filled are:

- Kind:** Username with password
- Scope:** Global (Jenkins, nodes, items, all child items, etc)
- Username:** rishad2001
- Password:** Sonar-token
- ID:** docker
- Description:** docker

A red box highlights the 'Create' button at the bottom left.

At the bottom right, it says REST API Jenkins 2.528.2. The system tray shows ENG IN, 12:46, and 03-12-2025.

Email:

Google Account

[← App passwords](#)

App passwords help you sign in to your Google Account on older apps and services that don't support modern security standards.

App passwords are less secure than using up-to-date apps and services that use modern security standards. Before you create an app password, you should check to see if your app needs this in order to sign in.

[Learn more](#)

You don't have any app passwords.

To create a new app-specific password, type a name for it below...

App name
jenkins

[Create](#)

Privacy Terms Help About

12:57 03-12-2025

https://myaccount.google.com/u/1/security?rapt=AEjHL4Pi_zrv55W1tlzxnmBMaNp_aK6_roaCUHG3y_18fM2v10f5CDHp17u2SaUE_-WGsdITZwyDOPmrnR9JunrnjP2Dx5WI4acnO-gfjOldX-_-Pbxw...

ENG IN

Google Account

app

Google Account results

Your connections to third-party apps and services

Security

App passwords

Security

Web & App Activity

Data and privacy

Help Centre articles

Sign in with app passwords

Manage app info from your devices

Share some access to your Google Account data with third-party apps

Sign-in step added: Passkey
12:56 · Kerala, India

Review security activity

How you sign in to Google

Make sure that you can always access your Google Account by keeping this information up to date

Privacy Terms Help About

12:57 03-12-2025

New credentials

Kind

Username with password

Scope ? Global (Jenkins, nodes, items, all child items, etc)

Username ? ameen.aws.3855@gmail.com

Treat username as secret ?

Password ?

ID ? email-creds

Description ? email-creds

Create

AWS credentials:

New credentials

Kind

AWS Credentials

Scope ? Global (Jenkins, nodes, items, all child items, etc)

ID ? AWS-CREDS

Description ? AWS-CREDS

Access Key ID ? AKIAWXTIADVKNADF64CO

Secret Access Key

Please specify the Secret Access Key

IAM Role Support

Advanced

Create

2.3 Configure System:

SonarQube server:

The screenshot shows the Jenkins system configuration page for managing SonarQube servers. A SonarQube server named "sonar-server" is being configured. The "Name" field contains "sonar-server". The "Server URL" field has "http://13.233.94.130:9000" entered. The "Server authentication token" field contains "Sonar-token". The "Save" and "Apply" buttons are visible at the bottom.

Configure SMTP

The screenshot shows the Jenkins system configuration page for extended email notifications. An SMTP server named "smtp.gmail.com" is configured with port 465. Under "Credentials", "ameen.aws.3855@gmail.com/***** (email-creds)" is listed. Under "Advanced Email Properties", "Use SSL" and "Use OAuth 2.0" are checked. The "Save" and "Apply" buttons are visible at the bottom.

E-mail Notification

SMTP server: smtp.gmail.com

Default user e-mail suffix:

Advanced ▾ Edited

Use SMTP Authentication ?
User Name: ameen.aws.3855@gmail.com
Password: REDACTED

Use SSL ?
 Use TLS

SMTP Port ?
465

Reply-To Address: ameen.aws.3855@gmail.com

Charset: UTF-8

Test configuration by sending test e-mail
Test e-mail recipient: ameen.aws.3855@gmail.com

Email was successfully sent

Test configuration

Save Apply

Manage Jenkins ▾ System ▾

Allow sending to unregistered users:

Default Triggers ▾

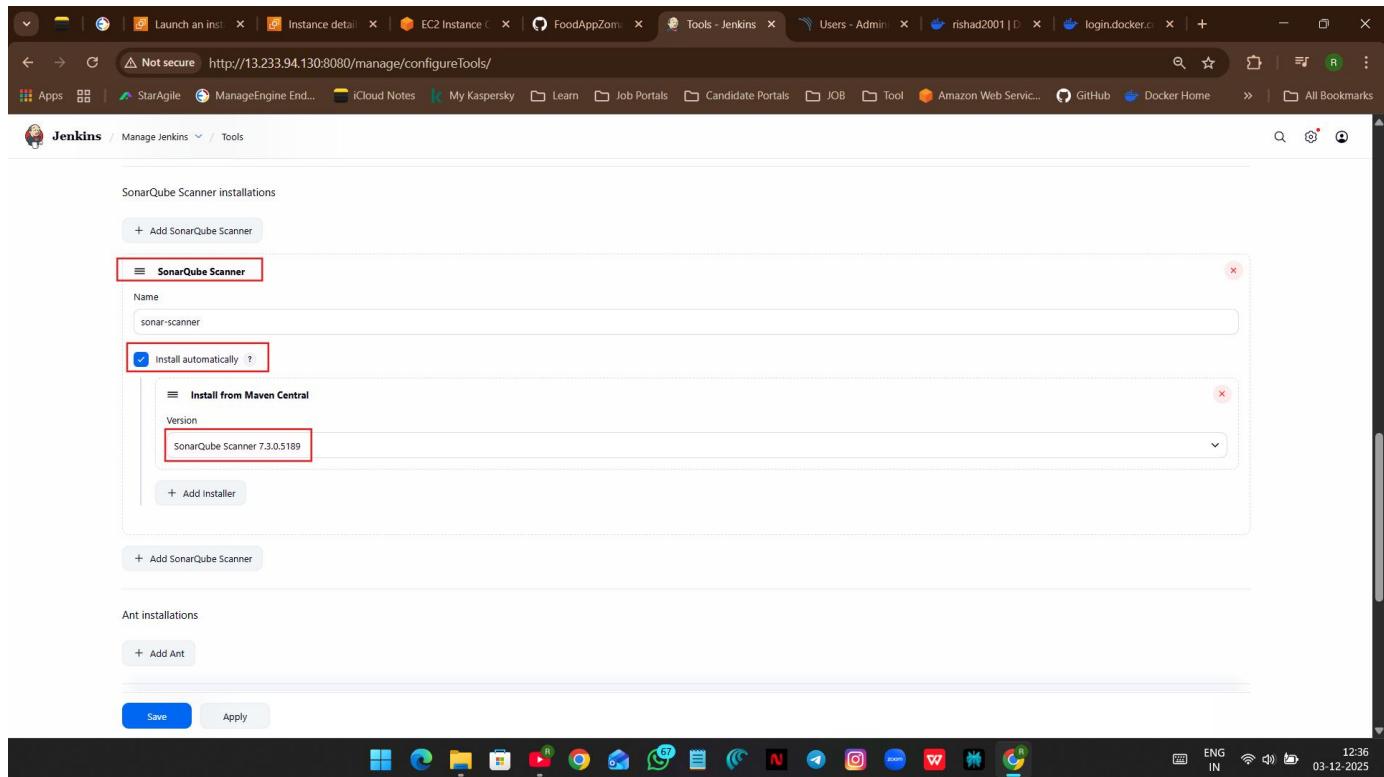
Aborted
 Always
 Before Build
 Failure - 1st
 Failure - 2nd
 Failure - Any
 Failure - Still
 Failure - X
 Failure -> Unstable (Test Failures)
 Fixed
 Not Built
 Script - After Build
 Script - Before Build
 Status Changed
 Success
 Test Improvement
 Test Regression
 Unstable (Test Failures)
 Unstable (Test Failures) - 1st
 Unstable (Test Failures) - Still
 Unstable (Test Failures)/Failure -> Success

Content Token Reference ?

Save Apply

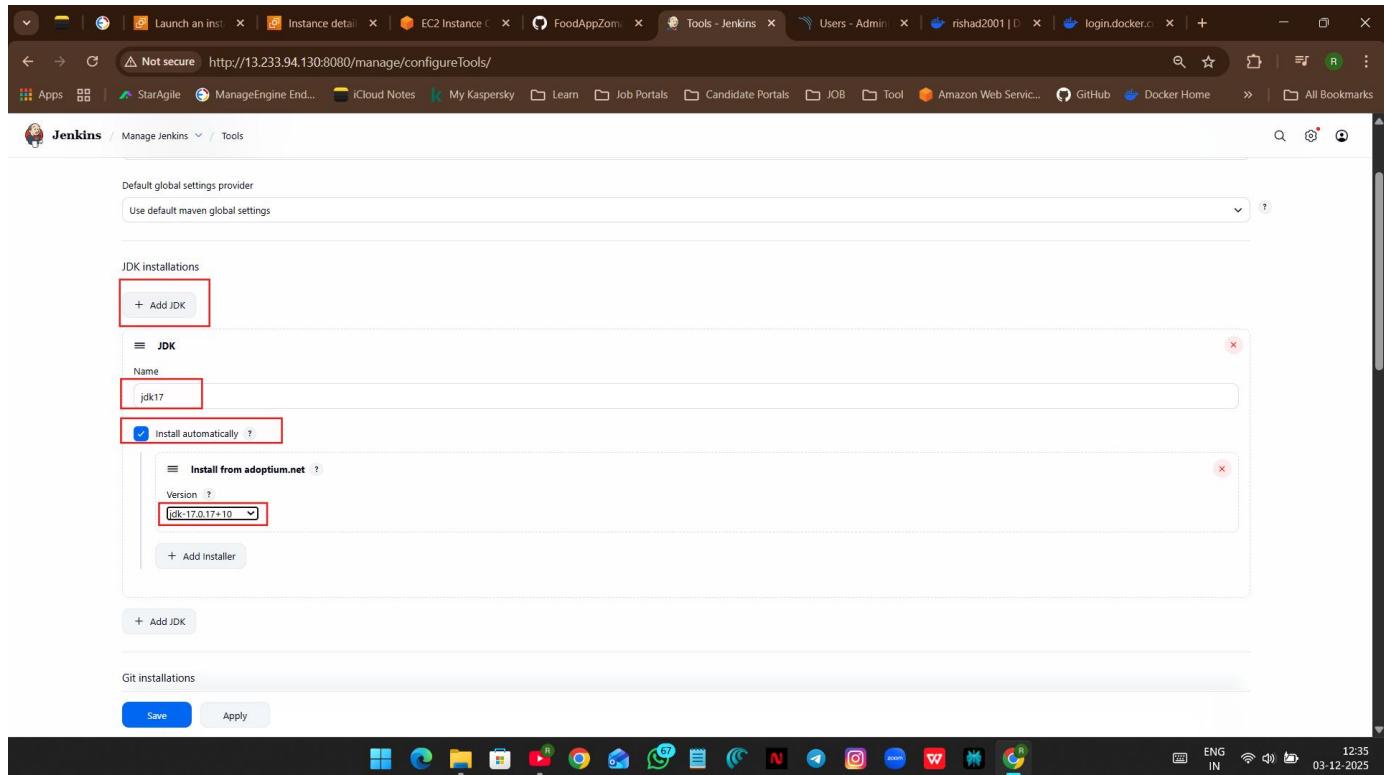
2.4 Configure JDK, NodeJS, OWASP,SonnarQube:

SonnarQube:



The screenshot shows the Jenkins configuration interface for SonnarQube Scanner installations. A SonnarQube Scanner entry is selected, showing its name as 'sonar-scanner' and the 'install automatically' checkbox checked. The 'Version' dropdown is set to 'SonarQube Scanner 7.3.0.5189'. Below this, there are sections for Ant installations and Git installations, both with their respective configuration buttons. At the bottom, there are 'Save' and 'Apply' buttons.

JDK:



The screenshot shows the Jenkins configuration interface for JDK installations. A new JDK entry is being created with the name 'jdk17' and the 'install automatically' checkbox checked. The 'Version' dropdown is set to 'jdk-17.0.17+10'. Below this, there are sections for Git installations and a general provider configuration for Maven global settings. At the bottom, there are 'Save' and 'Apply' buttons.

NodeJS:

The screenshot shows the Jenkins 'Tools' configuration page. Under the 'NodeJS' section, a new instance named 'node25' is being configured. The 'Install from nodejs.org' section has 'NodeJS 25.2.1' selected. Other settings include 'Global npm packages to install' and 'Global npm packages refresh hours'.

OWASP:

The screenshot shows the Jenkins 'Tools' configuration page. Under the 'Dependency-Check installations' section, a new instance named 'DP-check' is being configured. The 'Install from github.com' section has 'dependency-check 12.1.9' selected. Other sections like 'Docker installations' are also visible.

Docker:

The screenshot shows the Jenkins interface for managing Docker installations. A specific configuration for a Docker instance named 'docker' is displayed. The 'Name' field contains 'docker'. The 'Install automatically?' checkbox is checked. Under 'Download from docker.com', the 'Docker version' dropdown is set to 'latest'. There are buttons for '+ Add Dependency-Check', '+ Add Docker', '+ Add Installer', and '+ Add Docker'. At the bottom are 'Save' and 'Apply' buttons.

2.5 SonarQube UI:

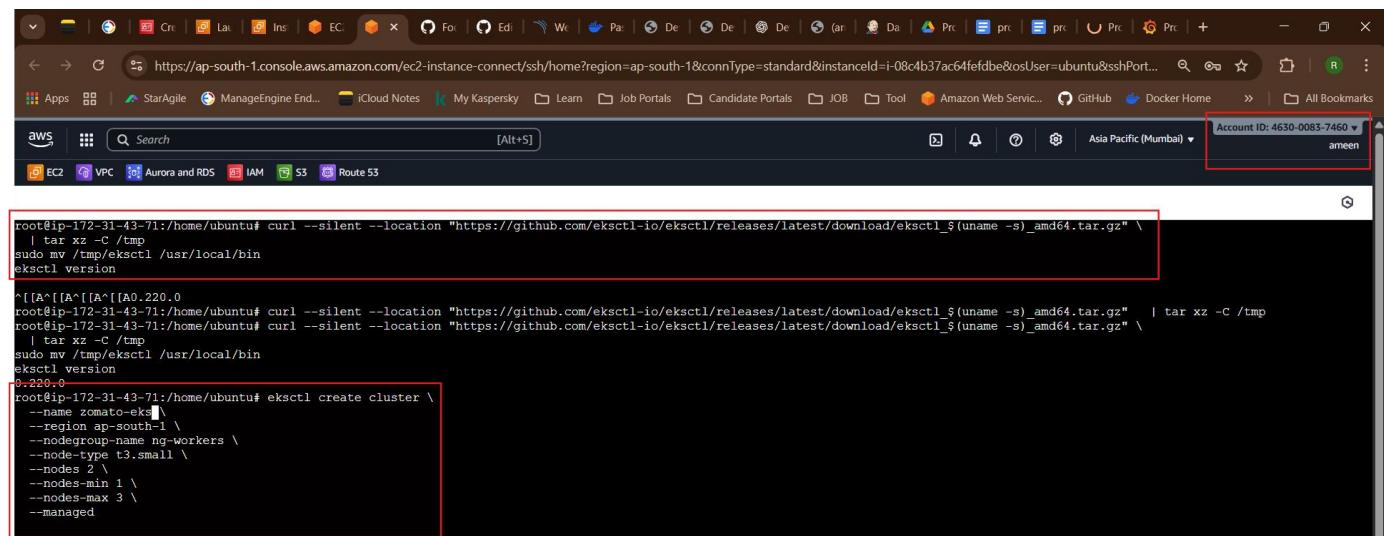
The screenshot shows the SonarQube Administration interface under the 'Webhooks' section. A 'Create Webhook' dialog is open. It has fields for 'Name' (set to 'jenkins') and 'URL' (set to 'http://13.233.94.130:8080/sonarqube-webhook/'). The 'Secret' field is empty. At the bottom are 'Create' and 'Cancel' buttons. A note at the bottom of the page states: 'Embedded database should be used for evaluation purposes only. The embedded database will not scale, it will not support upgrading to newer versions of SonarQube, and there is no support for migrating your data out of it into a different database engine.' The footer includes SonarQube version information and a date stamp of 03-12-2025.

3.AWS EKS Cluster Creation (using eksctl)

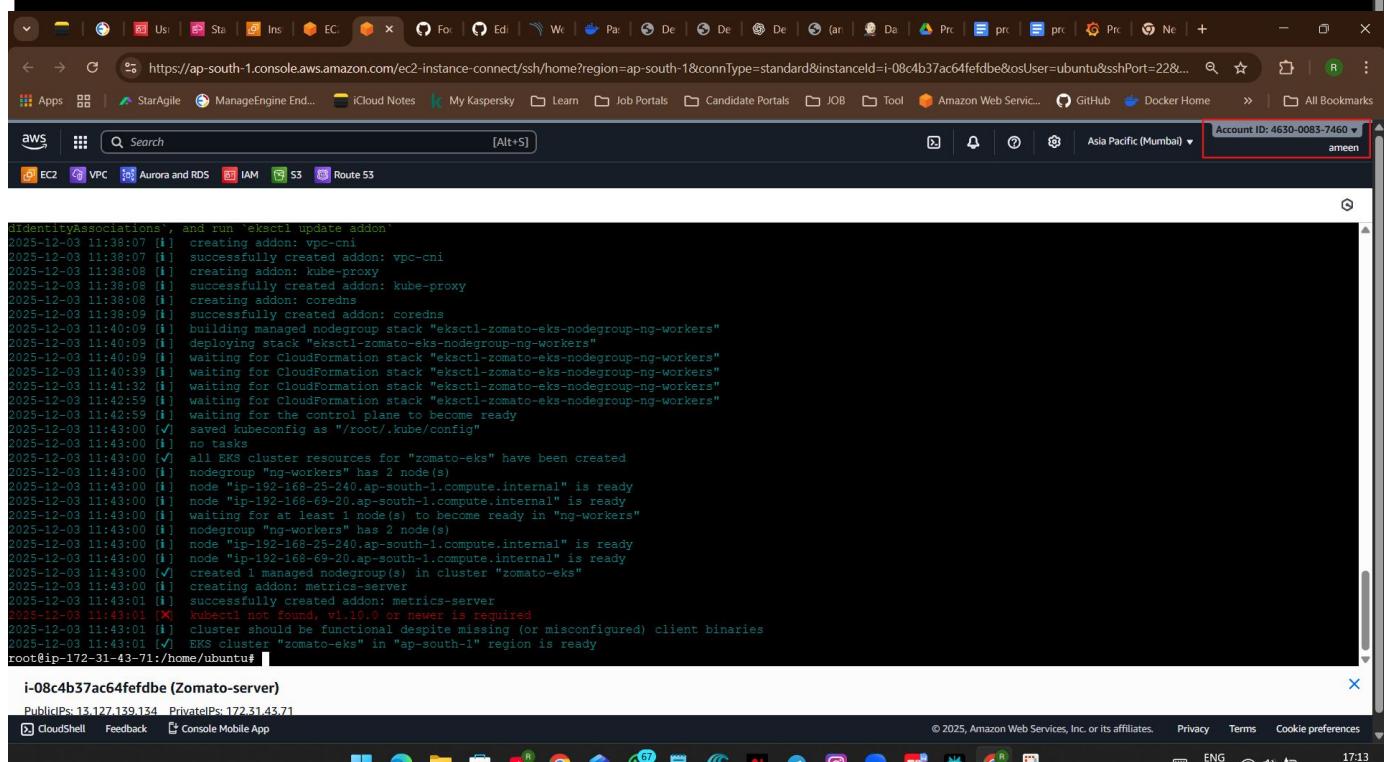
```
Maybe you meant:
 * configure
 * appconfig

usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
to see help text, you can run:
aws help
aws <command> help
aws <command> <subcommand> help

root@ip-172-31-43-71:/home/ubuntu# aws configure
AWS Access Key ID [None]: AKIAWXTIADQVKNADF64CO
AWS Secret Access Key [None]: TunLw9K5gSfBLsKdP4VXzTltRhHD3fjxqq3wz7WK
Default region name [None]: ap-south-1
Default output format [None]:
root@ip-172-31-43-71:/home/ubuntu# i-08c4b37ac64fefdbe (Zomato-server)
PublicIPs: 13.127.139.134 PrivateIPs: 172.31.43.71
CloudShell Feedback Console Mobile App
© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences
ENG IN 16:38 03-12-2025
```



```
root@ip-172-31-43-71:/home/ubuntu# curl --silent --location "https://github.com/eksctl-io/eksctl/releases/latest/download/eksctl_$(uname -s)_amd64.tar.gz" \
| tar xz -C /tmp
sudo mv /tmp/eksctl /usr/local/bin
eksctl version
0.220.0
root@ip-172-31-43-71:/home/ubuntu# curl --silent --location "https://github.com/eksctl-io/eksctl/releases/latest/download/eksctl_$(uname -s)_amd64.tar.gz" | tar xz -C /tmp
root@ip-172-31-43-71:/home/ubuntu# curl --silent --location "https://github.com/eksctl-io/eksctl/releases/latest/download/eksctl_$(uname -s)_amd64.tar.gz" \
| tar xz -C /tmp
sudo mv /tmp/eksctl /usr/local/bin
eksctl version
0.220.0
root@ip-172-31-43-71:/home/ubuntu# eksctl create cluster \
--name zomato-eks \
--region ap-south-1 \
--nodegroup-name ng-workers \
--node-type t3.small \
--nodes 2 \
--nodes-min 1 \
--nodes-max 3 \
--managed
```



```
IdentityAssociations', and run `eksctl update addon`"
2025-12-03 11:38:07 [i] creating addon: vpc-cni
2025-12-03 11:38:07 [i] successfully created addon: vpc-cni
2025-12-03 11:38:08 [i] creating addon: kube-proxy
2025-12-03 11:38:08 [i] successfully created addon: kube-proxy
2025-12-03 11:38:08 [i] creating addon: coredns
2025-12-03 11:38:09 [i] successfully created addon: coredns
2025-12-03 11:40:09 [i] building managed nodegroup stack "eksctl-zomato-eks-nodegroup-ng-workers"
2025-12-03 11:40:09 [i] deploying stack "eksctl-zomato-eks-nodegroup-ng-workers"
2025-12-03 11:40:09 [i] waiting for CloudFormation stack "eksctl-zomato-eks-nodegroup-ng-workers"
2025-12-03 11:40:39 [i] waiting for CloudFormation stack "eksctl-zomato-eks-nodegroup-ng-workers"
2025-12-03 11:41:32 [i] waiting for CloudFormation stack "eksctl-zomato-eks-nodegroup-ng-workers"
2025-12-03 11:42:59 [i] waiting for CloudFormation stack "eksctl-zomato-eks-nodegroup-ng-workers"
2025-12-03 11:42:59 [i] waiting for the control plane to become ready
2025-12-03 11:43:00 [v] saved kubeconfig as "/root/.kube/config"
2025-12-03 11:43:00 [i] no tasks
2025-12-03 11:43:00 [v] all EKS cluster resources for "zomato-eks" have been created
2025-12-03 11:43:00 [i] nodegroup "ng-workers" has 2 node(s)
2025-12-03 11:43:00 [i] node "ip-192-168-25-240.ap-south-1.compute.internal" is ready
2025-12-03 11:43:00 [i] node "ip-192-168-69-20.ap-south-1.compute.internal" is ready
2025-12-03 11:43:00 [i] waiting for at least 1 node(s) to become ready in "ng-workers"
2025-12-03 11:43:00 [i] nodegroup "ng-workers" has 2 node(s)
2025-12-03 11:43:00 [i] node "ip-192-168-25-240.ap-south-1.compute.internal" is ready
2025-12-03 11:43:00 [i] node "ip-192-168-69-20.ap-south-1.compute.internal" is ready
2025-12-03 11:43:00 [v] created 1 managed nodegroup(s) in cluster "zomato-eks"
2025-12-03 11:43:00 [i] creating addon: metrics-server
2025-12-03 11:43:01 [i] successfully created addon: metrics-server
2025-12-03 11:43:01 [x] Kubectl not found, v1.10.0 or newer is required
2025-12-03 11:43:01 [i] cluster should be functional despite missing (or misconfigured) client binaries
2025-12-03 11:43:01 [v] EKS cluster "zomato-eks" in "ap-south-1" region is ready
root@ip-172-31-43-71:/home/ubuntu# i-08c4b37ac64fefdbe (Zomato-server)
PublicIPs: 13.127.139.134 PrivateIPs: 172.31.43.71
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ENG IN 17:13 03-12-2025
```

4. DockerHub Login

```

root@ip-172-31-43-71:/home/ubuntu# docker login
USING WEB-BASED LOGIN
Info → To sign in with credentials on the command line, use 'docker login -u <username>'

Your one-time device confirmation code is: QDFP-PCBX
Press ENTER to open your browser or submit your device code here: https://login.docker.com/activate

Waiting for authentication in the browser...

WARNING! Your credentials are stored unencrypted in '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded
root@ip-172-31-43-71:/home/ubuntu#

```

i-08c4b37ac64fefdbe (Zomato-server)
PublicIPs: 13.233.94.130 PrivateIPs: 172.31.43.71
CloudShell Feedback Console Mobile App

Note: Instances are Stopped so the public IP are changed so change the SonarQube UI URL

5. Setting-Github webhook

Webhooks / Add webhook

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in our developer documentation.

Payload URL *
http://13.201.38.249:8080/github-webhook/

Content type *
application/x-www-form-urlencoded

Secret

SSL verification
By default, we verify SSL certificates when delivering payloads.
 Enable SSL verification Disable (not recommended)

Which events would you like to trigger this webhook?

- Just the push event.
- Send me everything.
- Let me select individual events.

Active
We will deliver event details when this hook is triggered.

Add webhook

6-Jenkins Pipeline

New Item

Enter an item name
zomato-project

Select an item type

- Freestyle project**
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.
- Maven project**
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.
- Pipeline**
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.
- Multi-configuration project**
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.
- Folder**
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.
- Multibranch Pipeline**
Creates a set of Pipeline projects according to detected branches in one SCM repository.

OK

Configure

Triggers

- General
- Triggers**
- Pipeline
- Advanced

Set up automated actions that start your build based on specific events, like code changes or scheduled times.

Build after other projects are built ?

Build periodically ?

GitHub hook trigger for GITScm polling ?

Poll SCM ?

Trigger builds remotely (e.g., from scripts) ?

Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition
Pipeline script from SCM

SCM
Git

Repositories ?

Repository URL ?
https://github.com/rishad3855/FoodAppZomato.git

Credentials ?
- none -

Advanced

+ Add Repository

Branches to build ?

Save Apply

Jenkins / zomato / Configuration

Configure

- General
- Triggers
- Pipeline**
- Advanced

https://github.com/rishad3855/FoodAppZomato.git

Credentials ? - none - + Add

Advanced

+ Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ? */main

+ Add Branch

Repository browser ? (Auto)

Additional Behaviours

+ Add

Script Path ? jenkinsfile

Lightweight checkout ?

Pipeline Syntax

Advanced

Save **Apply**

Jenkins / zomato-project

zomato-project

Stage View

	Declarative: Checkout SCM	Declarative: Tool Install	clean workspace	Git Checkout	Sonarqube Analysis	Code Quality Gate	Install NPM Dependencies	OWASP FS SCAN	Trivy File Scan	Build Docker Image	Tag & Push to DockerHub	Deploy to EKS	Declarative: Post Actions
Average stage times: (full run time: ~10s)	848ms	161ms	311ms	1s	19s	438ms	24s	35s	3s	2min 0s	13s	4s	1s
#17 Dec 04 15:21	1 commit												
#16 Dec 04 15:19	2 commits											7s failed	1s
#15 Dec 04 15:00	1 commit											7s failed	1s
#14 Dec 04 15:09	2 commits											6s	1s
#13 Dec 04 15:07	1 commit											6s failed	1s
#12 Dec 04 15:06	1 commit											4s failed	1s
#11 Dec 04 15:06													

Builds

Filter

Today

- #17 9:51 AM
- #16 9:49 AM
- #15 9:40 AM
- #14 9:39 AM
- #13 9:37 AM
- #12 9:36 AM
- #11 9:26 AM

ENG IN 15:25 04-12-2025

```

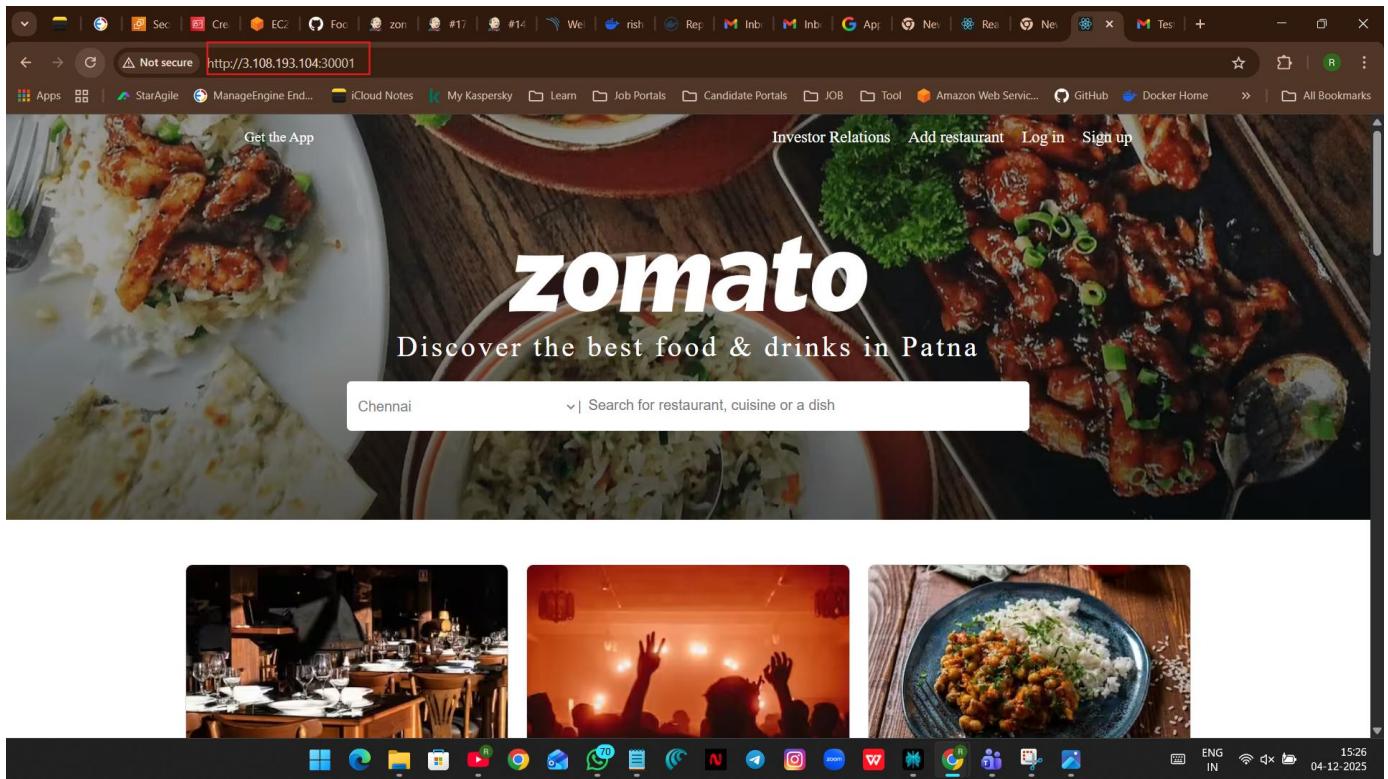
aws sts get-caller-identity aws eks --region ap-south-1 update-kubeconfig --name zomato-eks kubectl apply -n my-namespace -f ./Kubernetes/deployment.yaml kubectl apply -n m... 8.1s
1 {
2     "UserId": "AIDAWXTIADVKMP6PC65KQ",
3     "Account": "463000837460",
4     "Arn": "arn:aws:iam::463000837460:user/User1"
5 }
6 + aws eks --region ap-south-1 update-kubeconfig --name zomato-eks
7 Updated context arn:aws:eks:ap-south-1:463000837460:cluster/zomato-eks in /var/lib/jenkins/.kube/config
8 + kubectl apply -n my-namespace -f ./Kubernetes/deployment.yaml
9 deployment.apps/zomato unchanged
10 + kubectl apply -n my-namespace -f ./Kubernetes/service.yaml
11 service/zomato unchanged
12 + kubectl apply -n my-namespace -f ./Kubernetes/node-service.yaml
13 service/node-exporter unchanged
14 + kubectl get svc -n my-namespace
15 NAME           TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
16 node-exporter  NodePort   10.100.188.223  <none>       9100:30827/TCP  15m
17 zomato        NodePort   10.100.174.87   <none>       3000 [30001]TCP  17m
18 + kubectl get nodes -o wide
19 NAME             STATUS    ROLES   AGE   VERSION
20 ip-192-168-46-188.ap-south-1.compute.internal Ready    <none>   86m   v1.32.9-eks-ecaa3a6  192.168.46.188 3.108.193.104 Amazon Linux 2023.9.20251117 6.1.158-178.288.amzn2023.x86_64
containerId:/2.1.4
21 ip-192-168-73-8.ap-south-1.compute.internal Ready    <none>   86m   v1.32.9-eks-ecaa3a6  192.168.73.8   13.204.252.44 Amazon Linux 2023.9.20251117 6.1.158-178.288.amzn2023.x86_64
containerId:/2.1.4

```

Deploy to EKS 0.85s

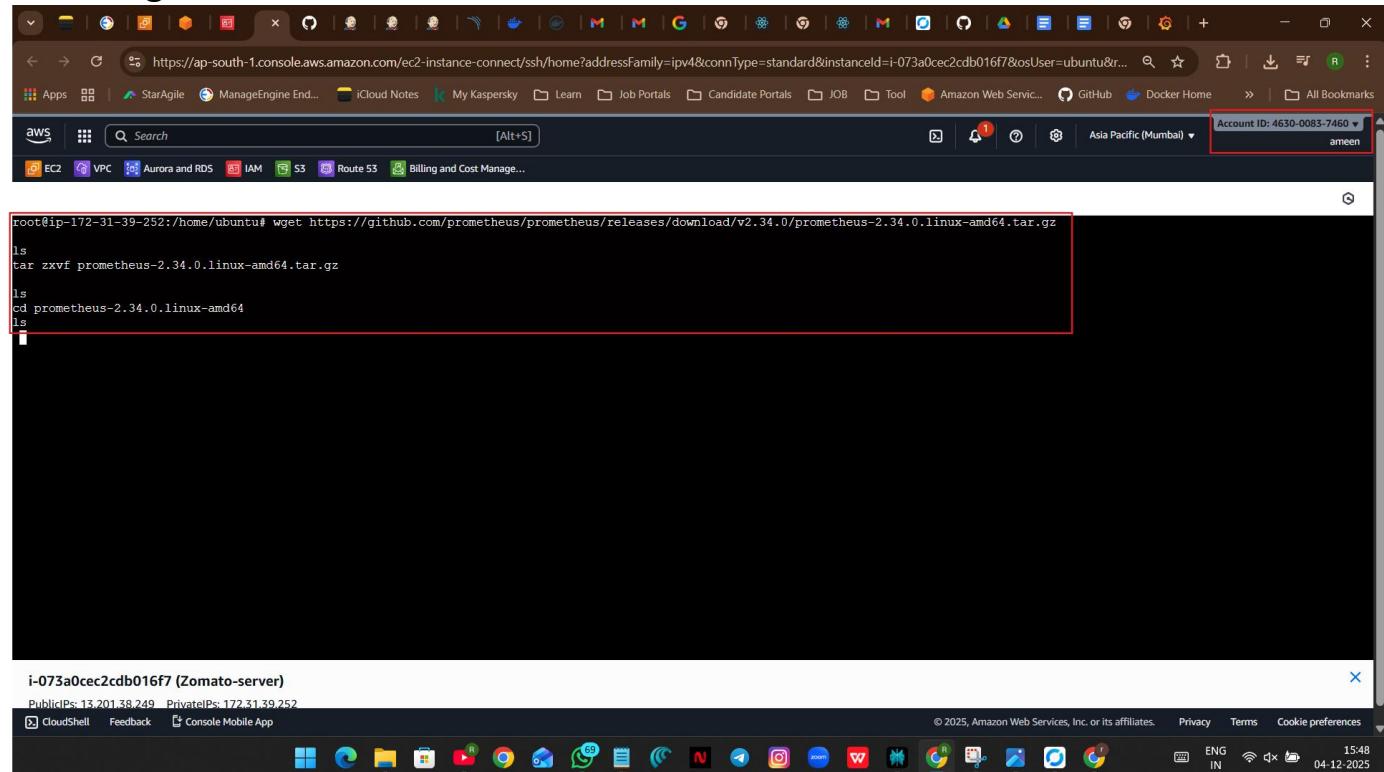
Post Actions 1.3s

http://<k8snodeipppublic>:30001



7. Monitoring

Installing Prometheus



```

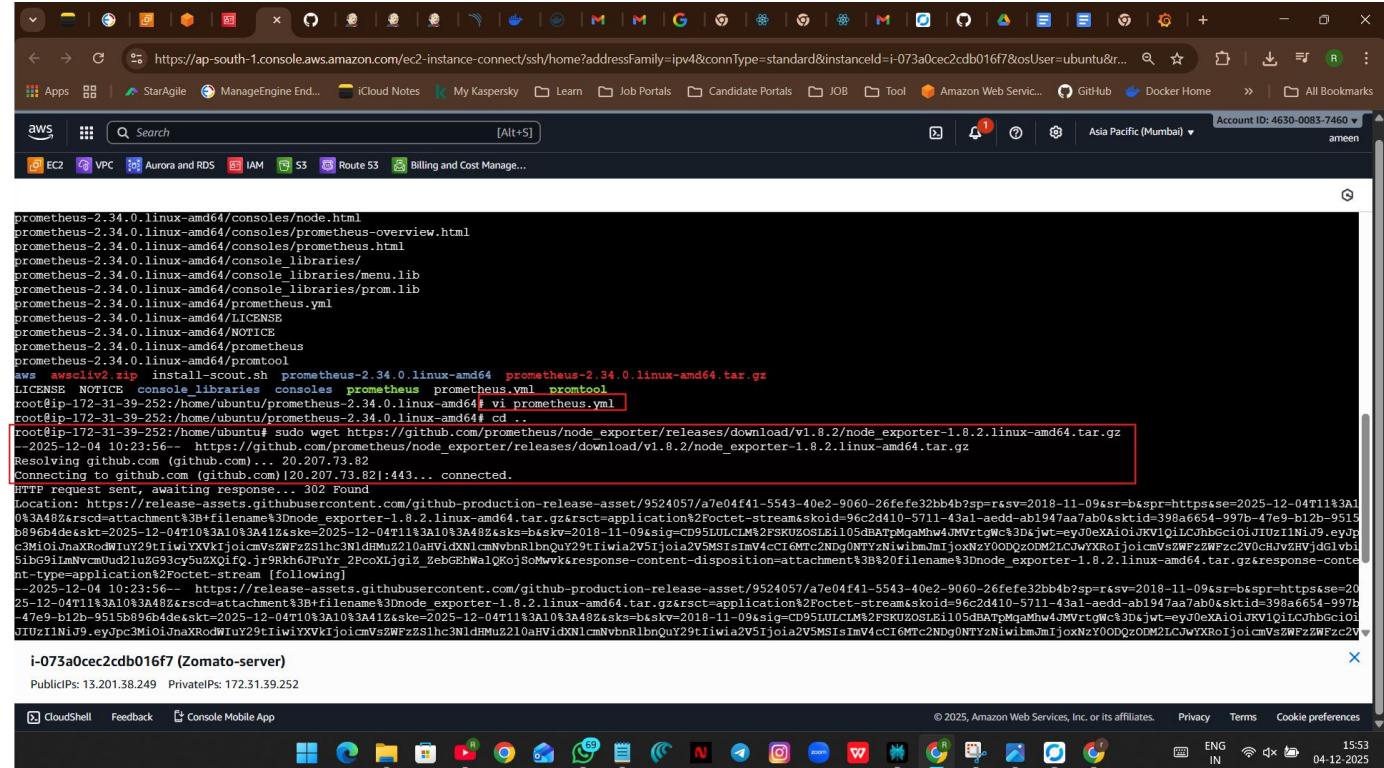
root@ip-172-31-39-252:/home/ubuntu# wget https://github.com/prometheus/prometheus/releases/download/v2.34.0/prometheus-2.34.0.linux-amd64.tar.gz
ls
tar zxvf prometheus-2.34.0.linux-amd64.tar.gz
ls
cd prometheus-2.34.0.linux-amd64
ls

```

i-073a0cec2cdb016f7 (Zomato-server)
Public IPs: 13.201.38.249 Private IPs: 172.31.39.252
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Installing Node Exporter



```

prometheus-2.34.0.linux-amd64/consoles/node.html
prometheus-2.34.0.linux-amd64/consoles/prometheus-overview.html
prometheus-2.34.0.linux-amd64/consoles/prometheus.html
prometheus-2.34.0.linux-amd64/console/libraries/
prometheus-2.34.0.linux-amd64/console/libraries/menu.lib
prometheus-2.34.0.linux-amd64/console/libraries/prom.lib
prometheus-2.34.0.linux-amd64/LICENSE
prometheus-2.34.0.linux-amd64/NOTICE
prometheus-2.34.0.linux-amd64/prometheus
prometheus-2.34.0.linux-amd64/promtool
aws awscliv2 zip install-scout.sh prometheus-2.34.0.linux-amd64.tar.gz
LICENSES NOTICE consoles libraries consoles prometheus prometheus.yaml promtool
root@ip-172-31-39-252:/home/ubuntu/prometheus-2.34.0.linux-amd64# vi prometheus.yaml
root@ip-172-31-39-252:/home/ubuntu/prometheus-2.34.0.linux-amd64# cd ..
root@ip-172-31-39-252:/home/ubuntu# sudo wget https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.linux-amd64.tar.gz
--2025-12-04 10:23:56-- https://github.com/prometheus/node_exporter/releases/download/v1.8.2/node_exporter-1.8.2.linux-amd64.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://release-assets.githubusercontent.com/github-production-release-asset/9524057/a7e04f41-5543-40e2-9060-26fefe32bb4b?sp=r&sr=b&spr=https&se=2025-12-04T11%3A10%3A48Z&rscd=attachment%3Bfilename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&rscst=application%2Foctet-stream&skid=96c2d410-5711-43a1-aedd-ab1947aa7ab04&skid=398a6654-997b-47e9-b12b-9515b896b4&deskt=2025-12-04T10%3A10%3A12z&sts=b&skv=2018-11-09&sig=CD951ULCLM82FSKUZOSLEl105dBATpMgMhW4JMVrtgWc%3D&jwt=eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpdiI6MjoiJnaxRcdWIuY29tIiwiYXVkJoiCmVsZWfZlhc3NldMuZ210aihViDxN1cmNvbhRlbQuY29tIiwi2V5tjoiav2MSISImV4cIGMTc2NngONTYzNiwiIbmJwJmIjoxNzY0ODQzODM2LCJwYXRoiIjoiCmVsZWfZc2V0chJyZHvjdGlVbhi5ibg91ImNvcnUvd1zuZg93cy5uZQxiQo_ir9khk6JrYr_2RcoXLjgiz_ZebGhwalQkoSoMwvki&response-content-disposition=attachment%3B%20filename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-12-04 10:23:56-- https://release-assets.githubusercontent.com/github-production-release-asset/9524057/a7e04f41-5543-40e2-9060-26fefe32bb4b?sp=r&sr=b&spr=https&se=2025-12-04T11%3A10%3A48Z&rscd=attachment%3Bfilename%3Dnode_exporter-1.8.2.linux-amd64.tar.gz&rscst=application%2Foctet-stream&skid=96c2d410-5711-43a1-aedd-ab1947aa7ab04&skid=398a6654-997b-47e9-b12b-9515b896b4&deskt=2025-12-04T10%3A10%3A12z&sts=b&skv=2018-11-09&sig=CD951ULCLM82FSKUZOSLEl105dBATpMgMhW4JMVrtgWc%3D&jwt=eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpdiI6MjoiJnaxRcdWIuY29tIiwiYXVkJoiCmVsZWfZlhc3NldMuZ210ahViDxN1cmNvbhRlbQuY29tIiwi2V5tjoiav2MSISImV4cIGMTc2NngONTYzNiwiIbmJwJmIjoxNzY0ODQzODM2LCJwYXRoiIjoiCmVsZWfZc2V0chJyZHvjdGlVbhi5ibg91ImNvcnUvd1zuZg93cy5uZQxiQo_ir9khk6JrYr_2RcoXLjgiz_ZebGhwalQkoSoMwvki
```

i-073a0cec2cdb016f7 (Zomato-server)
Public IPs: 13.201.38.249 Private IPs: 172.31.39.252
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Vi prometheus.yml

```
- job_name: 'jenkins'  
  metrics_path: '/prometheus'  
  static_configs:  
    - targets: ['<your-jenkins-ip>:<your-jenkins-port>']  
  
- job_name: 'k8s'  
  metrics_path: '/metrics'  
  static_configs:  
    - targets: ['nodeIP:9100']
```

http://<serverippublic>:9090

Targets

All Unhealthy Collapse All Filter by endpoint or labels

jenkins (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://13.201.38.249:8080/prometheus	UP	instance="13.201.38.249:8080" job="jenkins"	1.296s ago	15.343ms	

k8s (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://3.108.193.104:9100/metrics	UP	instance="3.108.193.104:9100" job="kds"	3.804s ago	24.026ms	

node-exporter (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://13.201.38.249:9100/metrics	UP	instance="13.201.38.249:9100" job="node-exporter"	150.000ms ago	14.837ms	

prometheus (1/1 up) show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	7.804s ago	7.234ms	

Install Grafana

```
root@ip-172-31-39-86:/home/ubuntu# wget https://dl.grafana.com/enterprise/release/grafana-enterprise-8.4.4.linux-amd64.tar.gz
ls
tar -zvxf grafana-enterprise-8.4.4.linux-amd64.tar.gz
ls
cd grafana-8.4.4
./bin/grafana-server
```

i-0bae4366ccb940274 (Monitoring-server) X

Public IPs: 13.201.13.125 Private IPs: 172.31.39.86

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Welcome to Grafana

Basic

The steps below will guide you to quickly finish setting up your Grafana installation.

TUTORIAL
DATA SOURCE AND DASHBOARDS
Grafana fundamentals

Set up and understand Grafana if you have no prior experience. This tutorial guides you through the entire process and covers the "Data source" and "Dashboards" steps to the right.

DATA SOURCES
Add your first data source

DASHBOARDS
Create your first dashboard

Dashboards

Starred dashboards

Recently viewed dashboards

Latest from the blog

Dec 03 What's new in the Grafana Image Renderer: higher-quality results, security enhancements, and more

Whether it's for an email or that upcoming presentation, many Grafana users like to share their favorite dashboards or panels outside of Grafana itself. The Grafana Image Renderer is a

13.201.13.125:3000/dashboard/new?utm_source=grafana_gettingstarted

Data Sources / Prometheus-1

Type: Prometheus

Settings

Name: [REDACTED] Default

HTTP

URL: [REDACTED]

Access: Server (default)

Allowed cookies: New tag (enter key to add)

Timeout: Timeout in seconds

Auth

Basic auth: Off With Credentials: Off

TLS Client Auth: Off With CA Cert: Off

Skip TLS Verify: Off

Forward OAuth Identity: Off

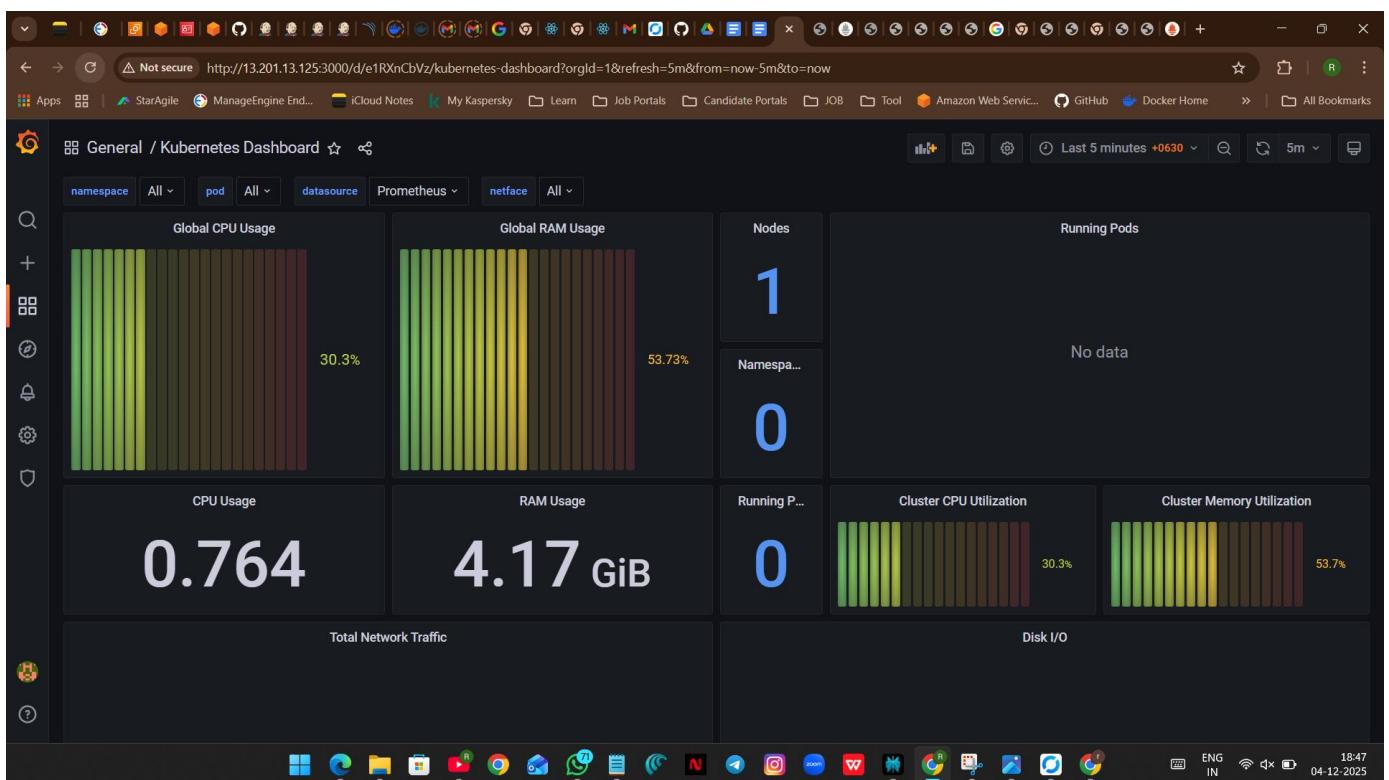
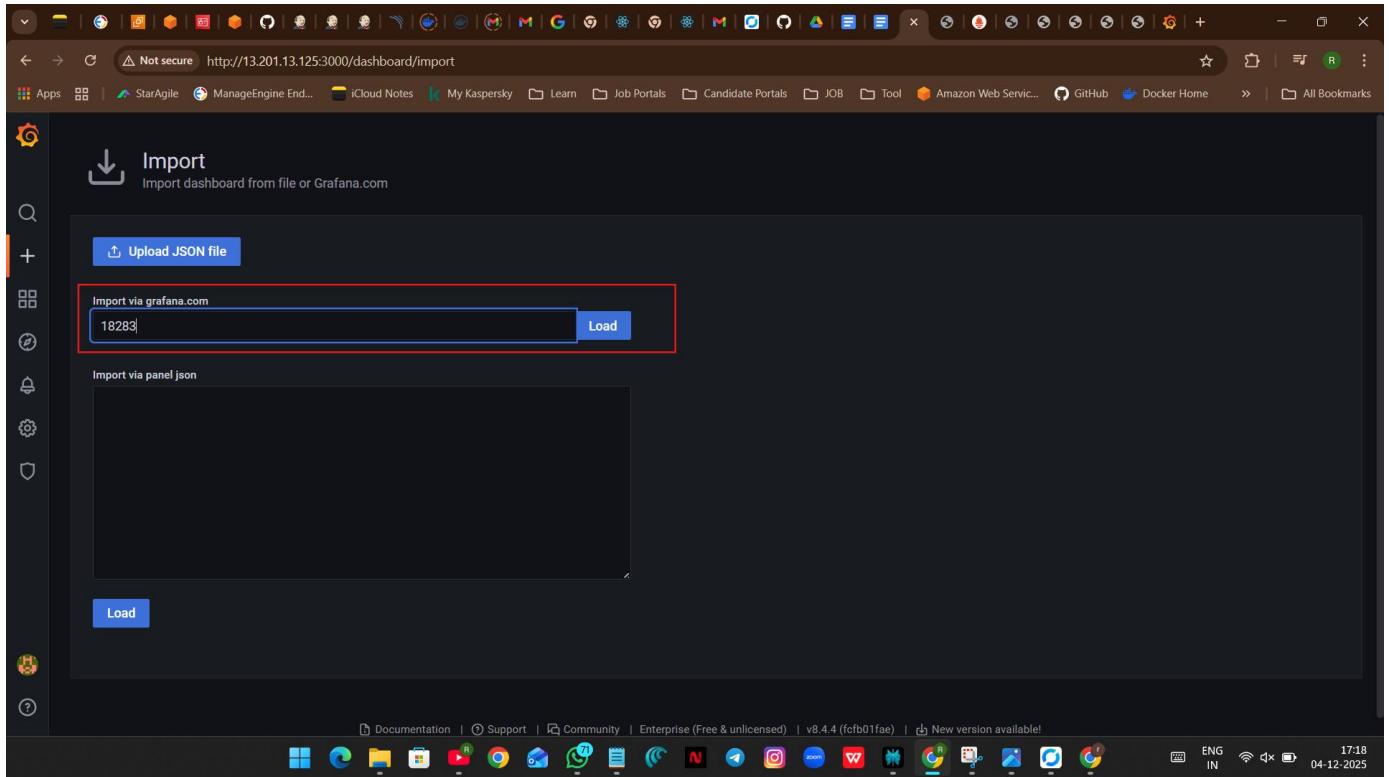
Exemplars

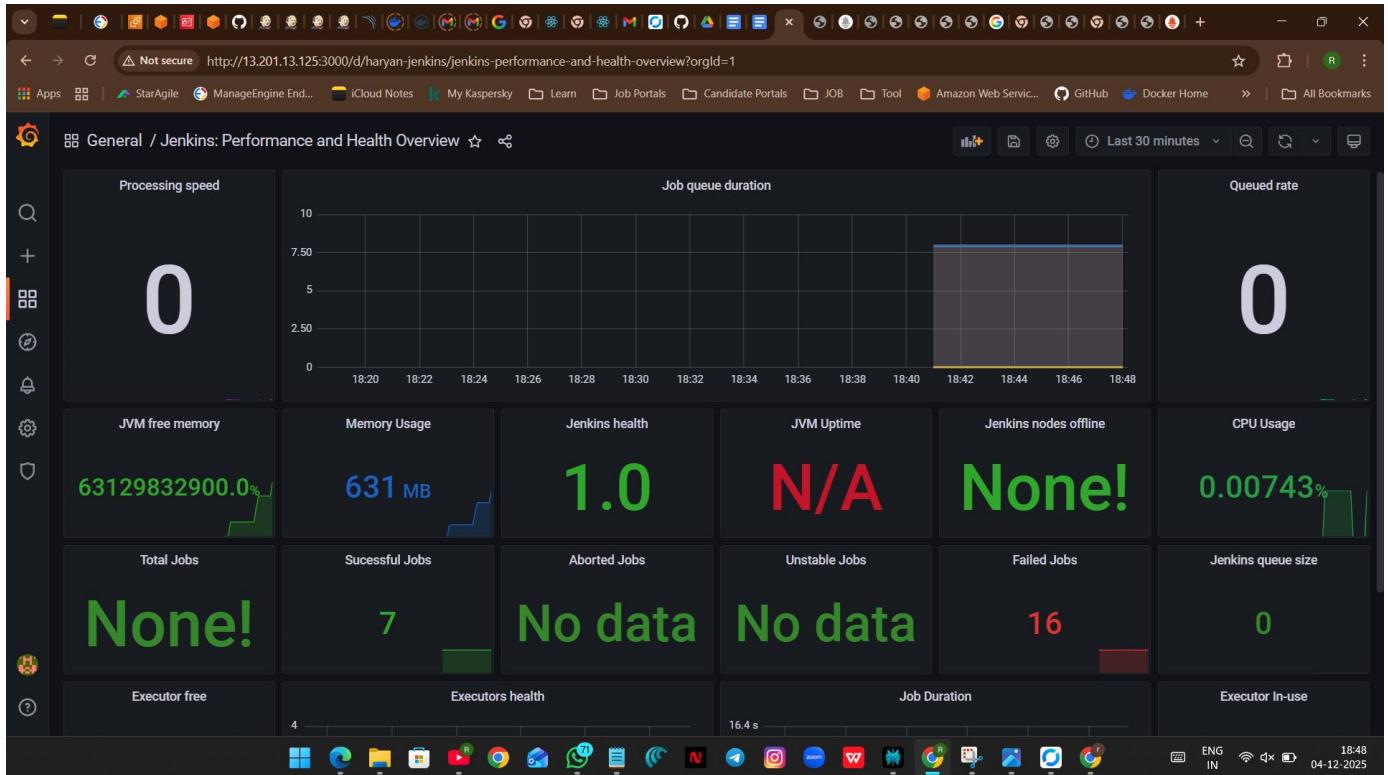
+ Add

Data source is working

Back Explore Delete Save & test

Documentation | Support | Community | Enterprise (Free & unlicensed) | v8.4.4 (fcfb01fae) | New version available!





Project Conclusion

This DevOps capstone project successfully implemented a CI/CD pipeline for a scalable online food ordering and delivery application, modeled after Zomato's platform, transitioning from monolithic to microservices architecture on AWS.

Key Achievements

The pipeline automated deployments using Git, Jenkins, Docker, Kubernetes (EKS), and monitoring with Prometheus and Grafana, addressing manual processes and monitoring gaps for faster releases and high availability. Staging and production environments now support auto-scaling during peak loads, with rollback capabilities ensuring reliability.