End – End Deployment

NodeJs - Jenkins - SAST – Argo CD – K8S- Observability

RAVI P

Kubernetes – EKS END TO END Deployment:

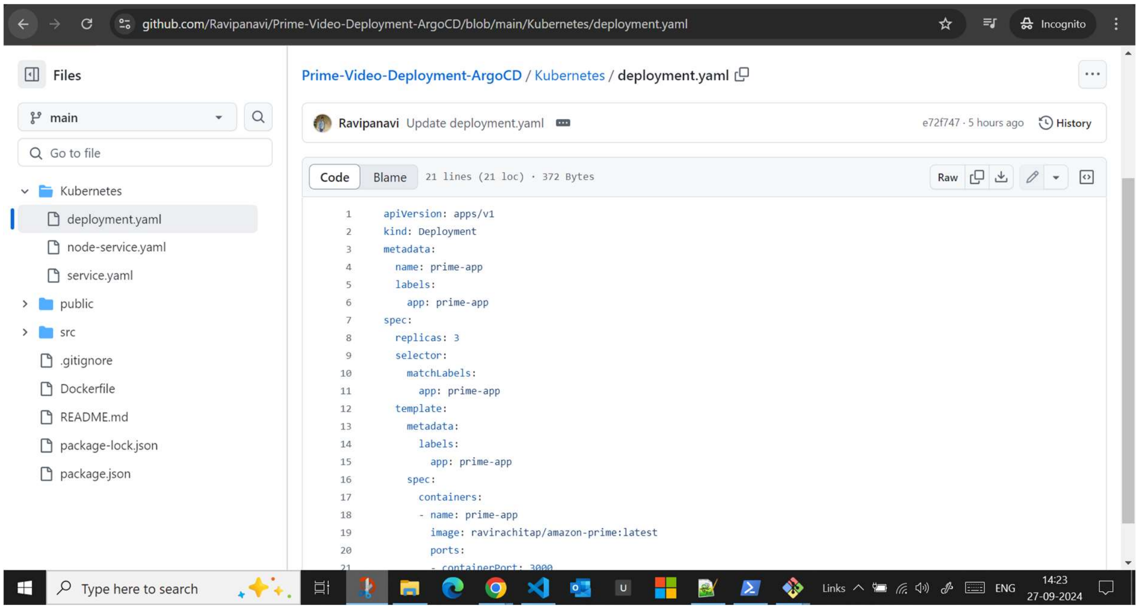
Overview of this project:

Deploying the Node JS based application on EKS through Argo CD with secure deployment.

Text stack:

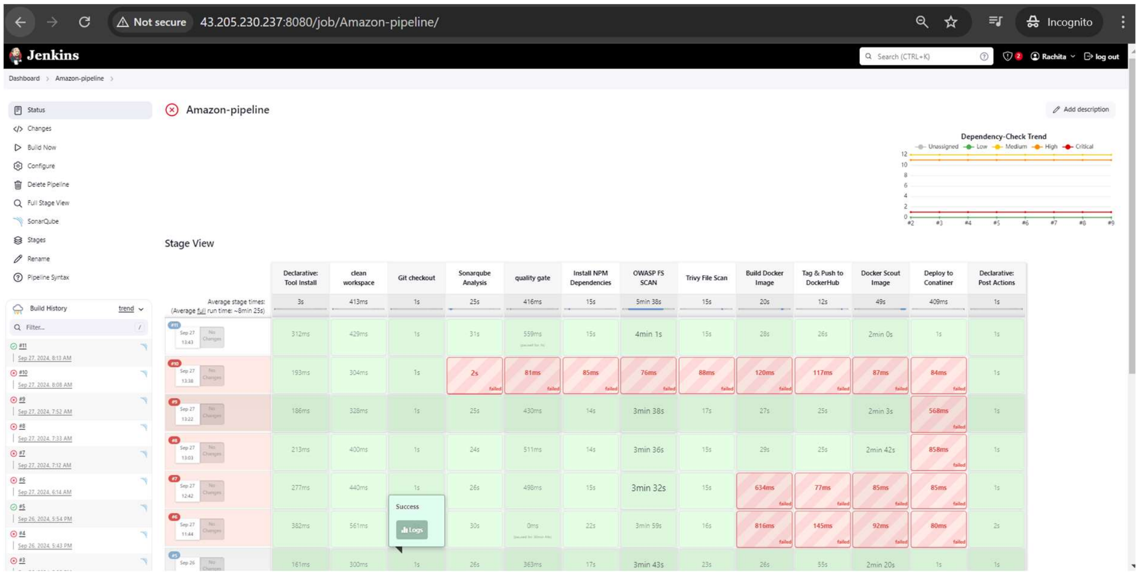
- **Node JS**
- **AWS Ec2 instance.**
- **Jenkins CI Pipeline.**
- **GitHub.**
- **Security – SonarQube & Trivy.**
- **Docker & Docker Scout**
- **Cloud Formation Stack**
- **EKS**
- **Argo CD**
- **Observability – Prometheus & Grafana**

GitHub: https://github.com/Ravipanavi/Prime-Video-Deployment-ArgoCD



```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: prime-app
  labels:
    app: prime-app
spec:
  replicas: 3
  selector:
    matchLabels:
      app: prime-app
  template:
    metadata:
      labels:
        app: prime-app
    spec:
      containers:
      - name: prime-app
        image: ravirachitap/amazon-prime:latest
        ports:
        - containerPort: 3000
```

Jenkins CI - Pipeline

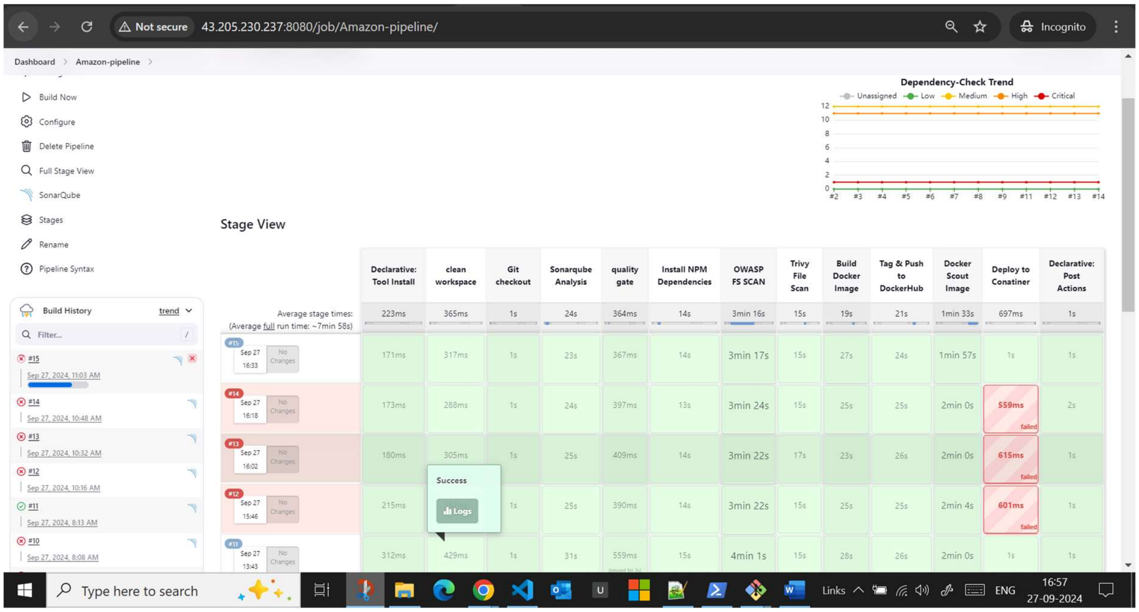


Build History:

- #11 Sep 27, 2024, 8:13 AM
- #10 Sep 27, 2024, 8:08 AM
- #9 Sep 27, 2024, 7:52 AM
- #8 Sep 27, 2024, 7:33 AM
- #7 Sep 27, 2024, 7:12 AM
- #6 Sep 27, 2024, 6:14 AM
- #5 Sep 26, 2024, 5:54 PM
- #4 Sep 26, 2024, 5:43 PM
- #3

Stage View

Average stage times: (Average full run time: ~8min 25s)	Declarative: Tool Install	clean workspace	Git checkout	Sonarqube Analysis	quality gate	Install NPM Dependencies	OWASP FS SCAN	Trivy File Scan	Build Docker Image	Tag & Push to DockerHub	Docker Scout Image	Deploy to Conatiner	Declarative: Post Actions
	3s	413ms	1s	25s	416ms	15s	5min 38s	15s	20s	12s	49s	409ms	1s
#11 Sep 27 13:43 No Changes	312ms	429ms	1s	31s	559ms	15s	4min 1s	15s	28s	26s	2min 0s	1s	1s
#10 Sep 27 13:38 No Changes	193ms	304ms	1s	2s failed	81ms failed	85ms failed	76ms failed	88ms failed	120ms failed	117ms failed	87ms failed	84ms failed	1s
#9 Sep 27 13:22 No Changes	186ms	328ms	1s	25s	430ms	14s	3min 38s	17s	27s	25s	2min 3s	568ms failed	1s
#8 Sep 27 13:03 No Changes	213ms	400ms	1s	24s	511ms	14s	3min 36s	15s	29s	25s	2min 42s	858ms failed	1s
#7 Sep 27 12:42 No Changes	277ms	440ms	1s	26s	498ms	15s	3min 32s	15s	634ms failed	77ms failed	85ms failed	85ms failed	1s
#6 Sep 27 11:44 No Changes	382ms	561ms	Success Logs	30s	0ms	22s	3min 59s	16s	816ms failed	145ms failed	92ms failed	80ms failed	2s
#5 Sep 26 No Changes	161ms	300ms	1s	26s	363ms	17s	3min 43s	23s	26s	55s	2min 20s	1s	1s



Build History:

- #15 Sep 27, 2024, 11:03 AM
- #14 Sep 27, 2024, 10:48 AM
- #13 Sep 27, 2024, 10:32 AM
- #12 Sep 27, 2024, 10:16 AM
- #11 Sep 27, 2024, 8:13 AM
- #10 Sep 27, 2024, 8:08 AM

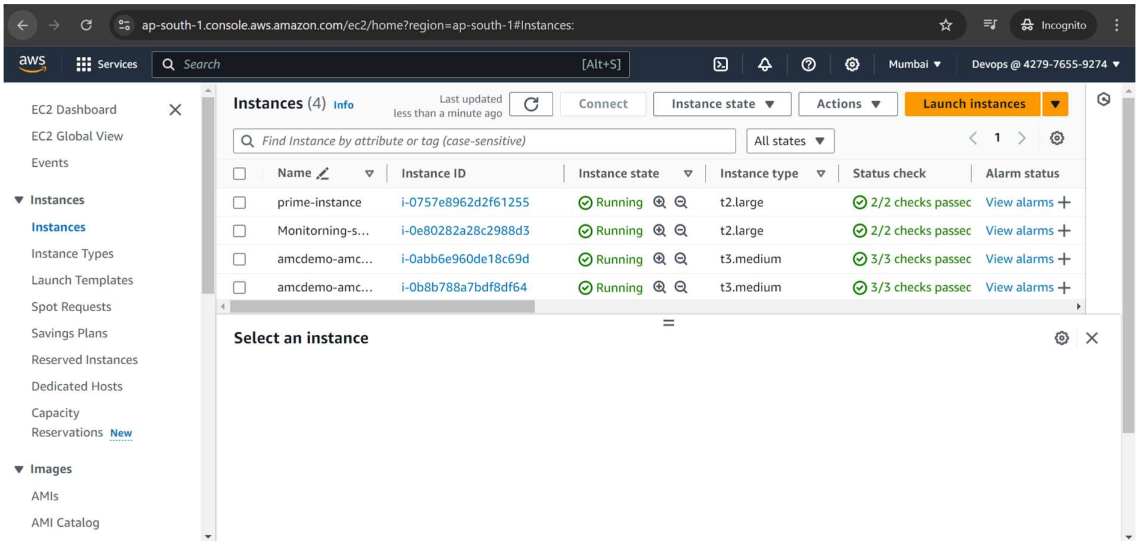
Stage View

Average stage times: (Average full run time: ~7min 58s)	Declarative: Tool Install	clean workspace	Git checkout	Sonarqube Analysis	quality gate	Install NPM Dependencies	OWASP FS SCAN	Trivy File Scan	Build Docker Image	Tag & Push to DockerHub	Docker Scout Image	Deploy to Conatiner	Declarative: Post Actions
	223ms	365ms	1s	24s	364ms	14s	3min 16s	15s	19s	21s	1min 33s	697ms	1s
#15 Sep 27 16:33 No Changes	171ms	317ms	1s	23s	367ms	14s	3min 17s	15s	27s	24s	1min 57s	1s	1s
#14 Sep 27 16:18 No Changes	173ms	288ms	1s	24s	397ms	13s	3min 24s	15s	25s	25s	2min 0s	559ms failed	2s
#13 Sep 27 16:02 No Changes	180ms	305ms	1s	25s	409ms	14s	3min 22s	17s	23s	26s	2min 0s	615ms failed	1s
#12 Sep 27 15:46 No Changes	215ms	Success Logs	1s	25s	390ms	14s	3min 22s	15s	25s	25s	2min 4s	601ms failed	1s
#11 Sep 27 13:43 No Changes	312ms	429ms	1s	31s	559ms	15s	4min 1s	15s	28s	26s	2min 0s	1s	1s

EC2 Instance and EKS Cluster:

Prime – Instance: Jenkins CI Pipeline, Docker, Sonar and Trivy app's installed.

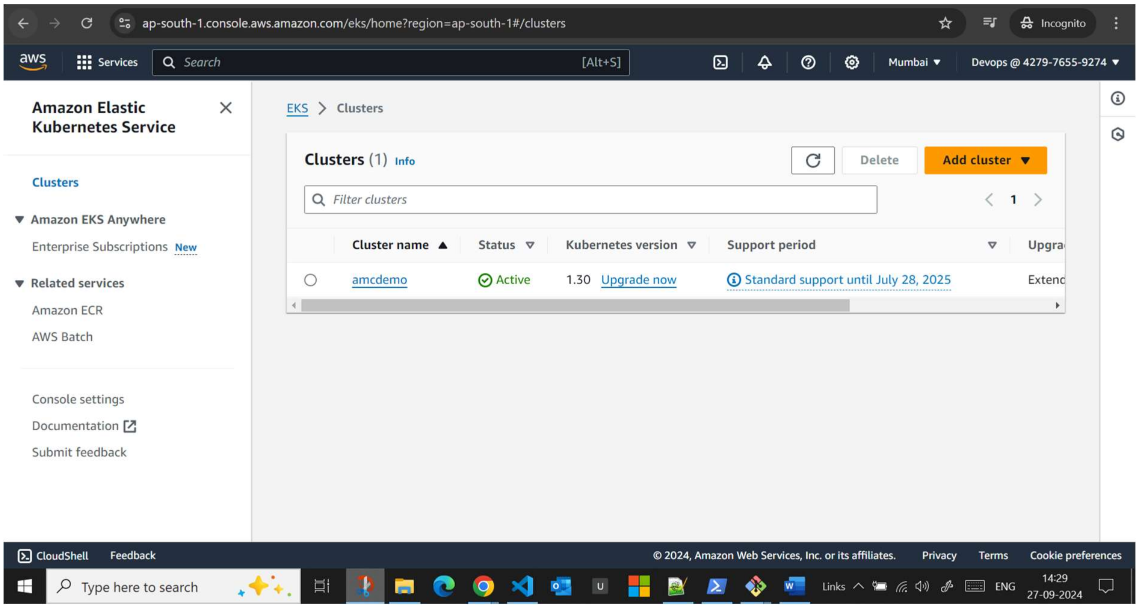
Monitor Server: Prometheus and Grafana app's installed.



ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#Instances:

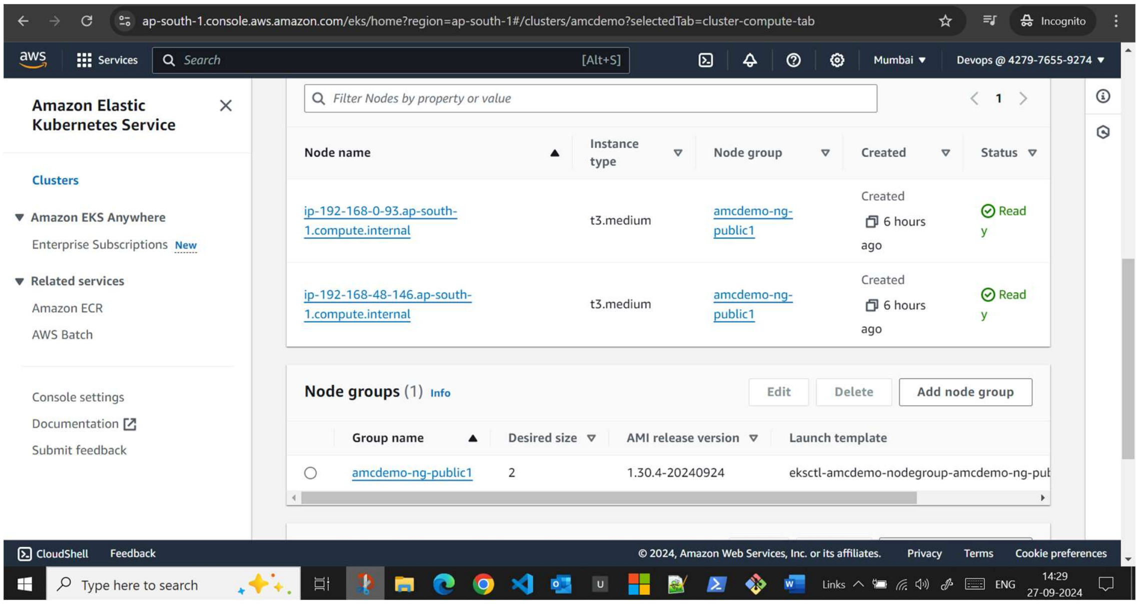
Name	Instance ID	Instance state	Instance type	Status check	Alarm status
prime-instance	i-0757e8962d2f61255	Running	t2.large	2/2 checks passec	View alarms +
Monitorning-s…	i-0e80282a28c2988d3	Running	t2.large	2/2 checks passec	View alarms +
amcdemo-amc…	i-0abb6e960de18c69d	Running	t3.medium	3/3 checks passec	View alarms +
amcdemo-amc…	i-0b8b788a7bdf8df64	Running	t3.medium	3/3 checks passec	View alarms +

EKS – Cluster



ap-south-1.console.aws.amazon.com/eks/home?region=ap-south-1#/clusters

	Cluster name ▲	Status	Kubernetes version	Support period	Upgra
○	amcdemo	Active	1.30 Upgrade now	Standard support until July 28, 2025	Extenc



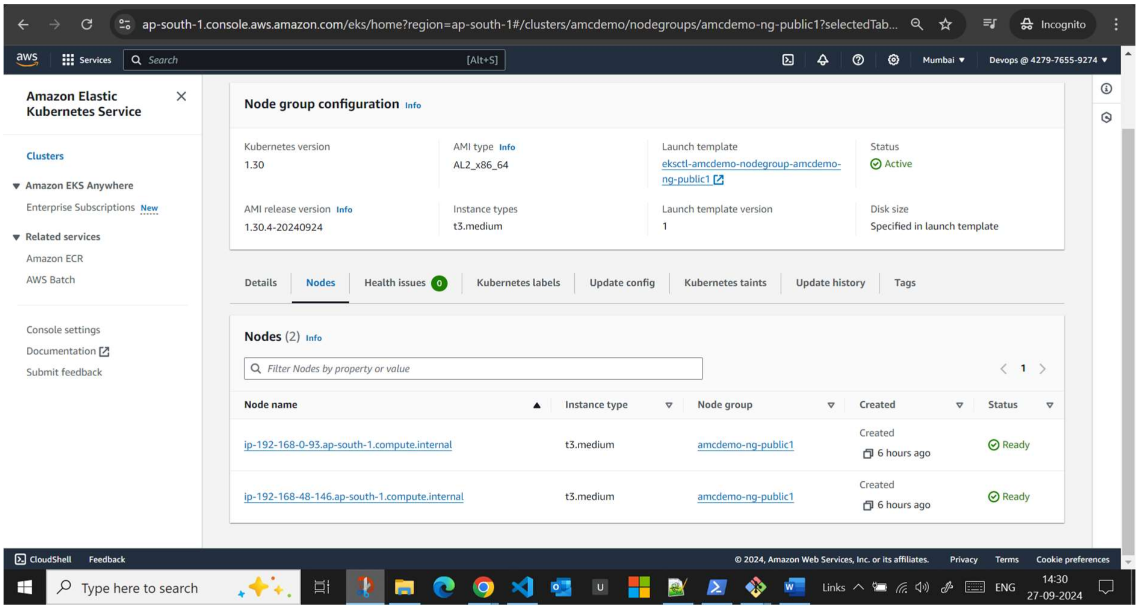
ap-south-1.console.aws.amazon.com/eks/home?region=ap-south-1#/clusters/amcdemo?selectedTab=cluster-compute-tab

Filter Nodes by property or value

Node name	Instance type	Node group	Created	Status
ip-192-168-0-93.ap-south-1.compute.internal	t3.medium	amcdemo-ng-public1	Created 6 hours ago	Ready
ip-192-168-48-146.ap-south-1.compute.internal	t3.medium	amcdemo-ng-public1	Created 6 hours ago	Ready

Node groups (1) Info

	Group name	Desired size	AMI release version	Launch template
○	amcdemo-ng-public1	2	1.30.4-20240924	eksctl-amcdemo-nodegroup-amcdemo-ng-pul



ap-south-1.console.aws.amazon.com/eks/home?region=ap-south-1#/clusters/amcdemo/nodegroups/amcdemo-ng-public1?selectedTab...

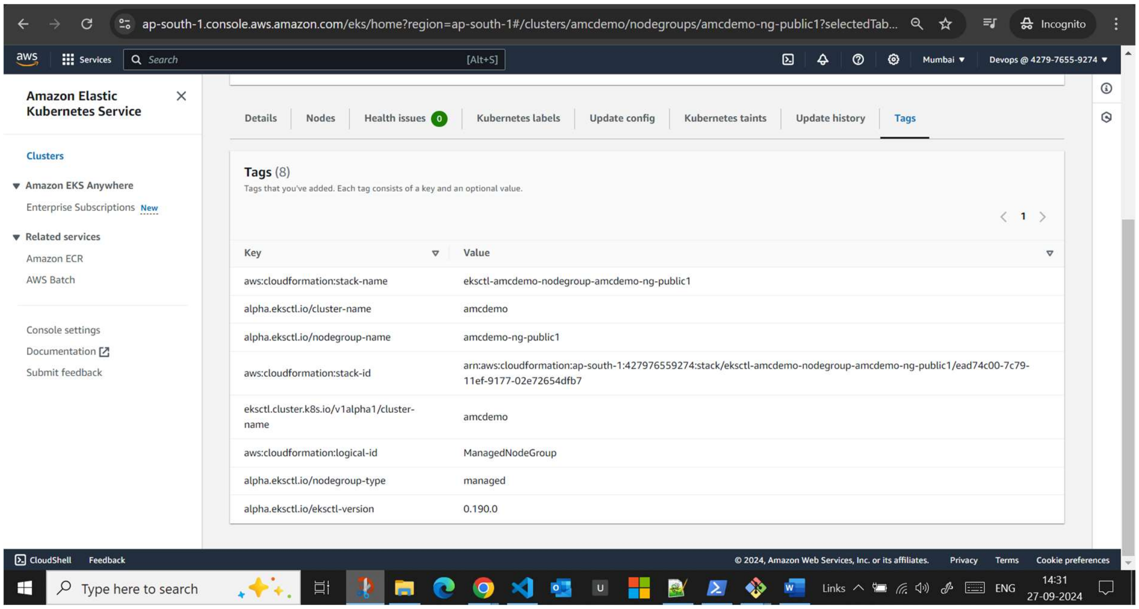
Node group configuration Info

Kubernetes version: 1.30
AMI type: AL2_x86_64
Launch template: eksctl-amcdemo-nodegroup-amcdemo-ng-public1
Status: Active
AMI release version: 1.30.4-20240924
Instance types: t3.medium
Launch template version: 1
Disk size: Specified in launch template

Nodes (2) Info

Filter Nodes by property or value

Node name	Instance type	Node group	Created	Status
ip-192-168-0-93.ap-south-1.compute.internal	t3.medium	amcdemo-ng-public1	Created 6 hours ago	Ready
ip-192-168-48-146.ap-south-1.compute.internal	t3.medium	amcdemo-ng-public1	Created 6 hours ago	Ready

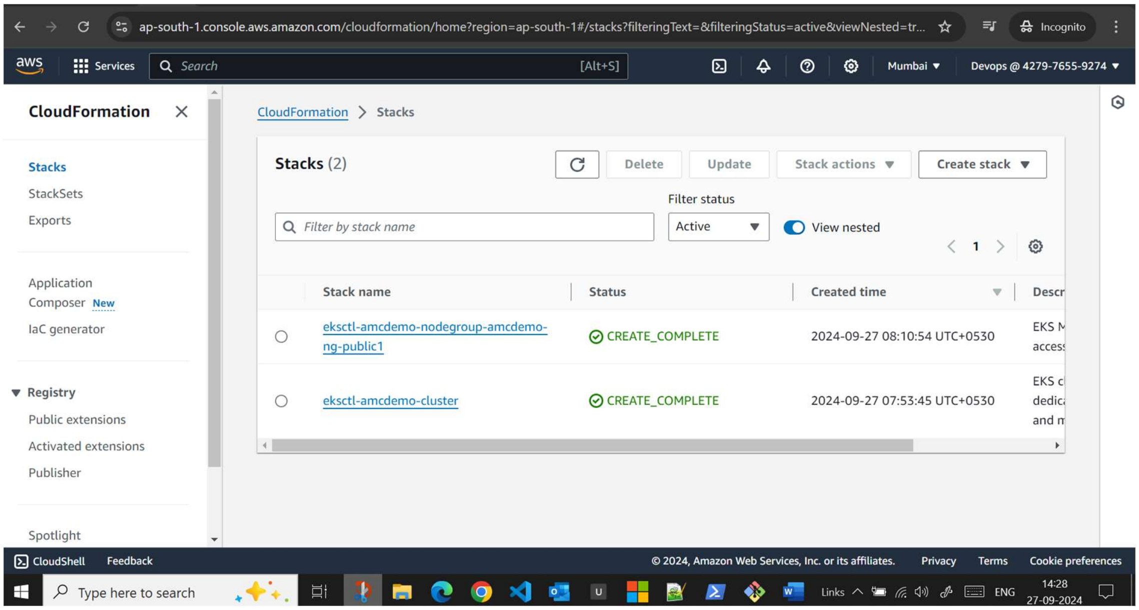


Tags (8)

Tags that you've added. Each tag consists of a key and an optional value.

Key	Value
aws:cloudformation:stack-name	eksctl-amcdemo-nodegroup-amcdemo-ng-public1
alpha.eksctl.io/cluster-name	amcdemo
alpha.eksctl.io/nodegroup-name	amcdemo-ng-public1
aws:cloudformation:stack-id	arn:aws:cloudformation:ap-south-1:427976559274:stack/eksctl-amcdemo-nodegroup-amcdemo-ng-public1/ead74c00-7c79-11ef-9177-02e72654dfb7
eksctl.cluster.k8s.io/v1alpha1/cluster-name	amcdemo
aws:cloudformation:logical-id	ManagedNodeGroup
alpha.eksctl.io/nodegroup-type	managed
alpha.eksctl.io/eksctl-version	0.190.0

Cloud Formation Stack:

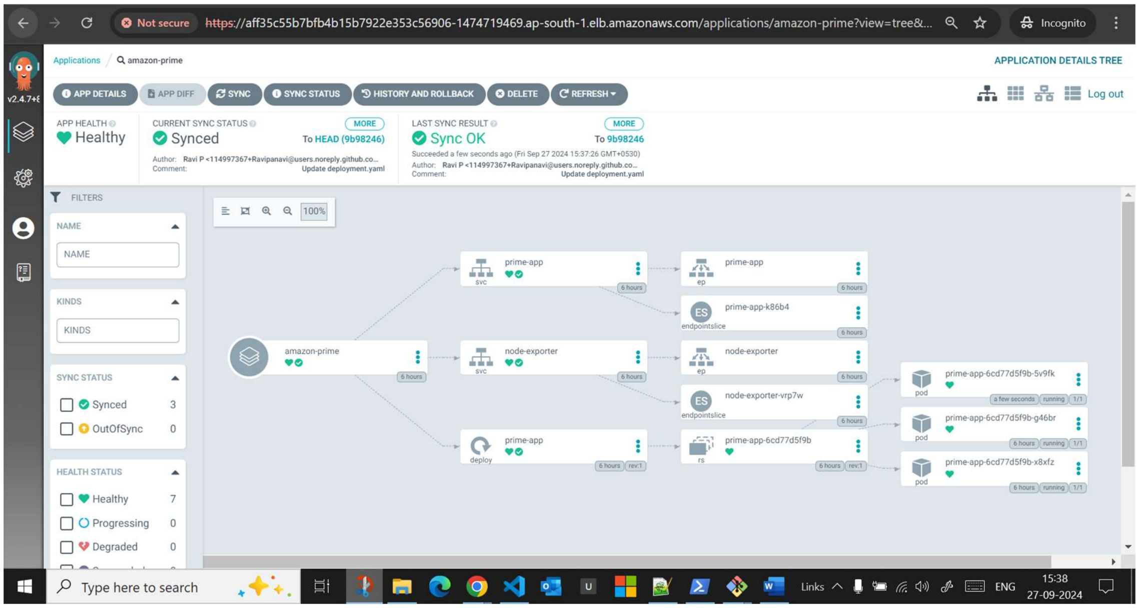


Stacks (2)

Filter status: Active

	Stack name	Status	Created time	Descr
○	eksctl-amcdemo-nodegroup-amcdemo-ng-public1	✓ CREATE_COMPLETE	2024-09-27 08:10:54 UTC+0530	EKS M access
○	eksctl-amcdemo-cluster	✓ CREATE_COMPLETE	2024-09-27 07:53:45 UTC+0530	EKS c dedica and m

ARGOCD – Dashboard



https://aff35c55b7bfb4b15b7922e353c56906-1474719469.ap-south-1.elb.amazonaws.com/applications/amazon-prime?view=tree&...

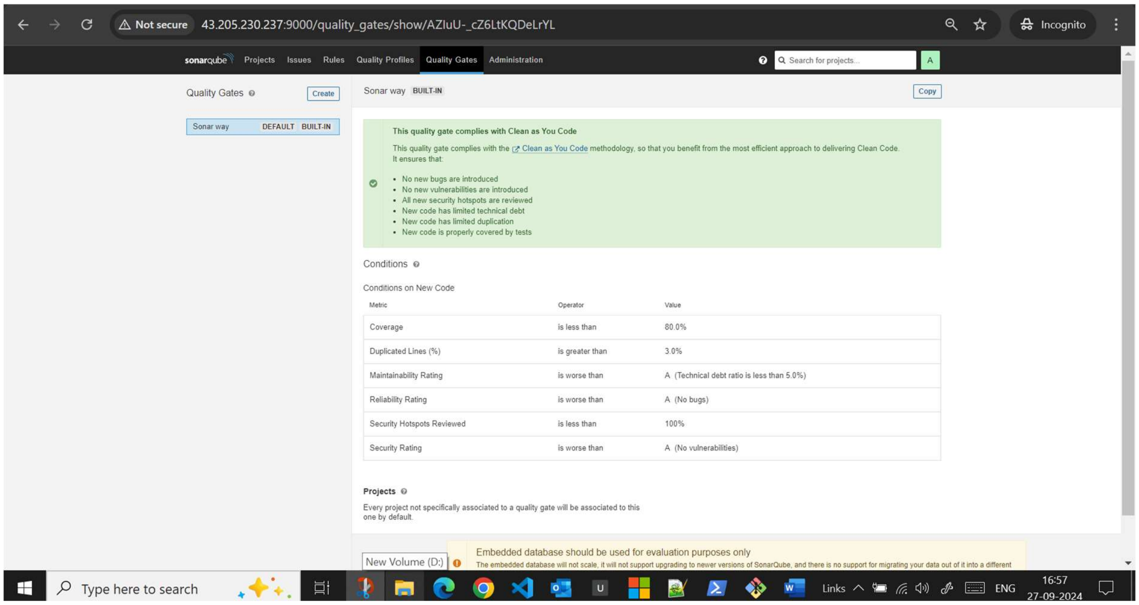
Applications / amazon-prime

APP HEALTH: Healthy

CURRENT SYNC STATUS: Synced To HEAD (9b98246)
Author: Ravi P <114997367+Ravipanavi@users.noreply.github.co...
Comment: Update deployment.yaml

LAST SYNC RESULT: Sync OK To 9b98246
Succeeded a few seconds ago (Fri Sep 27 2024 15:37:26 GMT+0530)
Author: Ravi P <114997367+Ravipanavi@users.noreply.github.co...
Comment: Update deployment.yaml

SonarQube:



43.205.230.237:9000/quality_gates/show/AZIuU-_cZ6LtKQDeLrYL

Sonar way BUILT-IN

This quality gate complies with Clean as You Code

This quality gate complies with the Clean as You Code methodology, so that you benefit from the most efficient approach to delivering Clean Code. It ensures that:

- No new bugs are introduced
- No new vulnerabilities are introduced
- All new security hotspots are reviewed
- New code has limited technical debt
- New code has limited duplication
- New code is properly covered by tests

Conditions

Conditions on New Code

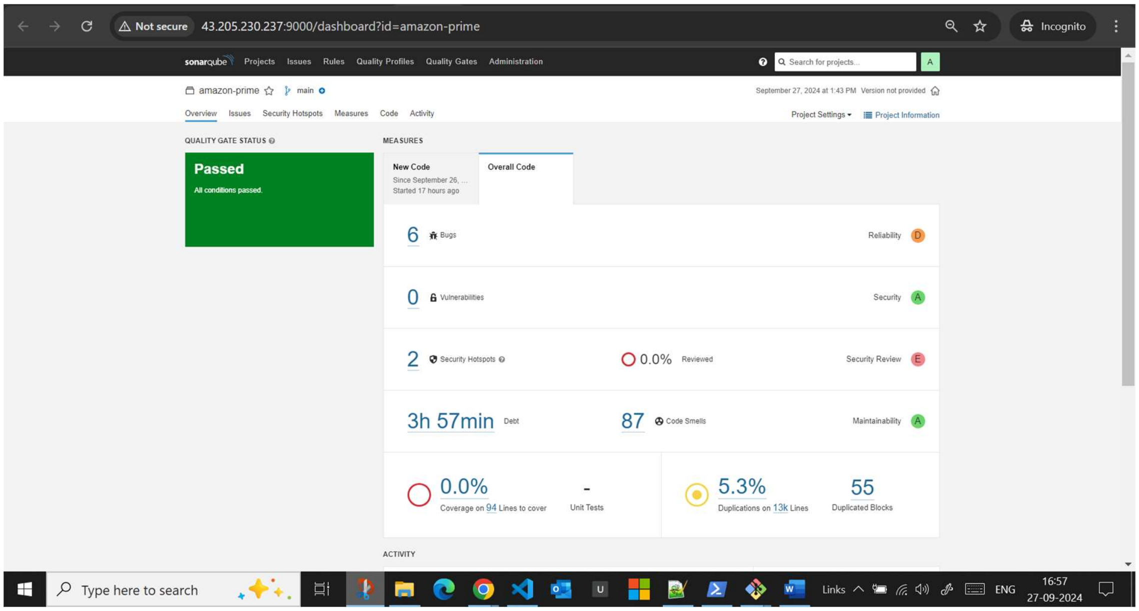
Metric	Operator	Value
Coverage	is less than	80.0%
Duplicated Lines (%)	is greater than	3.0%
Maintainability Rating	is worse than	A (Technical debt ratio is less than 5.0%)
Reliability Rating	is worse than	A (No bugs)
Security Hotspots Reviewed	is less than	100%
Security Rating	is worse than	A (No vulnerabilities)

Projects

Every project not specifically associated to a quality gate will be associated to this one by default.

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



amazon-prime main

September 27, 2024 at 1:43 PM Version not provided

QUALITY GATE STATUS

Passed

All conditions passed.

MEASURES

New Code
Since September 26, ...
Started 17 hours ago

Overall Code

6 Bugs		Reliability D
0 Vulnerabilities		Security A
2 Security Hotspots	0.0% Reviewed	Security Review E
3h 57min Debt	87 Code Smells	Maintainability A

0.0% Coverage on 94 Lines to cover

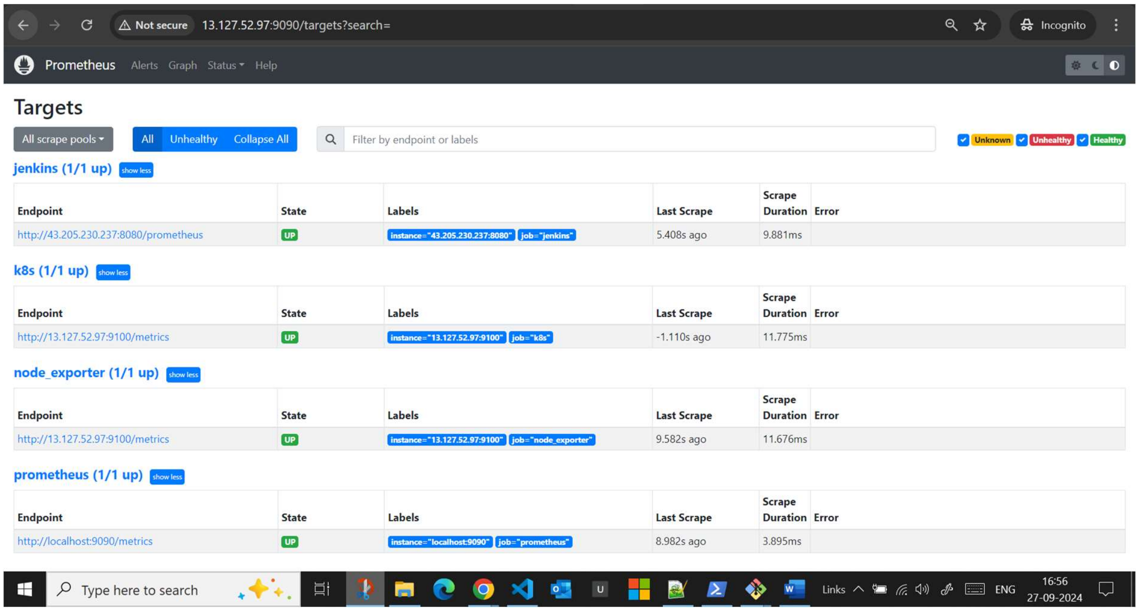
- Unit Tests

5.3% Duplications on 13k Lines

55 Duplicated Blocks

ACTIVITY

Observability:



Targets

jenkins (1/1 up)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://43.205.230.237:8080/prometheus	UP	instance="43.205.230.237:8080" job="jenkins"	5.408s ago	9.881ms	

k8s (1/1 up)

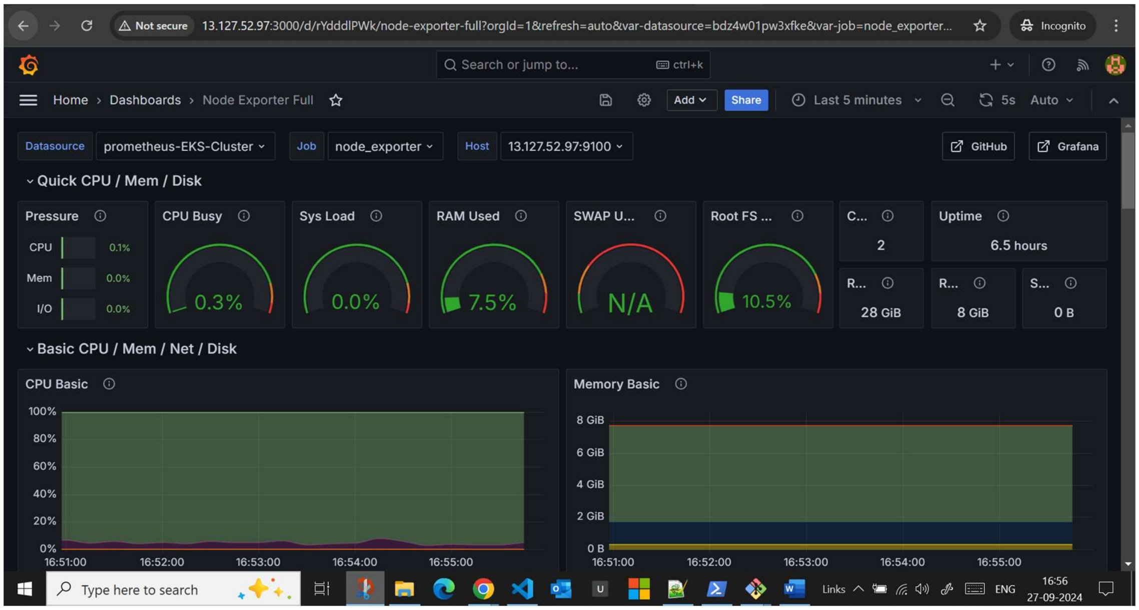
Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://13.127.52.97:9100/metrics	UP	instance="13.127.52.97:9100" job="k8s"	-1.110s ago	11.775ms	

node_exporter (1/1 up)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://13.127.52.97:9100/metrics	UP	instance="13.127.52.97:9100" job="node_exporter"	9.582s ago	11.676ms	

prometheus (1/1 up)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://localhost:9090/metrics	UP	instance="localhost:9090" job="prometheus"	8.982s ago	3.895ms	

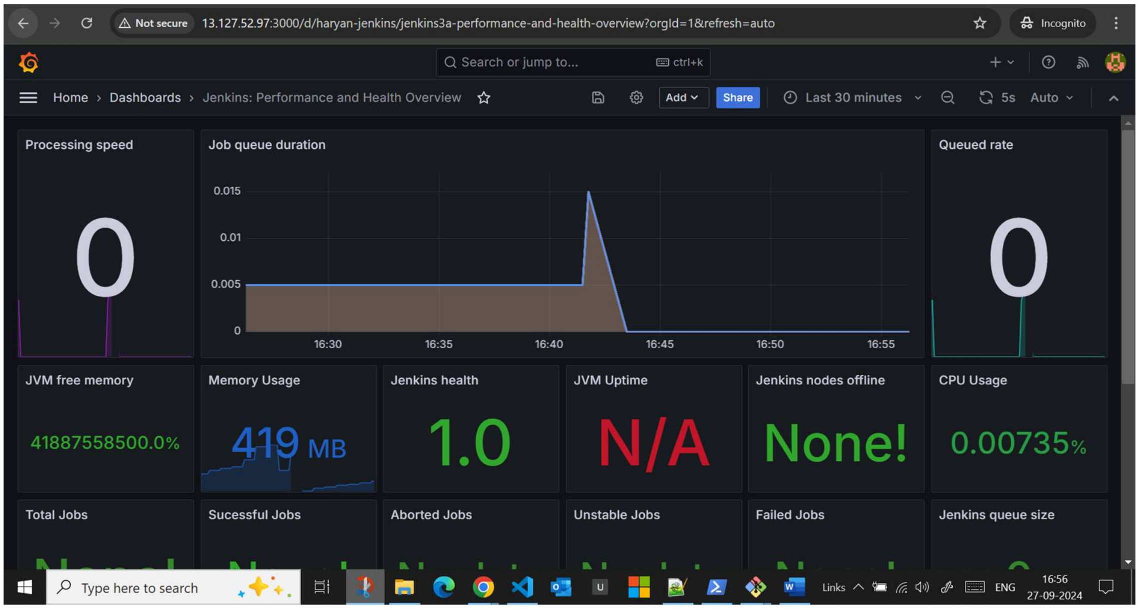


⚠ Not secure 13.127.52.97:3000/d/rYdddlPWk/node-exporter-full?orgId=1&refresh=auto&var-datasource=bdz4w01pw3xfke&var-job=node_exporter...

Home › Dashboards › Node Exporter Full

Last 5 minutes 5s Auto

Datasource: prometheus-EKS-Cluster Job: node_exporter Host: 13.127.52.97:9100



⚠ Not secure 13.127.52.97:3000/d/haryan-jenkins/jenkins3a-performance-and-health-overview?orgId=1&refresh=auto

Home › Dashboards › Jenkins: Performance and Health Overview

Last 30 minutes 5s Auto

Thank you!!