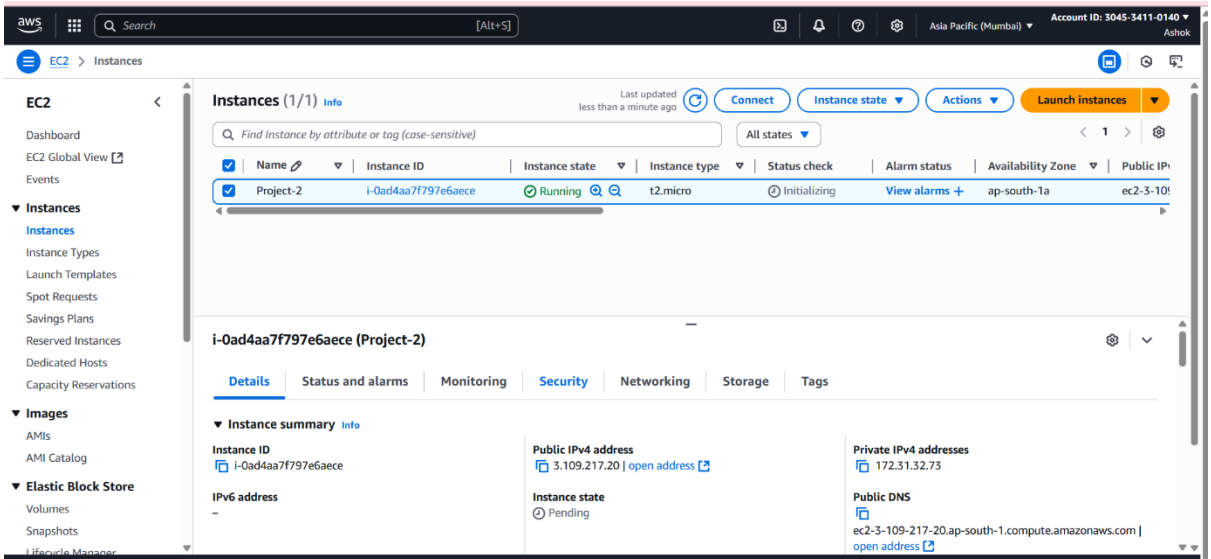
Application Deployment

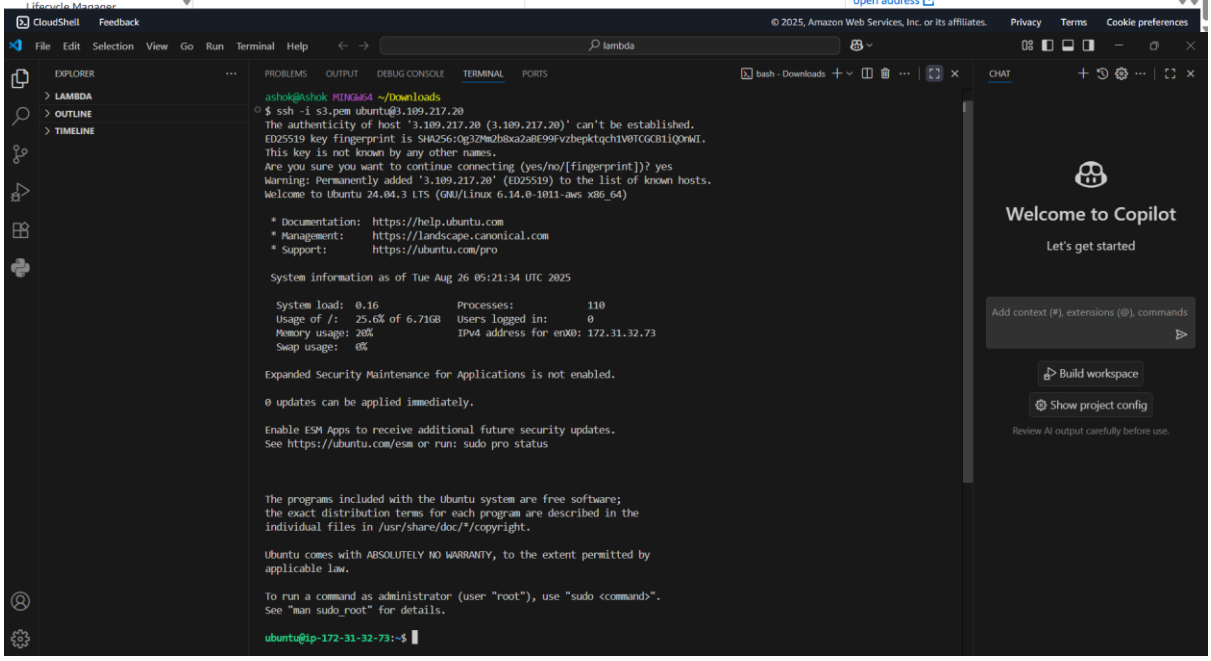
Project Name:Trend-App:

Prerequisites:

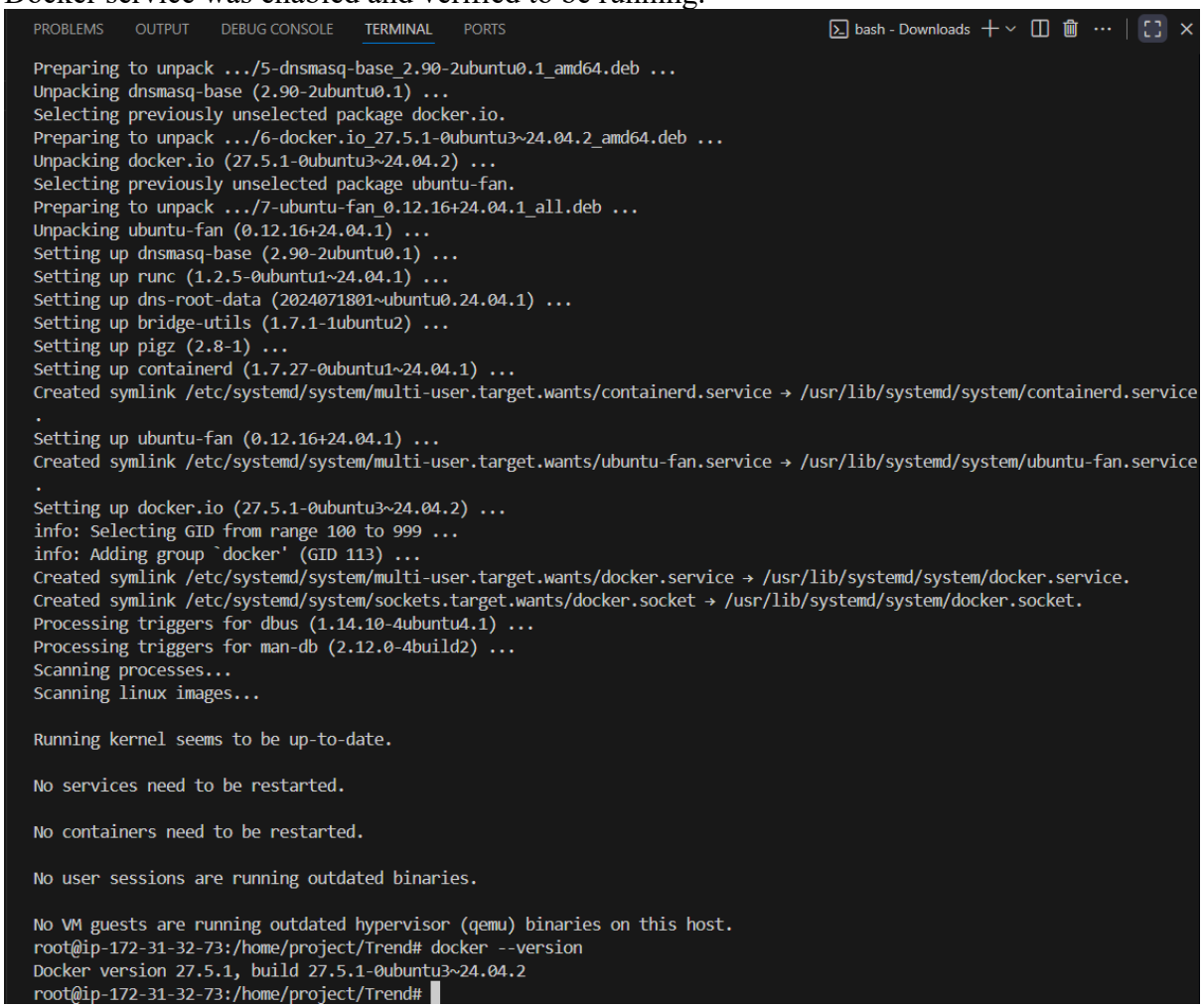
EC2 Instance:

- An AWS EC2 instance was launched and configured as the working environment.

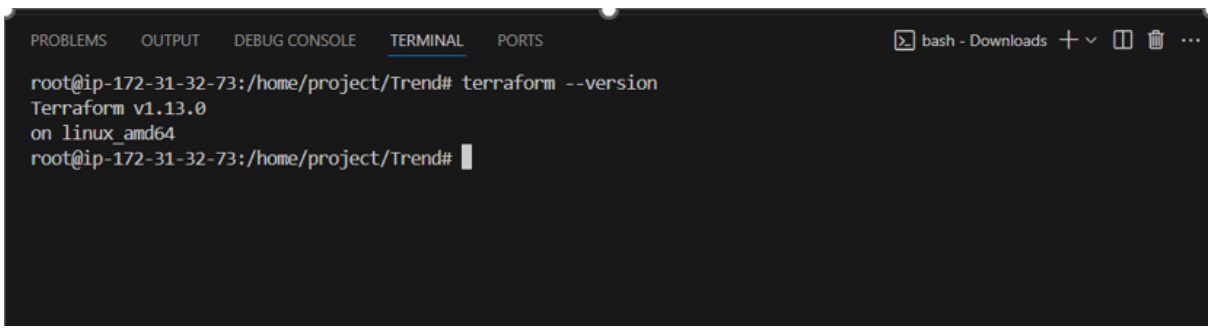




Docker:

- Installed on the EC2 instance to containerize the application.
- Docker service was enabled and verified to be running.
- 

Terraform:

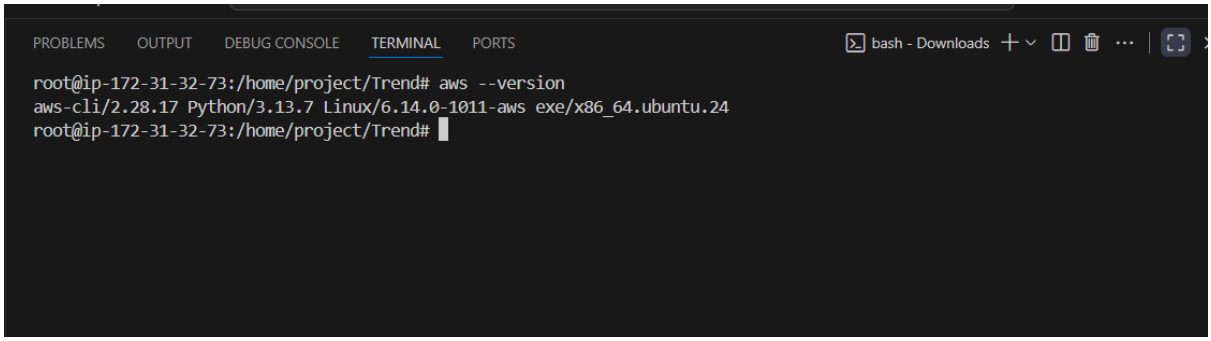
- Installed to provision and manage AWS infrastructure using Infrastructure as Code (IaC).
- Verified installation on the EC2 instance.
- 

Jenkins:

- Installed on the EC2 instance to automate build and deployment pipelines.
- Configured and accessed through the browser to ensure proper setup.

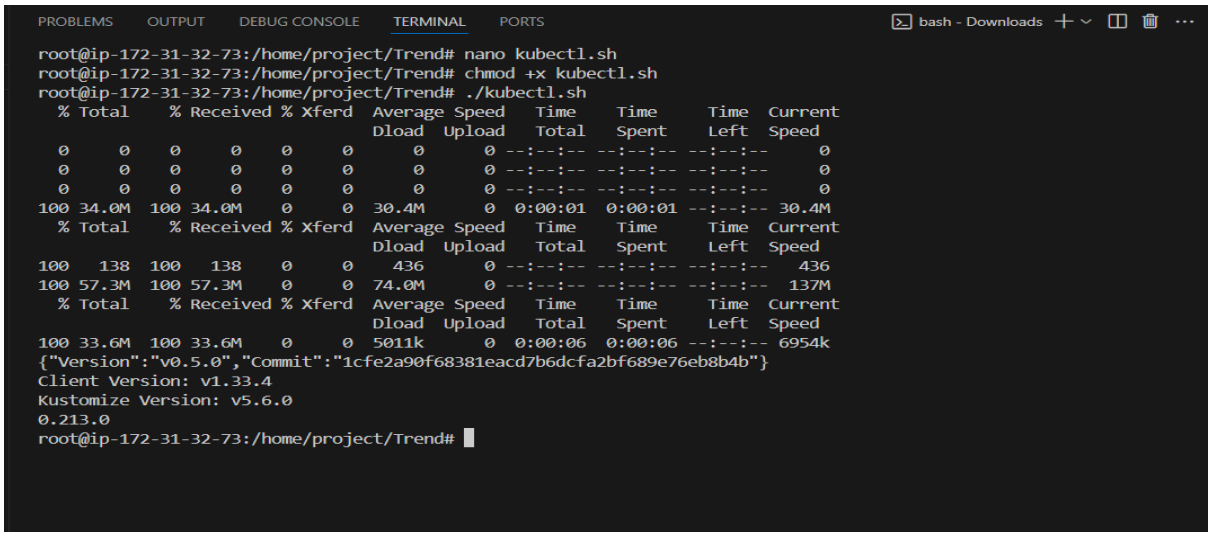
AWS CLI:

- Installed on the EC2 instance to interact with AWS services.
- Configured with appropriate credentials and default region.



Kubernetes (kubectl & EKS setup):

- Kubernetes command-line tool (**kubectl**) was installed on the EC2 instance.
- AWS EKS (Elastic Kubernetes Service) CLI plugin was installed to manage Kubernetes clusters.

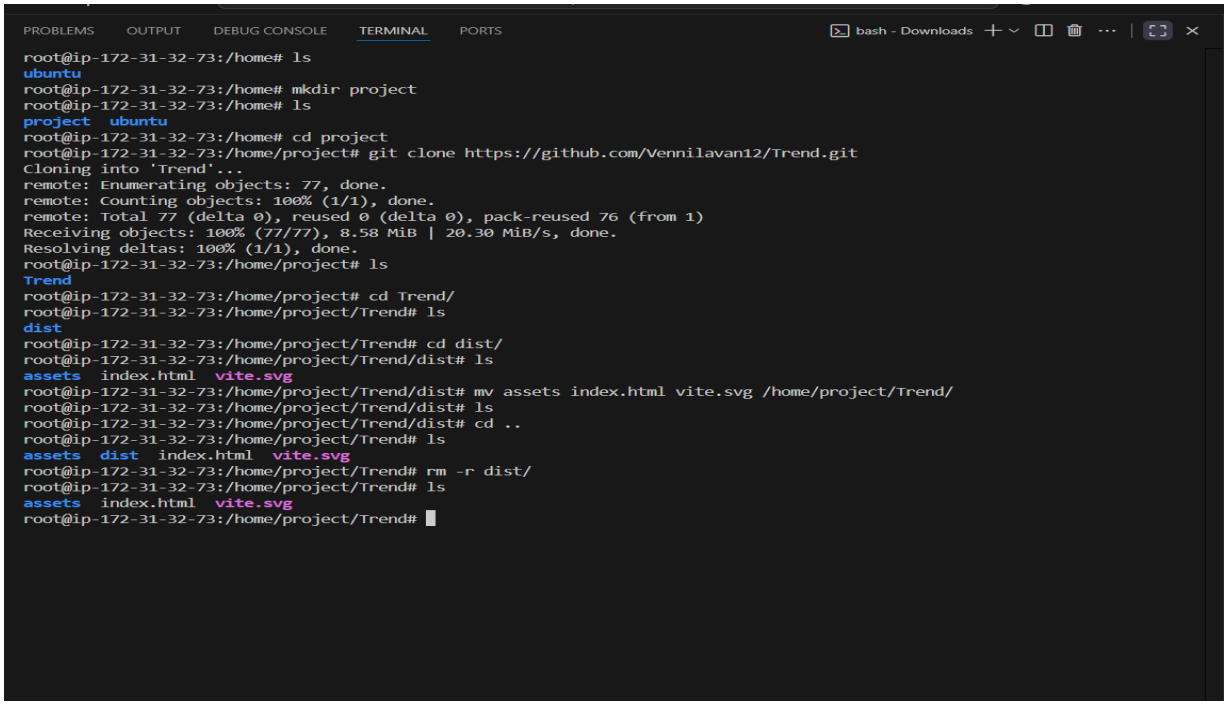


General Requirements.

- Stable internet connection on the EC2 instance.
- Sufficient storage and compute resources to run containers, clusters, and automation tools.
- A web browser (from local machine) to access the application and Jenkins dashboard.

Application Deployment:

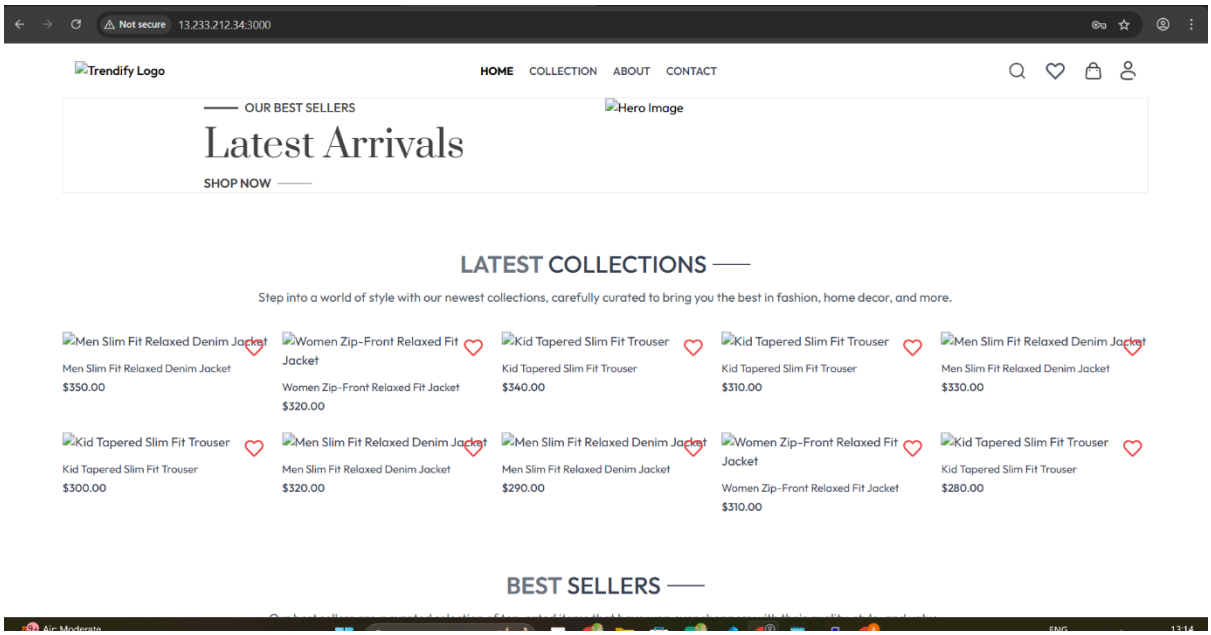
- I cloned the given GitHub repository on the EC2 instance. After installing the required dependencies, I started the application.
  The application launched successfully and was accessible on **port 3000** in the browser.

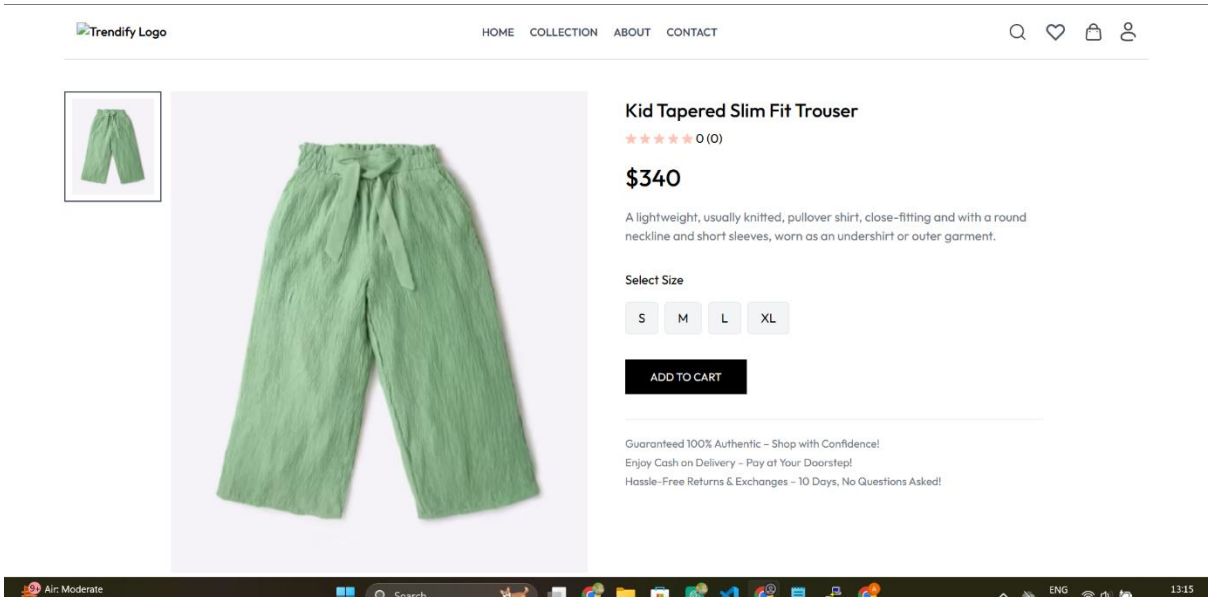


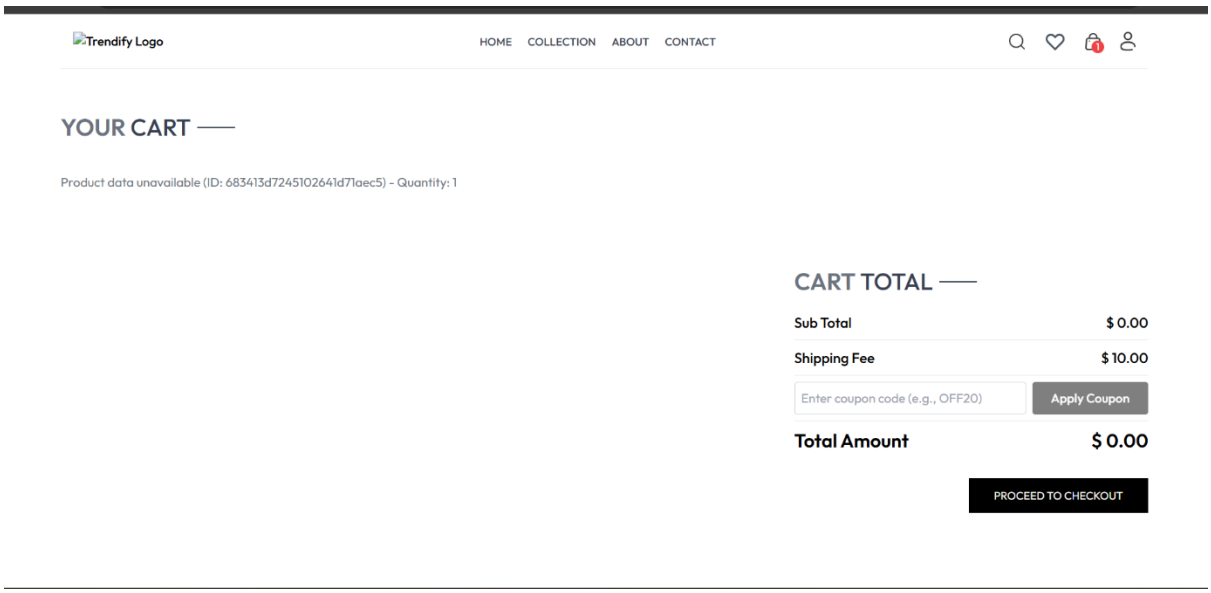
Dockerization:

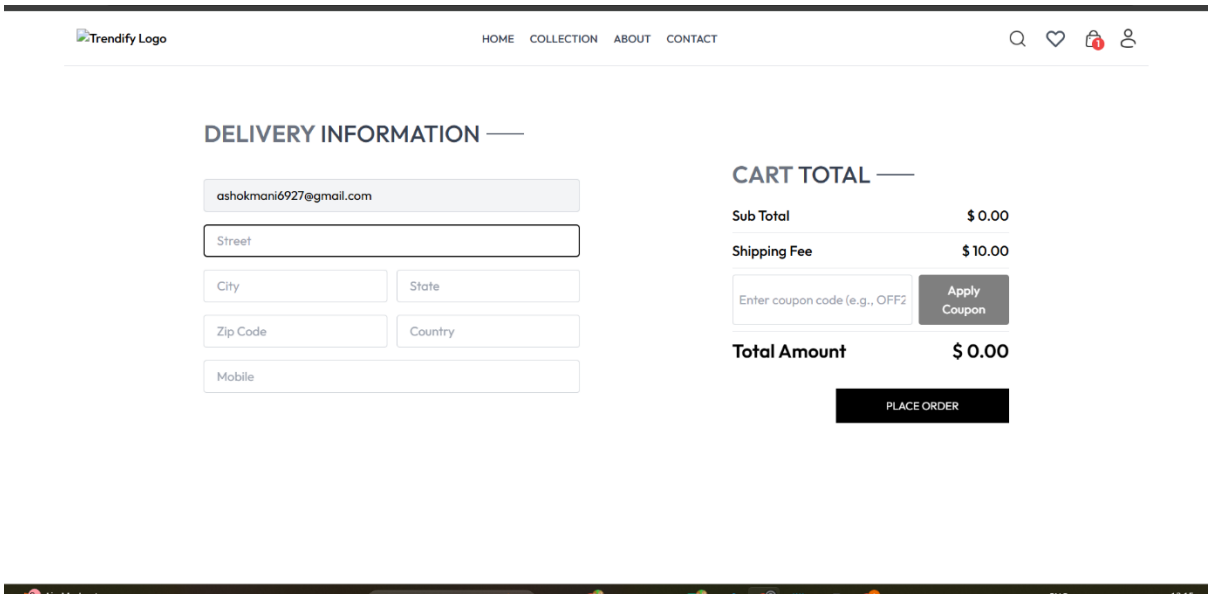
- **Created Dockerfile**
  I created a Dockerfile inside the project directory. This file had the steps required to build the application image and run it inside a container.

- **Ran Application in Docker**
  I ran a container using the image I created. The application came up successfully inside the container and was again accessible on **port 3000**.









Terraform Infrastructure Setup

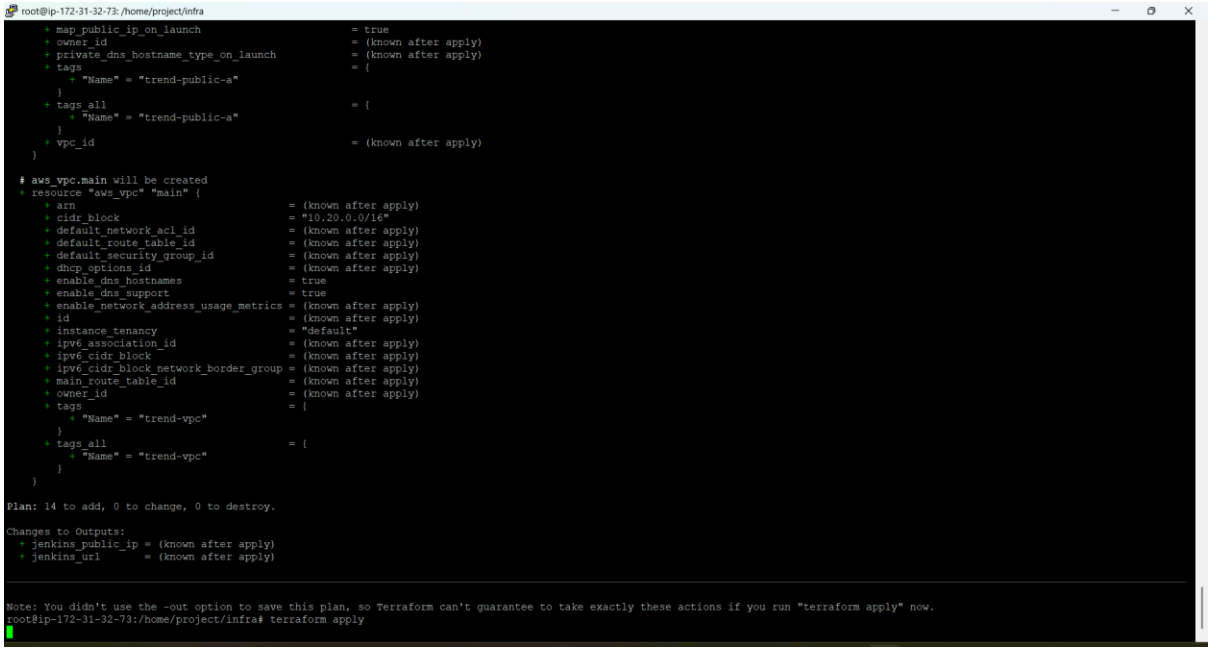
Infrastructure Definition:

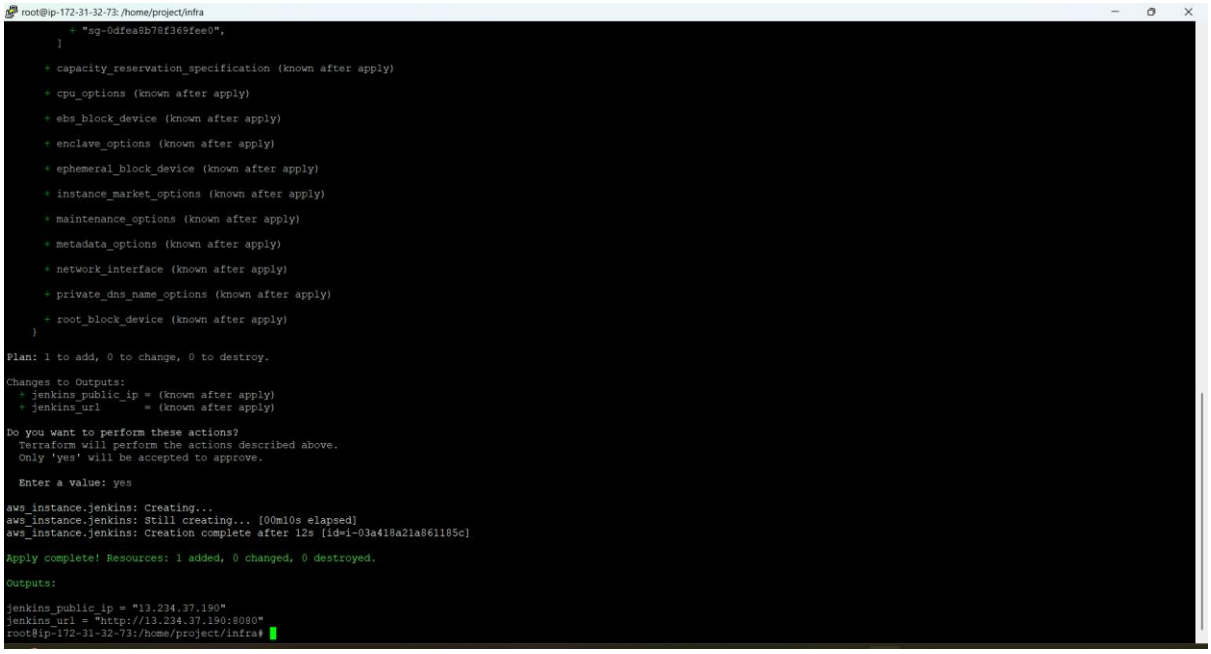
- I created a main.tf file where I defined the infrastructure components needed for this project. The resources included:
  - VPC
  - Subnets and Security Groups
  - IAM Role/Policy
  - EC2 Instance with Jenkins installed

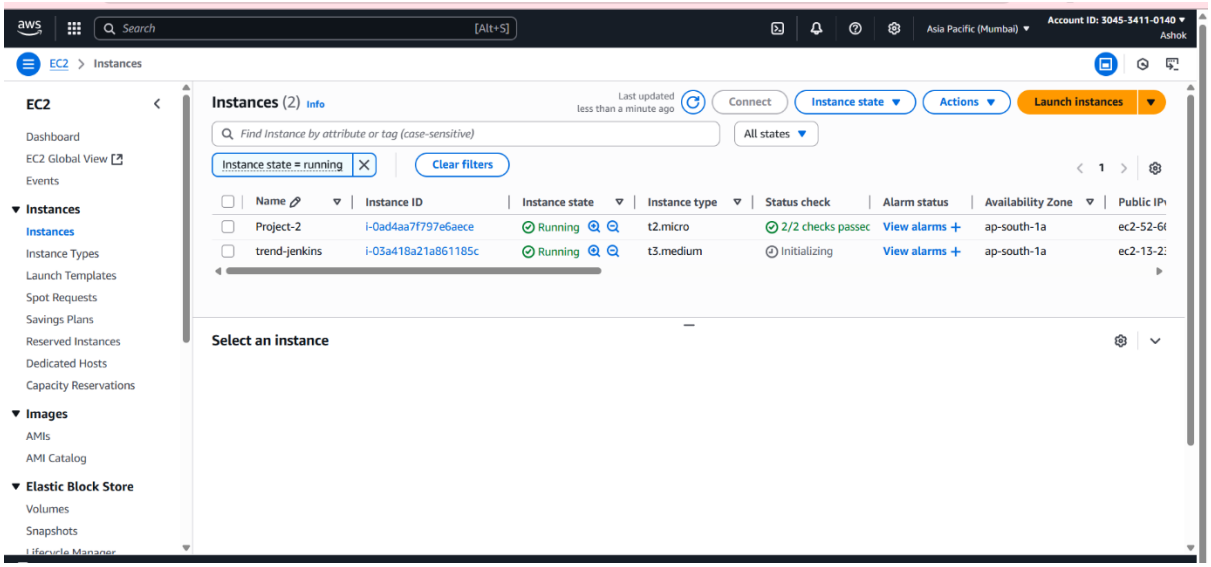
```
root@ip-172-31-32-73:/home/project/infra# ls
main.tf  outputs.tf  variables.tf
root@ip-172-31-32-73:/home/project/infra# nano variables.tf
root@ip-172-31-32-73:/home/project/infra# nano main.tf
root@ip-172-31-32-73:/home/project/infra# terraform init
Initializing the backend...
Initializing provider plugins...
- Finding hashicorp/aws versions matching "~> 5.0"...
- Installing hashicorp/aws v5.100.0...
- Installed hashicorp/aws v5.100.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
root@ip-172-31-32-73:/home/project/infra#
```

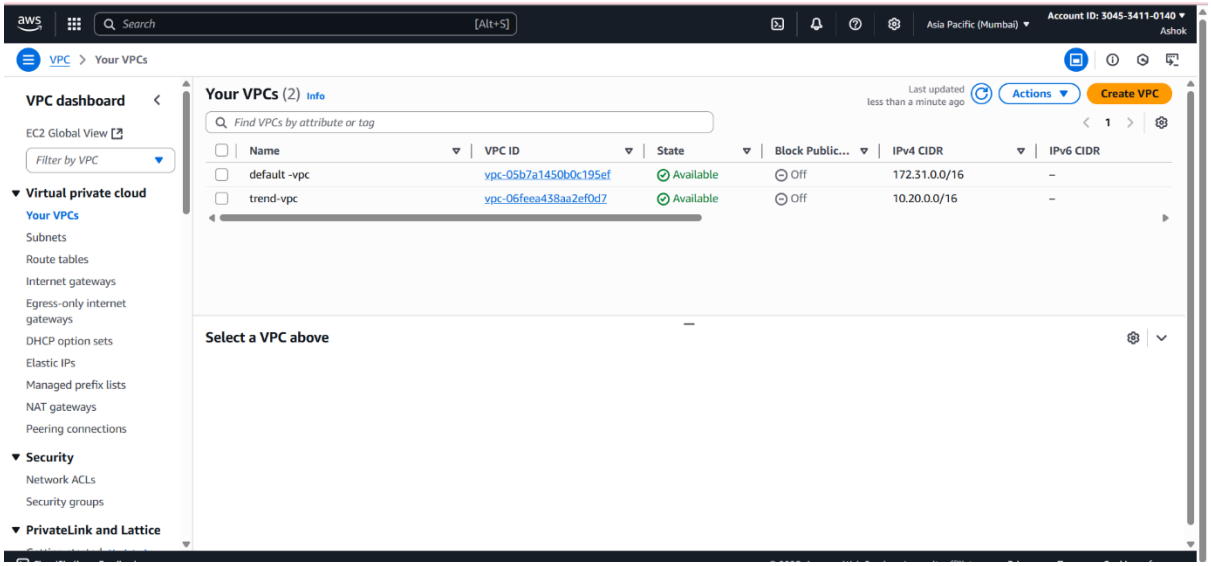
root@ip-172-31-32-73: /home/project/infra

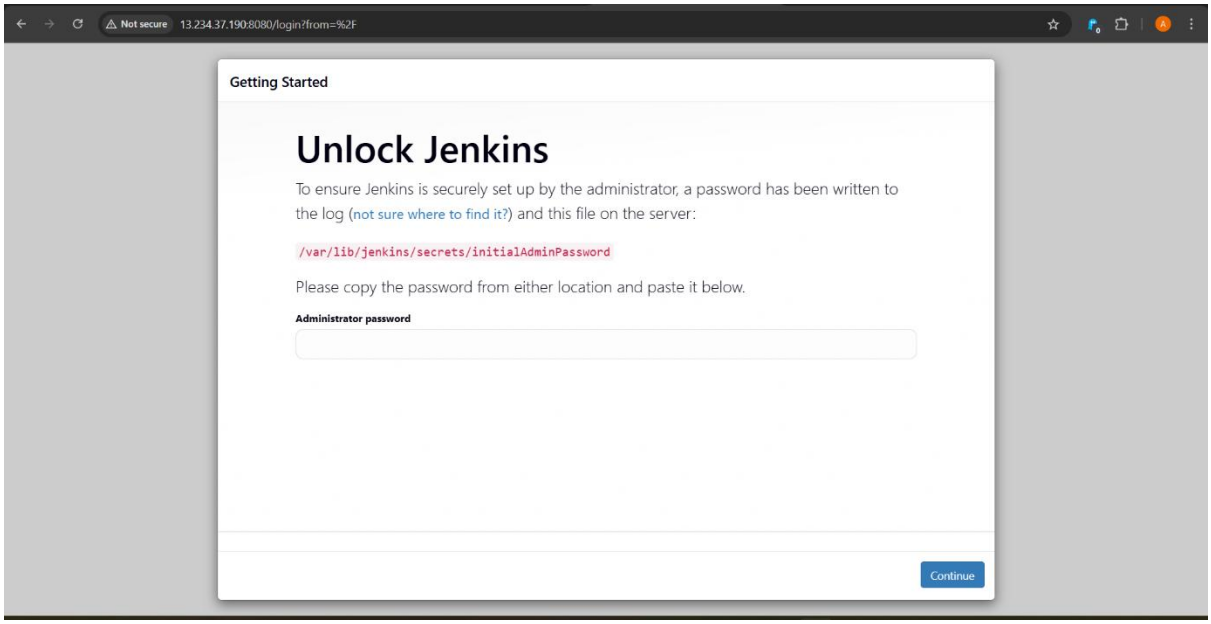
```
        + {
            + cidr_blocks      = [
                + "0.0.0.0/0",
              ]
            + from_port        = 80
            + ipv6_cidr_blocks = []
            + prefix_list_ids  = []
            + protocol         = "tcp"
            + security_groups  = []
            + self             = false
            + to_port          = 80
              # (1 unchanged attribute hidden)
          },
      ]
    + name                   = "trend-jenkins-sg"
    + name_prefix            = (known after apply)
    + owner_id               = (known after apply)
    + revoke_rules_on_delete = false
    + tags_all               = (known after apply)
    + vpc_id                 = (known after apply)
  }

  # aws_subnet.public_a will be created
  + resource "aws_subnet" "public_a" {
      + arn                                            = (known after apply)
      + assign_ipv6_address_on_creation                = false
      + availability_zone                              = "ap-south-1a"
      + availability_zone_id                           = (known after apply)
      + cidr_block                                     = "10.20.1.0/24"
      + enable_dns64                                   = false
      + enable_resource_name_dns_a_record_on_launch    = false
      + enable_resource_name_dns_aaaa_record_on_launch = false
      + id                                             = (known after apply)
      + ipv6_cidr_block_association_id                 = (known after apply)
      + ipv6_native                                    = false
      + map_public_ip_on_launch                        = true
      + owner_id                                       = (known after apply)
      + private_dns_hostname_type_on_launch            = (known after apply)
      + tags                                           = {
          + "Name" = "trend-public-a"
        }
      + tags_all                                       = {
          + "Name" = "trend-public-a"
        }
      + vpc_id                                         = (known after apply)
    }

  # aws_vpc.main will be created
```

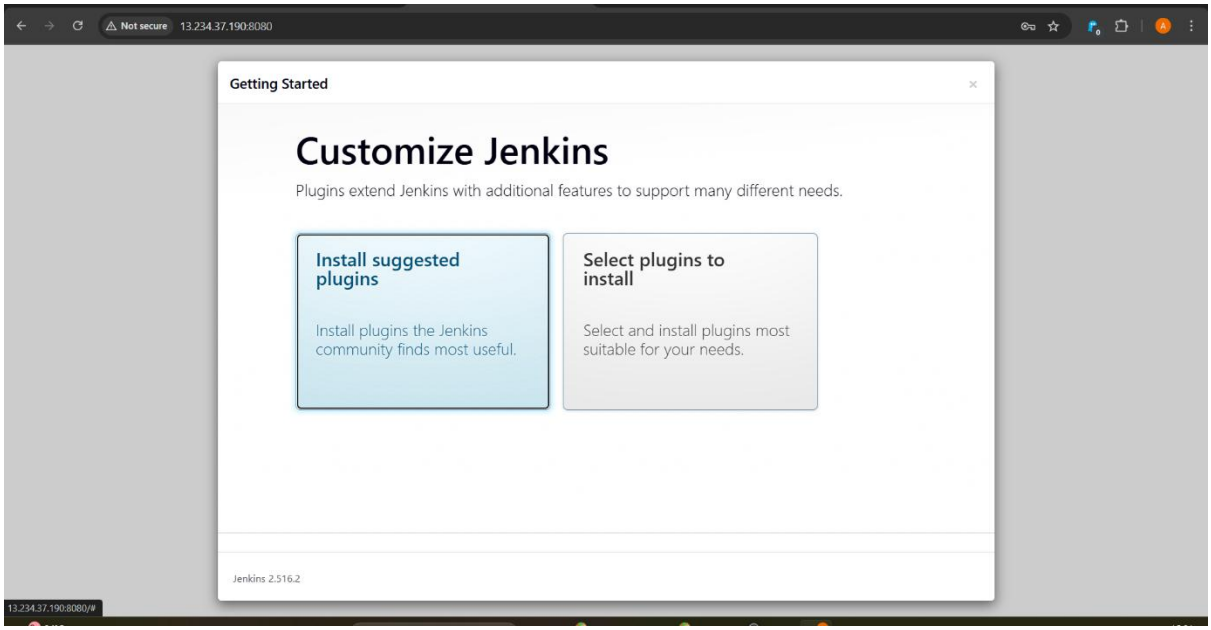

root@ip-172-31-32-73: /home/project/infra
+ map_public_ip_on_launch = true
+ owner_id = (known after apply)
+ private_dns_hostname_type_on_launch = (known after apply)
+ tags = {
+ "Name" = "trend-public-a"
}
+ tags_all = {
+ "Name" = "trend-public-a"
}
+ vpc_id = (known after apply)
}
# aws_vpc.main will be created
+ resource "aws_vpc" "main" {
+ arn = (known after apply)
+ cidr_block = "10.20.0.0/16"
+ default_network_acl_id = (known after apply)
+ default_route_table_id = (known after apply)
+ default_security_group_id = (known after apply)
+ dhcp_options_id = (known after apply)
+ enable_dns_hostnames = true
+ enable_dns_support = true
+ enable_network_address_usage_metrics = (known after apply)
+ id = (known after apply)
+ instance_tenancy = "default"
+ ipv6_association_id = (known after apply)
+ ipv6_cidr_block = (known after apply)
+ ipv6_cidr_block_network_border_group = (known after apply)
+ main_route_table_id = (known after apply)
+ owner_id = (known after apply)
+ tags = {
+ "Name" = "trend-vpc"
}
+ tags_all = {
+ "Name" = "trend-vpc"
}
}
Plan: 14 to add, 0 to change, 0 to destroy.
Changes to Outputs:
+ jenkins_public_ip = (known after apply)
+ jenkins_url = (known after apply)
Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if you run "terraform apply" now.
root@ip-172-31-32-73:/home/project/infra# terraform apply

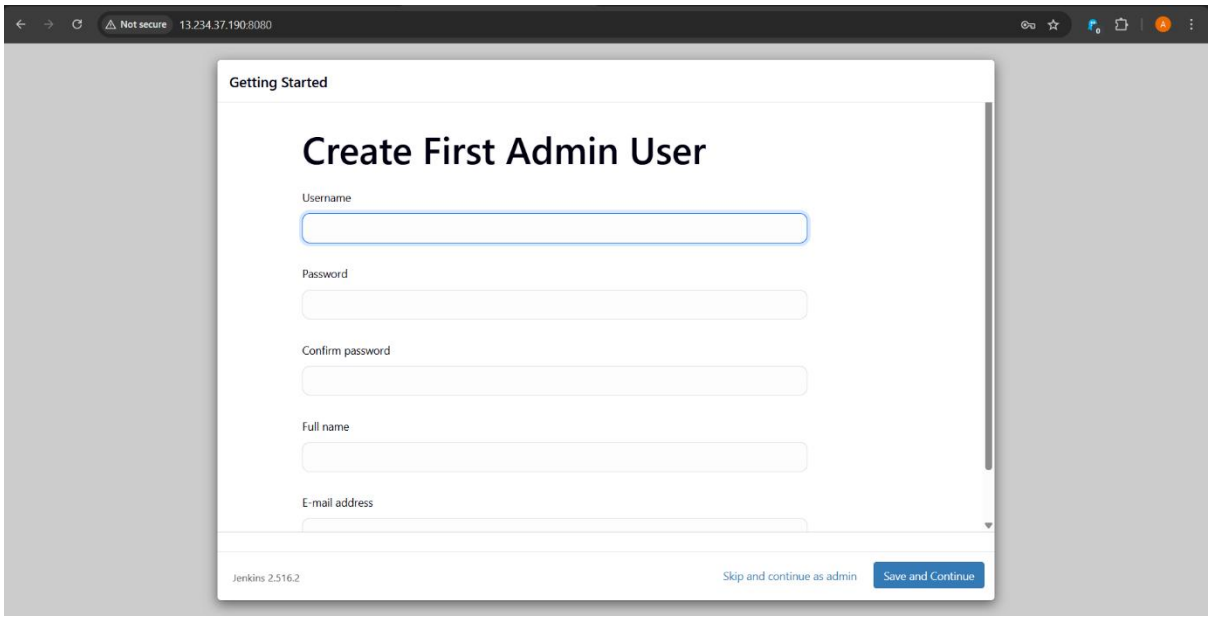

root@ip-172-31-32-73: /home/project/infra
+ "sg-0dfea8b78f369fee0",
]
+ capacity_reservation_specification (known after apply)
+ cpu_options (known after apply)
+ ebs_block_device (known after apply)
+ enclave_options (known after apply)
+ ephemeral_block_device (known after apply)
+ instance_market_options (known after apply)
+ maintenance_options (known after apply)
+ metadata_options (known after apply)
+ network_interface (known after apply)
+ private_dns_name_options (known after apply)
+ root_block_device (known after apply)
}
Plan: 1 to add, 0 to change, 0 to destroy.
Changes to Outputs:
+ jenkins_public_ip = (known after apply)
+ jenkins_url = (known after apply)
Do you want to perform these actions?
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.
Enter a value: yes
aws_instance.jenkins: Creating...
aws_instance.jenkins: Still creating... [00m10s elapsed]
aws_instance.jenkins: Creation complete after 12s [id=i-03a418a21a861185c]
Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
Outputs:
jenkins_public_ip = "13.234.37.190"
jenkins_url = "http://13.234.37.190:8080"
root@ip-172-31-32-73:/home/project/infra#

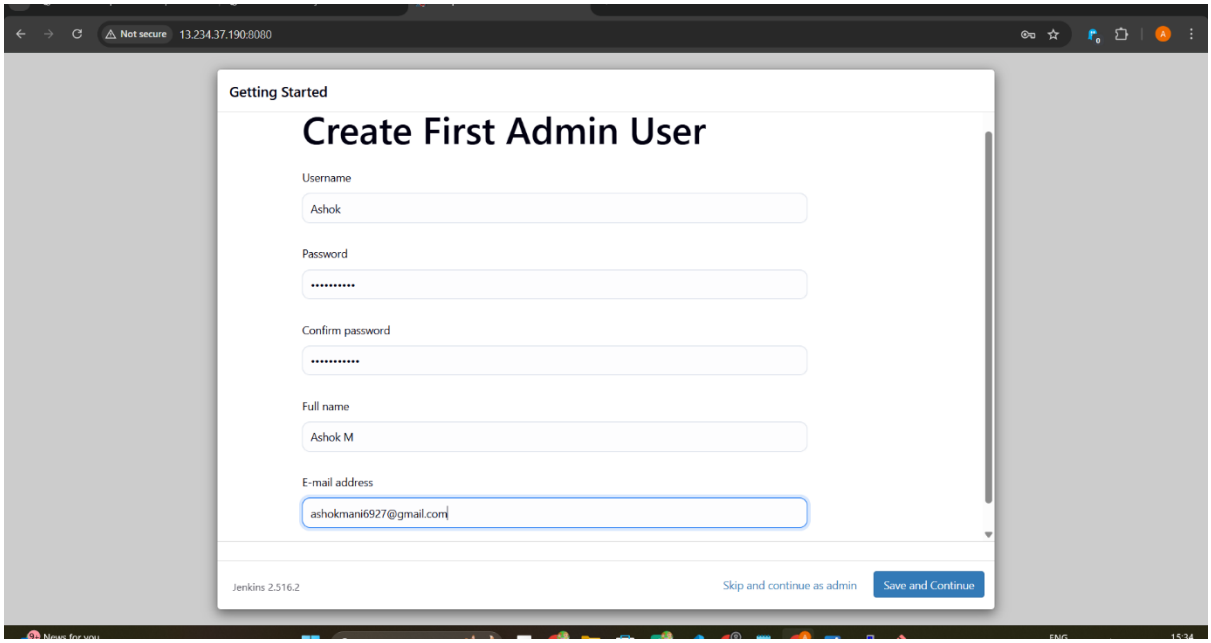

aws
Search
[Alt+S]
Asia Pacific (Mumbai)
Account ID: 3045-3411-0140
Ashok
EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Instances (2) Info
Last updated less than a minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Instance state = running
Clear filters
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IP
Project-2
i-0ad4aa7f797e6aece
Running
t2.micro
2/2 checks passed
View alarms
ap-south-1a
trend-jenkins
i-03a418a21a861185c
Running
t3.medium
Initializing
View alarms
ap-south-1a
Select an instance

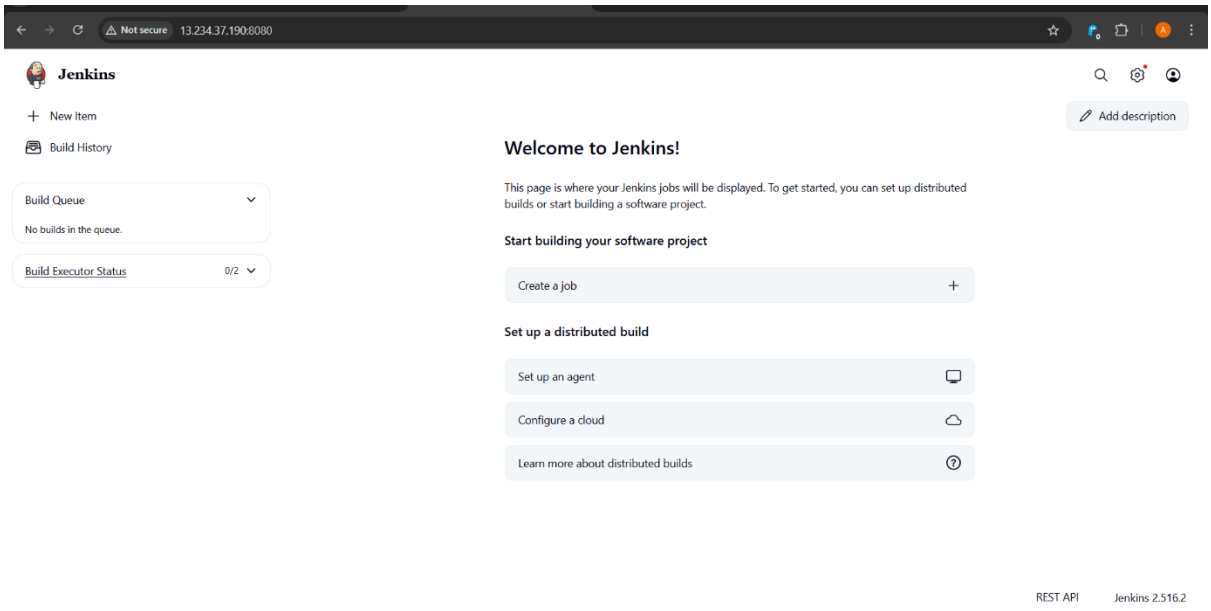

aws
Search
[Alt+S]
Asia Pacific (Mumbai)
Account ID: 3045-3411-0140
Ashok
VPC > Your VPCs
VPC dashboard
EC2 Global View
Filter by VPC
Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only internet gateways
DHCP option sets
Elastic IPs
Managed prefix lists
NAT gateways
Peering connections
Security
Network ACLs
Security groups
PrivateLink and Lattice
Your VPCs (2) Info
Last updated less than a minute ago
Actions
Create VPC
Find VPCs by attribute or tag
Name
VPC ID
State
Block Public...
IPv4 CIDR
IPv6 CIDR
default -vpc
vpc-05b7a1450b0c195ef
Available
Off
172.31.0.0/16
trend-vpc
vpc-06feea438aa2ef0d7
Available
Off
10.20.0.0/16
Select a VPC above


Not secure
13.234.37.190:8080/login?from=%2F
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


Not secure 13.234.37.190:8080
Getting Started
Customize Jenkins
Plugins extend Jenkins with additional features to support many different needs.
Install suggested plugins
Install plugins the Jenkins community finds most useful.
Select plugins to install
Select and install plugins most suitable for your needs.
Jenkins 2.516.2
13.234.37.190:8080/#


Not secure 13.234.37.190:8080
Getting Started
Create First Admin User
Username
Password
Confirm password
Full name
E-mail address
Jenkins 2.516.2
Skip and continue as admin
Save and Continue

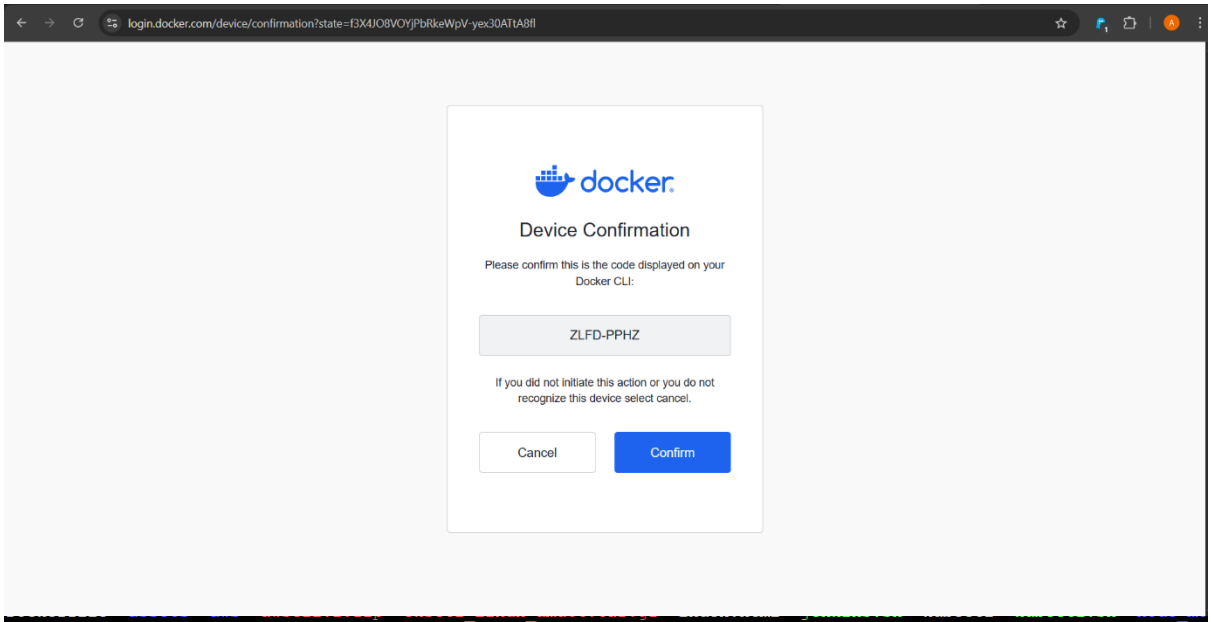




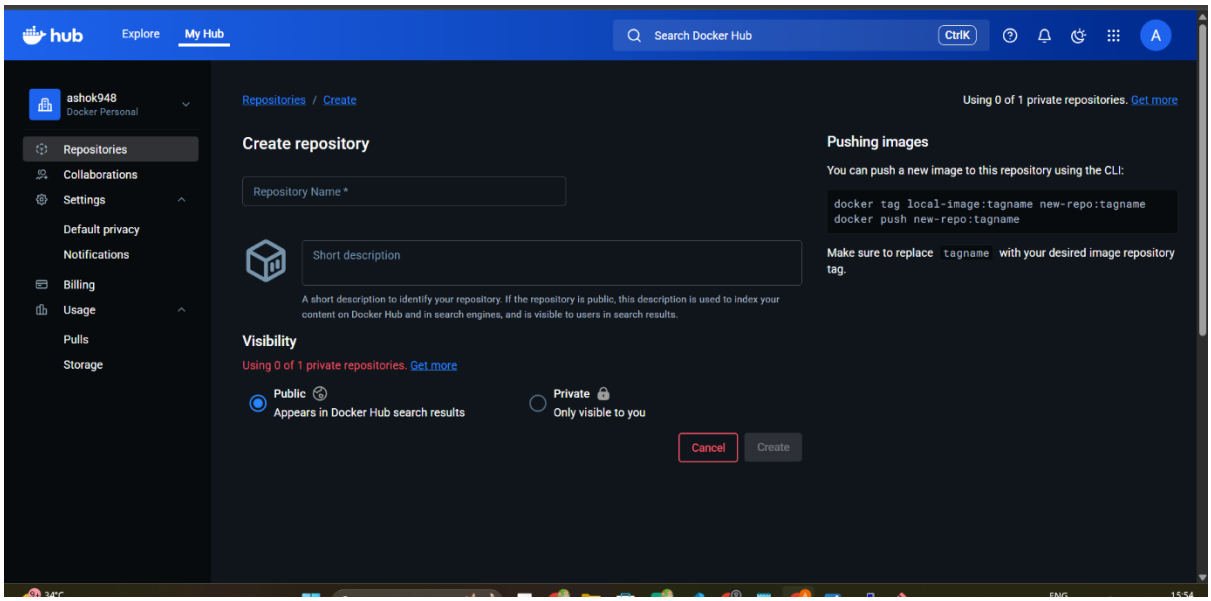
DockerHub:

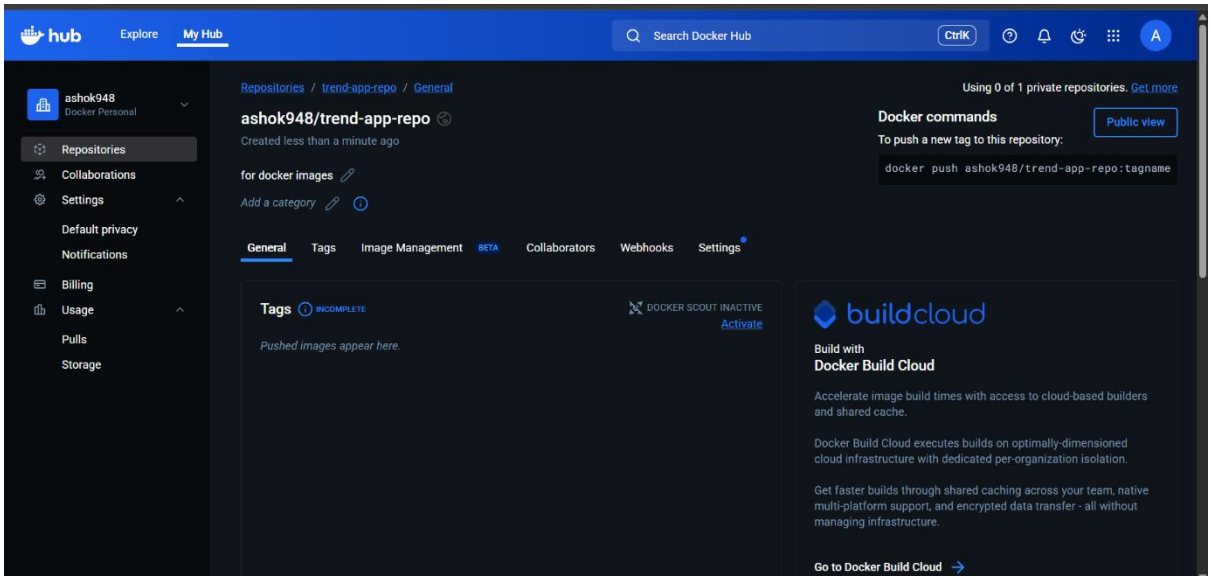
Repository Creation:

- I created a new repository in DockerHub to store and share the Docker image of the application.
    - Logged in to DockerHub.
    - Created a new public repository with a suitable name for the project.
    - Verified that the repository was available in my DockerHub account.




```
ubuntu@ip-172-31-32-73:/home/project/Trend$ docker login

USING WEB-BASED LOGIN
To sign in with credentials on the command line, use 'docker login -u <username>'

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

Waiting for authentication in the browser…
ZLFD-PPHZ
WARNING! Your password will be stored unencrypted in /home/ubuntu/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credential-stores

Login Succeeded
ubuntu@ip-172-31-32-73:/home/project/Trend$
```

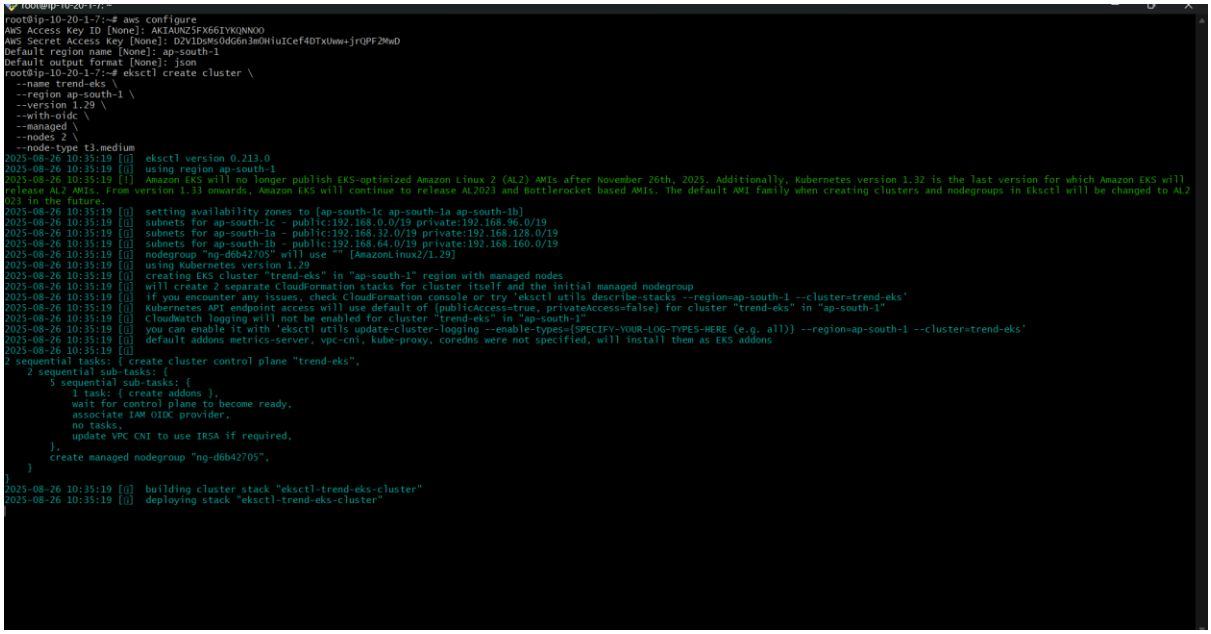


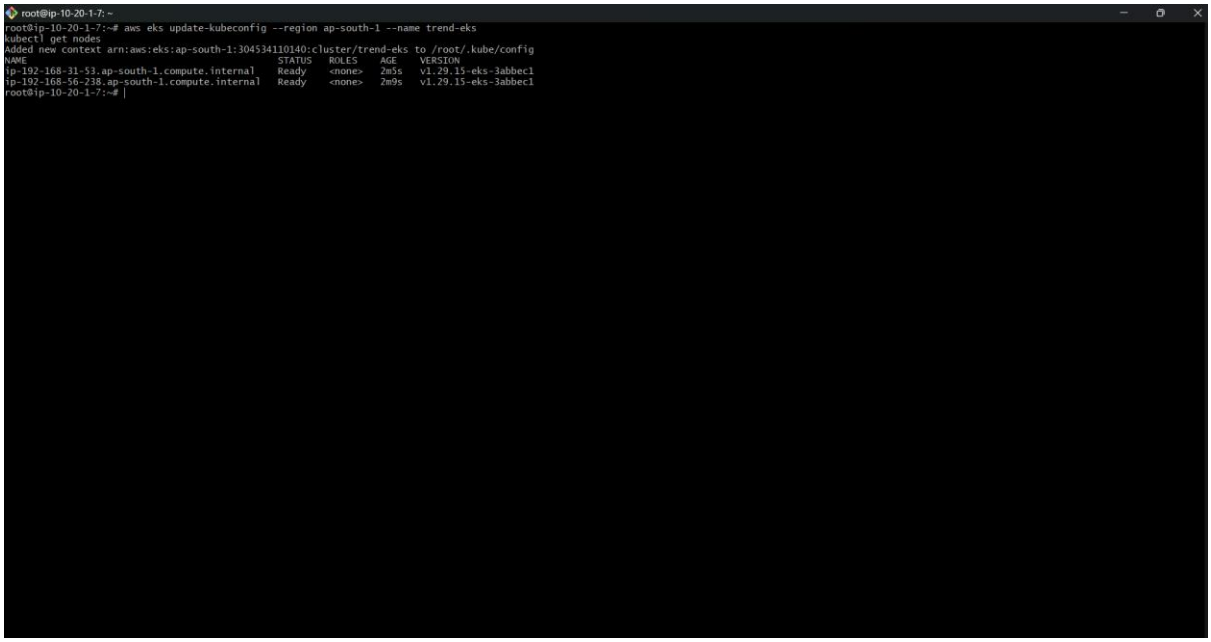


Kubernetes on AWS EKS

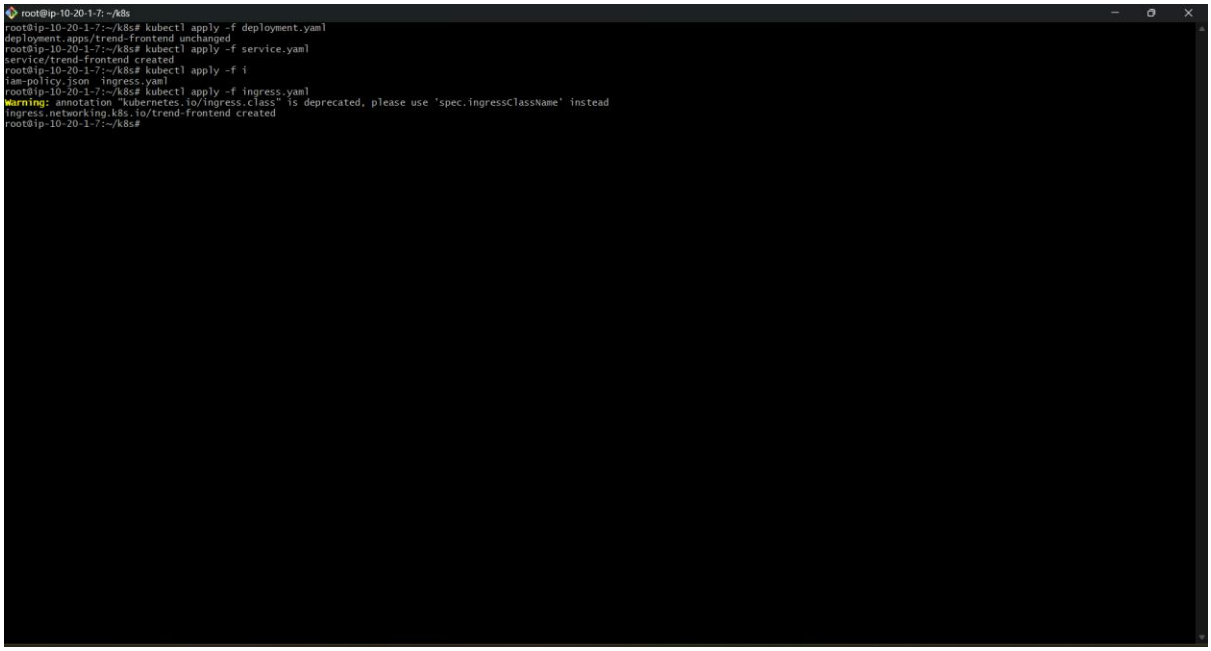
EKS Cluster Setup:

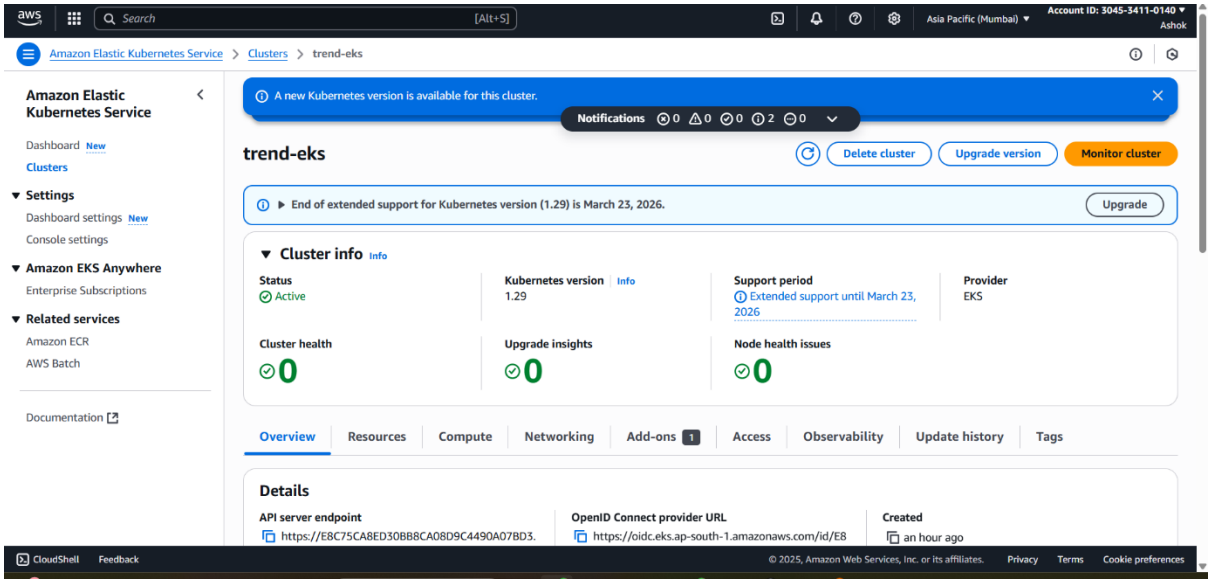
- I set up Kubernetes on AWS using **Elastic Kubernetes Service (EKS)**.
    - An EKS cluster was created with the required configurations.
    - Connected to the cluster from the EC2 instance using kubectl.
    - Verified that the cluster was running and nodes were in a ready state.

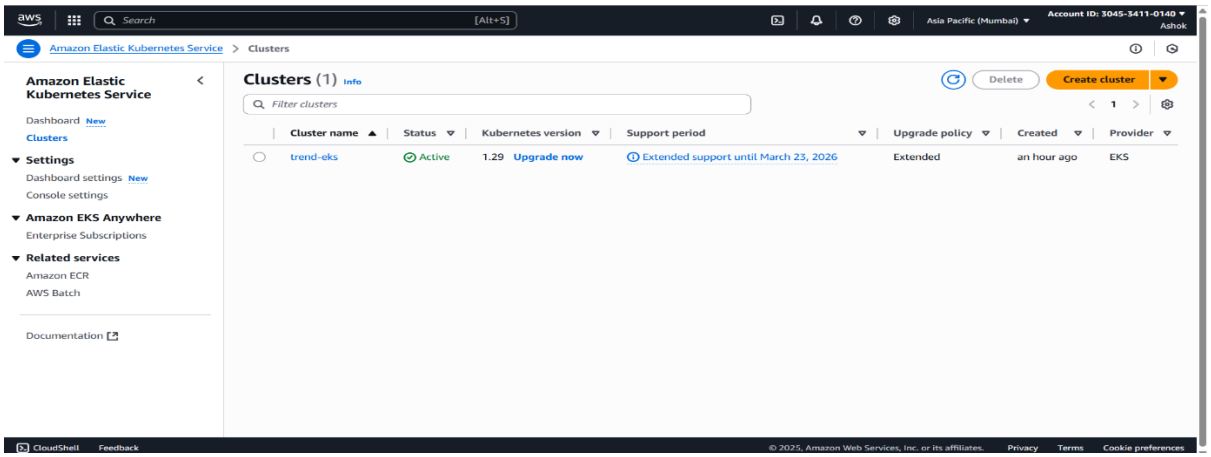


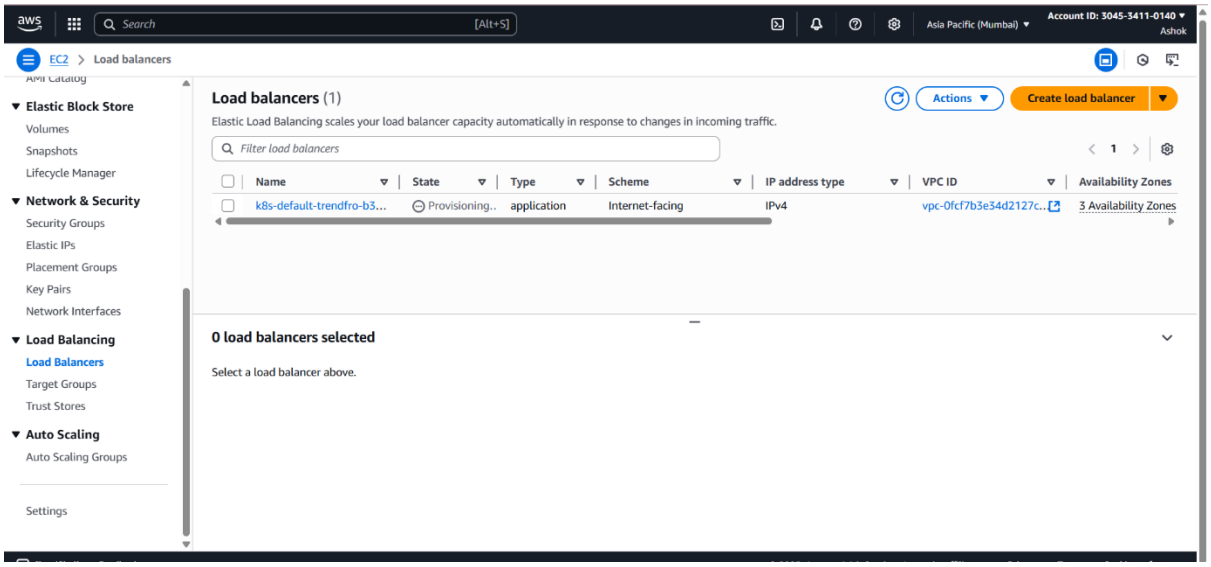

root@ip-10-20-1-7: ~
root@ip-10-20-1-7:~# aws eks update-kubeconfig --region ap-south-1 --name trend-eks
kubectl get nodes
Added new context arn:aws:eks:ap-south-1:304534110140:cluster/trend-eks to /root/.kube/config
NAME STATUS ROLES AGE VERSION
ip-192-168-31-53.ap-south-1.compute.internal Ready <none> 2m5s v1.29.15-eks-3abbec1
ip-192-168-56-238.ap-south-1.compute.internal Ready <none> 2m9s v1.29.15-eks-3abbec1
root@ip-10-20-1-7:~#

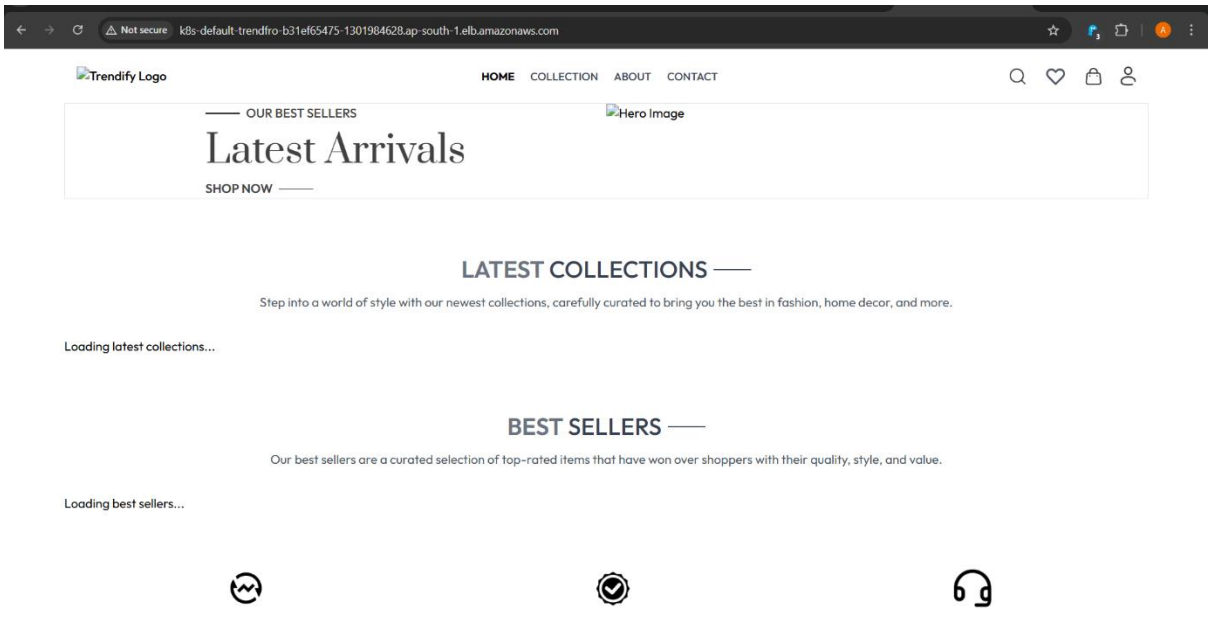

root@ip-10-20-1-7:~/k8s# eksctl utils associate-iam-oidc-provider --cluster trend-eks --approve
2025-08-26 11:17:49 [ℹ] IAM Open ID Connect provider is already associated with cluster "trend-eks" in "ap-south-1"
root@ip-10-20-1-7:~/k8s# curl -o iam-policy.json https://raw.githubusercontent.com/kubernetes-sigs/aws-load-balancer-controller/v2.8.1/docs/install/iam_policy.json
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 8446 100 8446 0 0 28731 0 --:--:-- --:--:-- --:--:-- 28825
root@ip-10-20-1-7:~/k8s# aws iam create-policy \
--policy-name AWSLoadBalancerControllerIAMPolicy \
--policy-document file://iam-policy.json
An error occurred (EntityAlreadyExists) when calling the CreatePolicy operation: A policy called AWSLoadBalancerControllerIAMPolicy already exists. Duplicate names are not allowed.
root@ip-10-20-1-7:~/k8s# eksctl create iamserviceaccount \
--cluster=trend-eks \
--namespace=kube-system \
--name=aws-load-balancer-controller \
--attach-policy-arn=arn:aws:iam::304534110140:policy/AWSLoadBalancerControllerIAMPolicy \
--approve
2025-08-26 11:18:44 [ℹ] 1 iamserviceaccount (kube-system/aws-load-balancer-controller) was included (based on the include/exclude rules)
2025-08-26 11:18:44 [!] serviceaccounts that exist in Kubernetes will be excluded, use --override-existing-serviceaccounts to override
2025-08-26 11:18:44 [ℹ] 1 task: {
2 sequential sub-tasks: {
create IAM role for serviceaccount "kube-system/aws-load-balancer-controller",
create serviceaccount "kube-system/aws-load-balancer-controller",
} }2025-08-26 11:18:44 [ℹ] building iamserviceaccount stack "eksctl-trend-eks-addon-iamserviceaccount-kube-system-aws-load-balancer-controller"
2025-08-26 11:18:44 [ℹ] deploying stack "eksctl-trend-eks-addon-iamserviceaccount-kube-system-aws-load-balancer-controller"
2025-08-26 11:18:44 [ℹ] waiting for CloudFormation stack "eksctl-trend-eks-addon-iamserviceaccount-kube-system-aws-load-balancer-controller"
2025-08-26 11:19:14 [ℹ] waiting for CloudFormation stack "eksctl-trend-eks-addon-iamserviceaccount-kube-system-aws-load-balancer-controller"
2025-08-26 11:19:15 [ℹ] created serviceaccount "kube-system/aws-load-balancer-controller"
root@ip-10-20-1-7:~/k8s# helm repo add eks https://aws.github.io/eks-charts
helm repo update
"eks" already exists with the same configuration, skipping
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "eks" chart repository
Update Complete. ⎈Happy Helming!⎈
root@ip-10-20-1-7:~/k8s# helm upgrade -i aws-load-balancer-controller eks/aws-load-balancer-controller \
-n kube-system \
--set clusterName=trend-eks \
--set serviceAccount.create=false \
--set serviceAccount.name=aws-load-balancer-controller
Release "aws-load-balancer-controller" has been upgraded. Happy Helming!
NAME: aws-load-balancer-controller
LAST DEPLOYED: Tue Aug 26 11:19:46 2025
NAMESPACE: kube-system
STATUS: deployed
REVISION: 2
TEST SUITE: None
NOTES:
AWS Load Balancer controller installed!
root@ip-10-20-1-7:~/k8s#

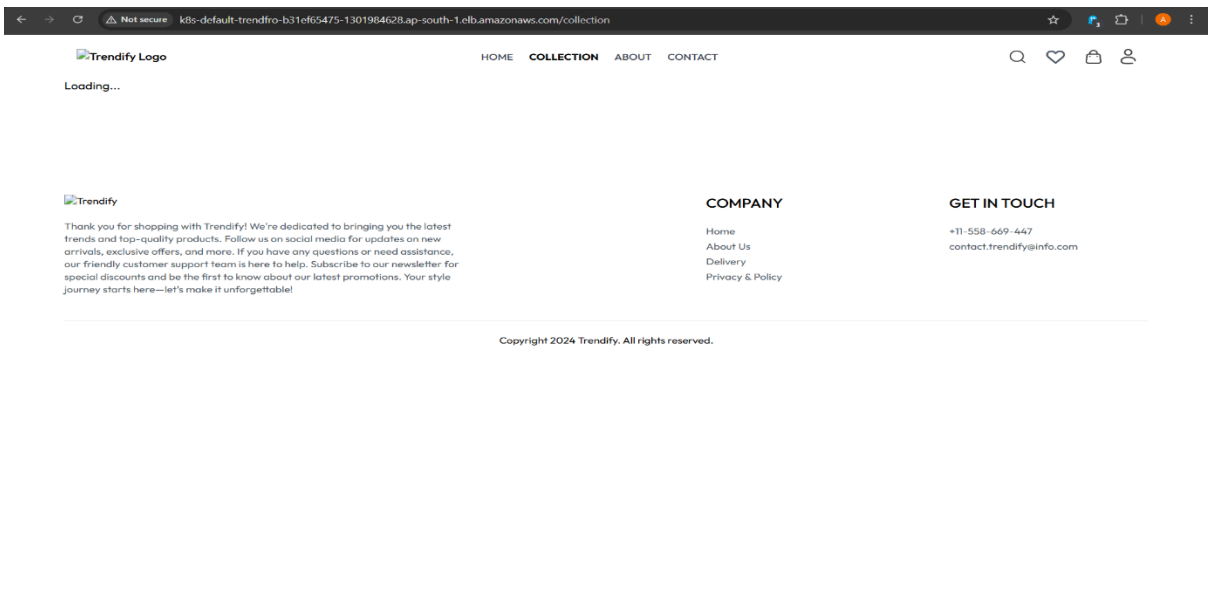

root@ip-10-20-1-7: ~/k8s
root@ip-10-20-1-7:~/k8s# kubectl apply -f deployment.yaml
deployment.apps/trend-frontend unchanged
root@ip-10-20-1-7:~/k8s# kubectl apply -f service.yaml
service/trend-frontend created
root@ip-10-20-1-7:~/k8s# kubectl apply -f i
iam-policy.json ingress.yaml
root@ip-10-20-1-7:~/k8s# kubectl apply -f ingress.yaml
Warning: annotation "kubernetes.io/ingress.class" is deprecated, please use 'spec.ingressClassName' instead
ingress.networking.k8s.io/trend-frontend created
root@ip-10-20-1-7:~/k8s#


Search
[Alt+S]
Asia Pacific (Mumbai)
Account ID: 3045-3411-0140
Ashok
Amazon Elastic Kubernetes Service
Clusters
trend-eks
Amazon Elastic Kubernetes Service
Dashboard New
Clusters
Settings
Dashboard settings New
Console settings
Amazon EKS Anywhere
Enterprise Subscriptions
Related services
Amazon ECR
AWS Batch
Documentation
A new Kubernetes version is available for this cluster.
Notifications
trend-eks
Delete cluster
Upgrade version
Monitor cluster
End of extended support for Kubernetes version (1.29) is March 23, 2026.
Upgrade
Cluster info
Info
Status
Active
Kubernetes version
Info
1.29
Support period
Extended support until March 23, 2026
Provider
EKS
Cluster health
0
Upgrade insights
0
Node health issues
0
Overview
Resources
Compute
Networking
Add-ons 1
Access
Observability
Update history
Tags
Details
API server endpoint
https://E8C75CA8ED30BB8CA08D9C4490A07BD3.
OpenID Connect provider URL
https://oidc.eks.ap-south-1.amazonaws.com/id/E8
Created
an hour ago
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences


Search
[Alt+S]
Asia Pacific (Mumbai)
Account ID: 3045-3411-0140
Ashok
Amazon Elastic Kubernetes Service
Clusters
Amazon Elastic Kubernetes Service
Dashboard New
Clusters
Settings
Dashboard settings New
Console settings
Amazon EKS Anywhere
Enterprise Subscriptions
Related services
Amazon ECR
AWS Batch
Documentation
Clusters (1) Info
Filter clusters
Delete
Create cluster
Cluster name
Status
Kubernetes version
Support period
Upgrade policy
Created
Provider
trend-eks
Active
1.29 Upgrade now
Extended support until March 23, 2026
Extended
an hour ago
EKS
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences


Search
[Alt+S]
Asia Pacific (Mumbai)
Account ID: 3045-3411-0140
Ashok
EC2 > Load balancers
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
Load Balancers
Target Groups
Trust Stores
Auto Scaling
Auto Scaling Groups
Settings
Load balancers (1)
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.
Actions
Create load balancer
Filter load balancers
Name
State
Type
Scheme
IP address type
VPC ID
Availability Zones
k8s-default-trendfro-b3...
Provisioning...
application
Internet-facing
IPv4
vpc-0fcf7b3e34d2127c...
3 Availability Zones
0 load balancers selected
Select a load balancer above.


Not secure
k8s-default-trendfro-b31ef65475-1301984628.ap-south-1.elb.amazonaws.com
Trendify Logo
HOME
COLLECTION
ABOUT
CONTACT
OUR BEST SELLERS
Latest Arrivals
SHOP NOW
Hero Image
LATEST COLLECTIONS
Step into a world of style with our newest collections, carefully curated to bring you the best in fashion, home decor, and more.
Loading latest collections...
BEST SELLERS
Our best sellers are a curated selection of top-rated items that have won over shoppers with their quality, style, and value.
Loading best sellers...


Not secure
k8s-default-trendfro-b31ef65475-1301984628.ap-south-1.elb.amazonaws.com/collection
Trendify Logo
HOME
COLLECTION
ABOUT
CONTACT
Loading...
Trendify
Thank you for shopping with Trendify! We're dedicated to bringing you the latest trends and top-quality products. Follow us on social media for updates on new arrivals, exclusive offers, and more. If you have any questions or need assistance, our friendly customer support team is here to help. Subscribe to our newsletter for special discounts and be the first to know about our latest promotions. Your style journey starts here—let's make it unforgettable!
COMPANY
Home
About Us
Delivery
Privacy & Policy
GET IN TOUCH
+11-558-669-447
contact.trendify@info.com
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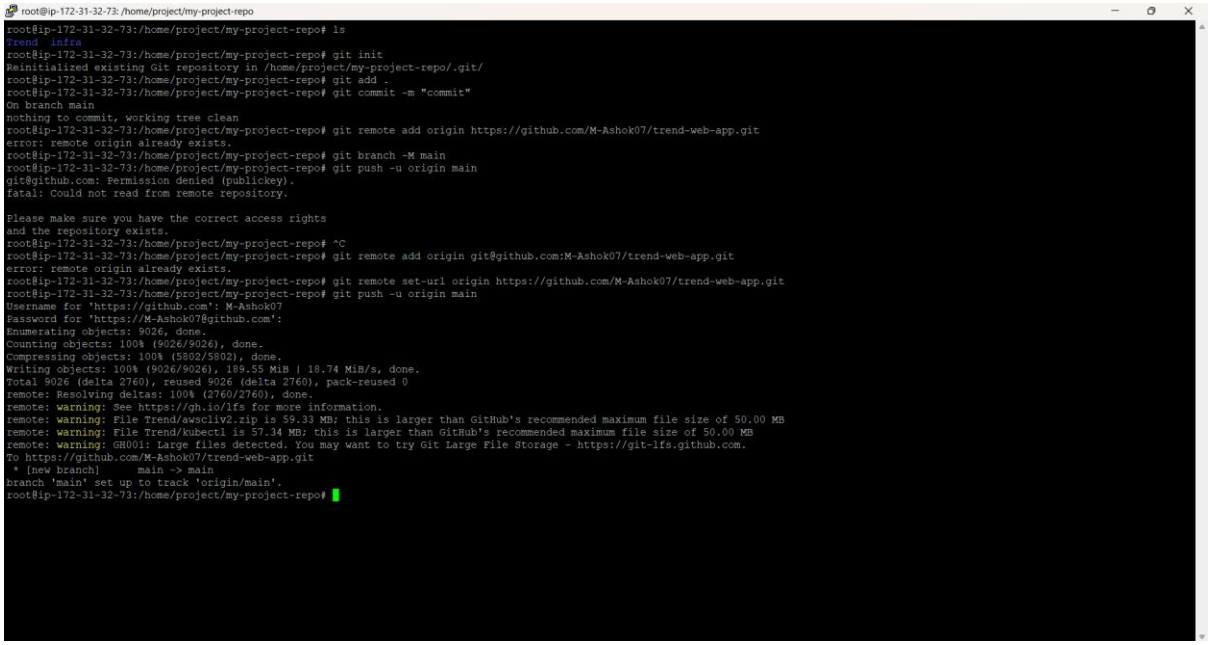
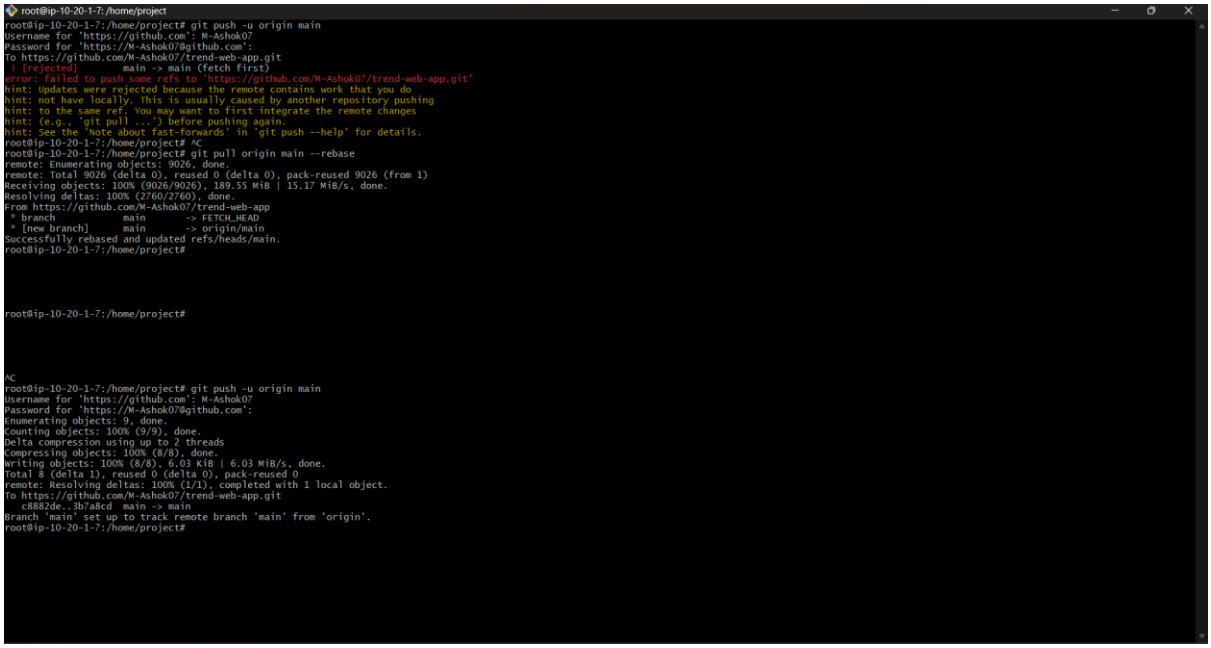
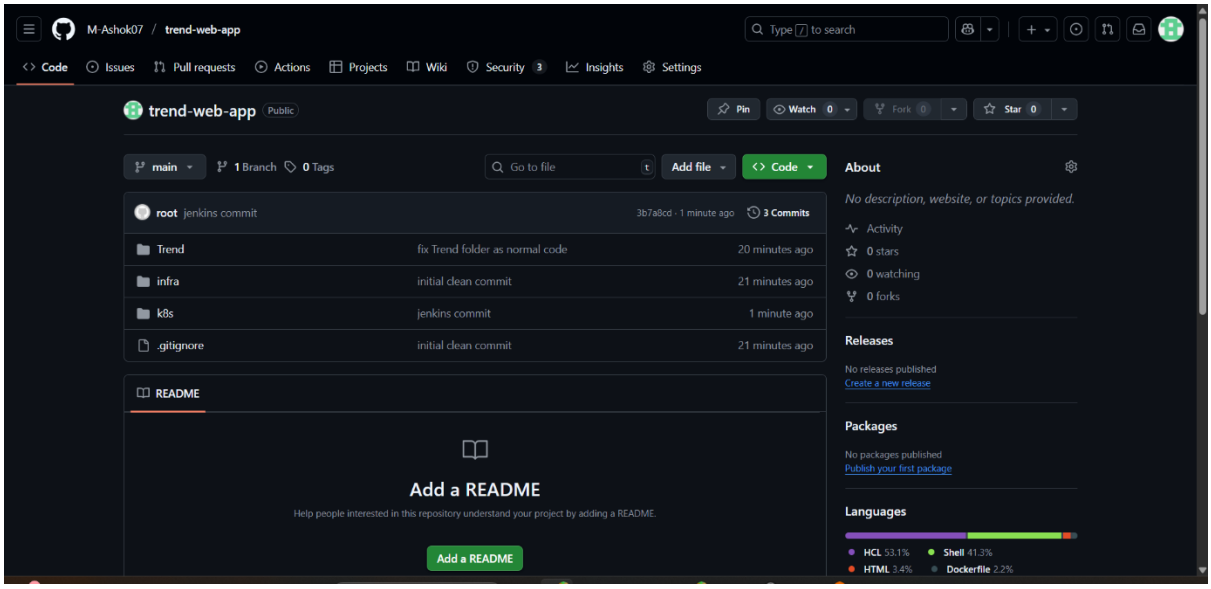
Version Control:

Codebase Push to GitHub:

- I pushed the application's codebase to a Git provider (GitHub) to maintain version control.
    - Initialized the local repository.
    - Added the project files to version control.
    - Committed the changes and pushed them to the remote GitHub repository.
    - Verified that the code was successfully available in the GitHub repository.





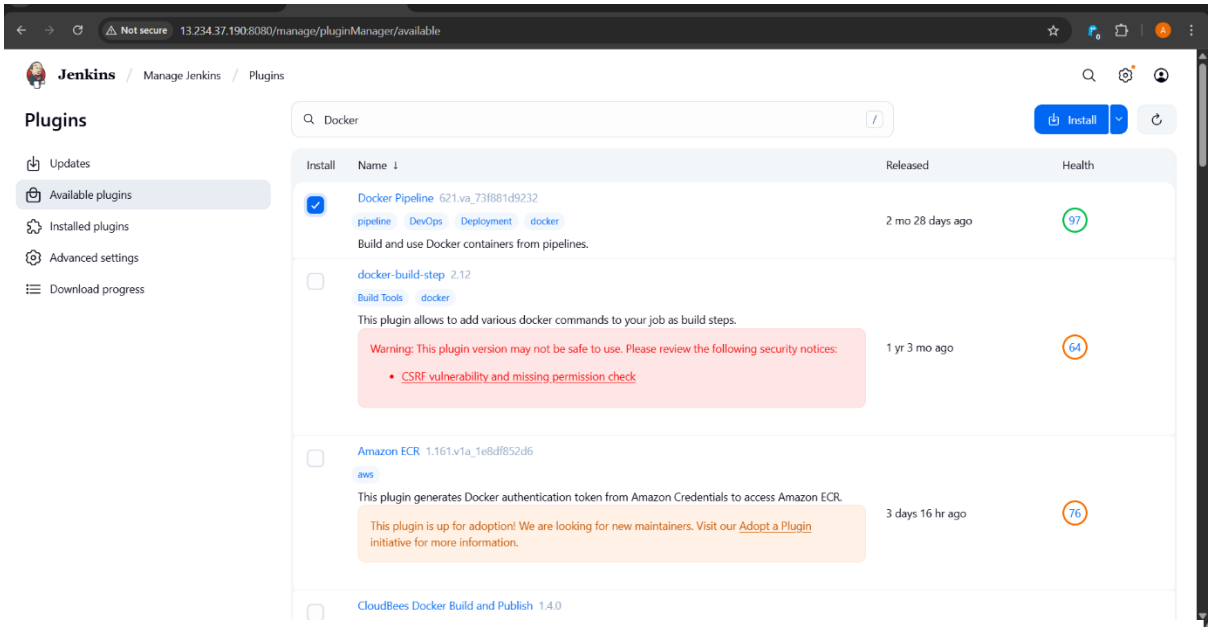


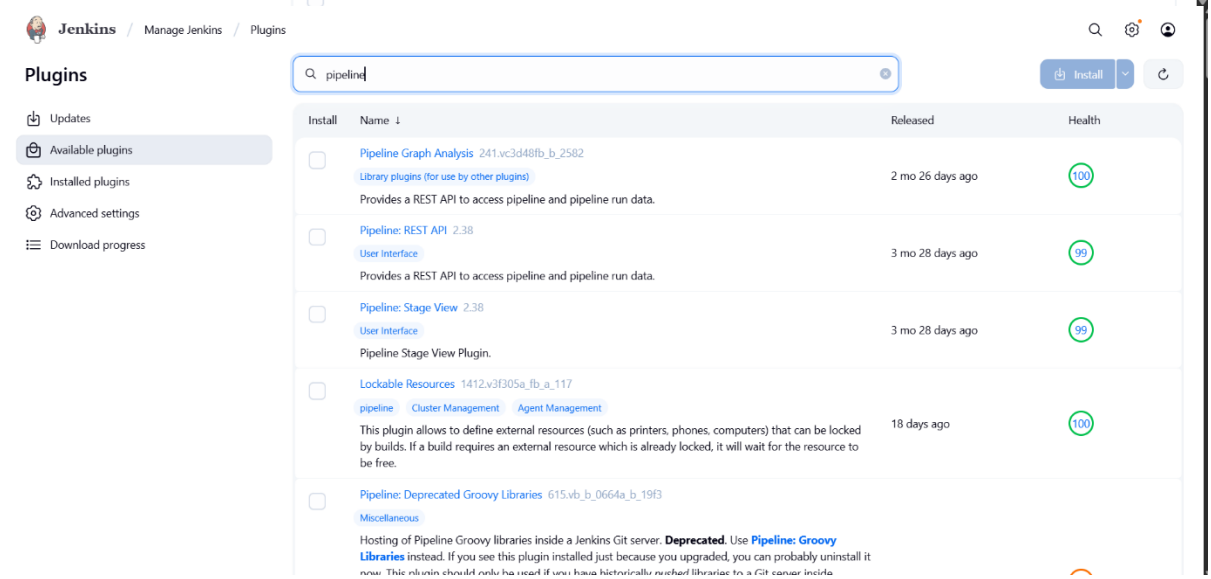
Jenkins:

Installation and Plugin Setup:

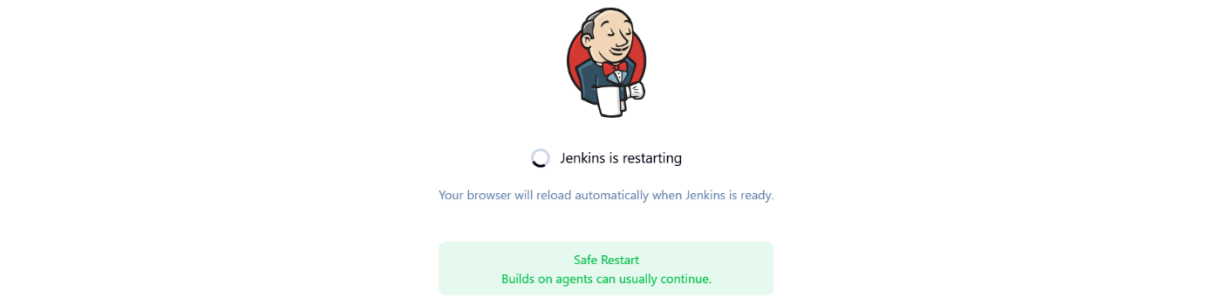
- I installed Jenkins on the EC2 instance and configured it for CI/CD automation.

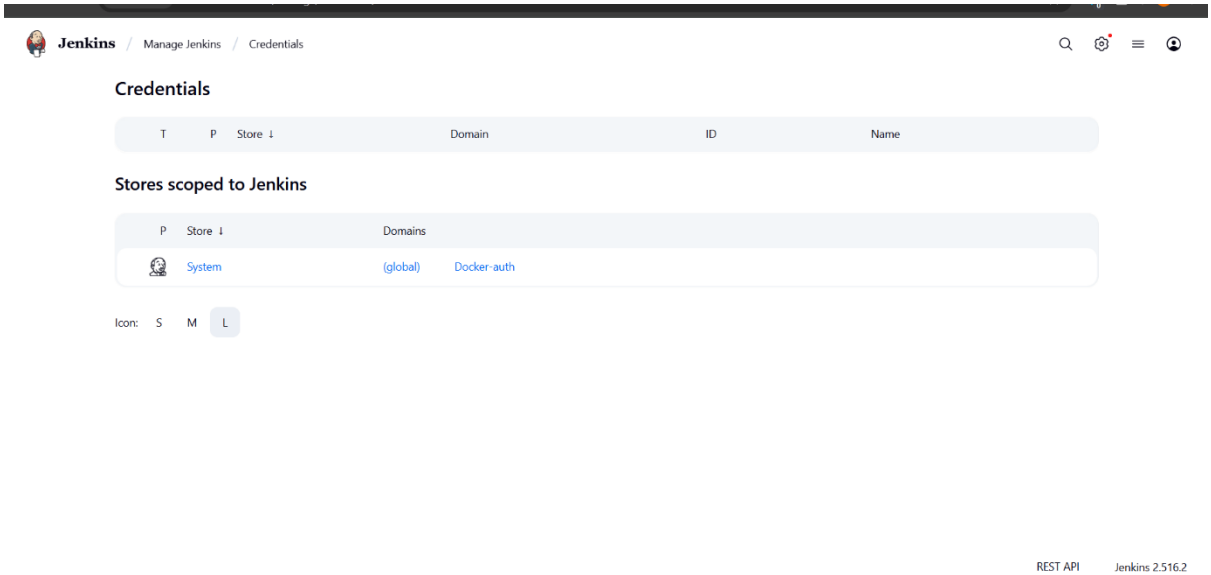
  - Installed Jenkins and verified it was running through the browser.
  - Added the necessary plugins for this project:
    - **Docker Plugin** – for building and pushing Docker images.
    - **Git Plugin** – for pulling code from GitHub repositories.
    - **Kubernetes Plugin** – for deploying workloads to EKS.
    - **Pipeline Plugin** – for writing Jenkins declarative pipelines.

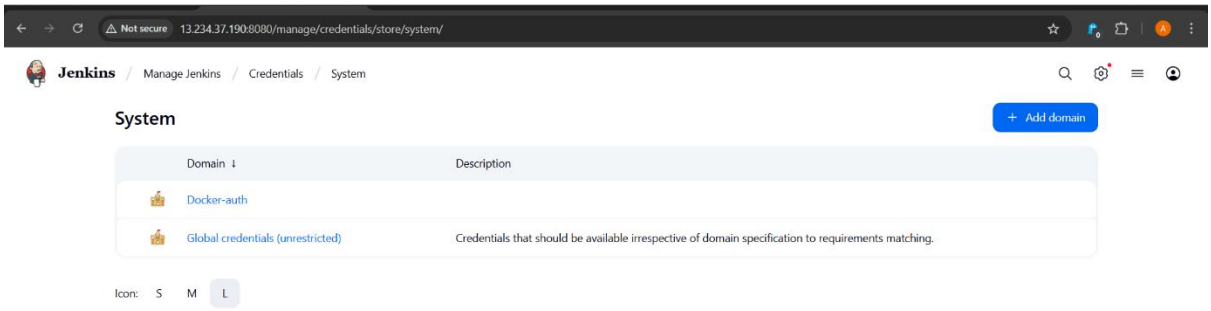

Not secure 13.234.37.190:8080/manage/pluginManager/available
Jenkins / Manage Jenkins / Plugins
Plugins
Docker
Install
Updates
Available plugins
Installed plugins
Advanced settings
Download progress
Install
Name ↓
Released
Health
Docker Pipeline 621.va_73f881d9232
pipeline DevOps Deployment docker
Build and use Docker containers from pipelines.
2 mo 28 days ago
97
docker-build-step 2.12
Build Tools docker
This plugin allows to add various docker commands to your job as build steps.
Warning: This plugin version may not be safe to use. Please review the following security notices:
CSRF vulnerability and missing permission check
1 yr 3 mo ago
64
Amazon ECR 1.161.v1a_1e8df852d6
aws
This plugin generates Docker authentication token from Amazon Credentials to access Amazon ECR.
This plugin is up for adoption! We are looking for new maintainers. Visit our Adopt a Plugin initiative for more information.
3 days 16 hr ago
76
CloudBees Docker Build and Publish 1.4.0

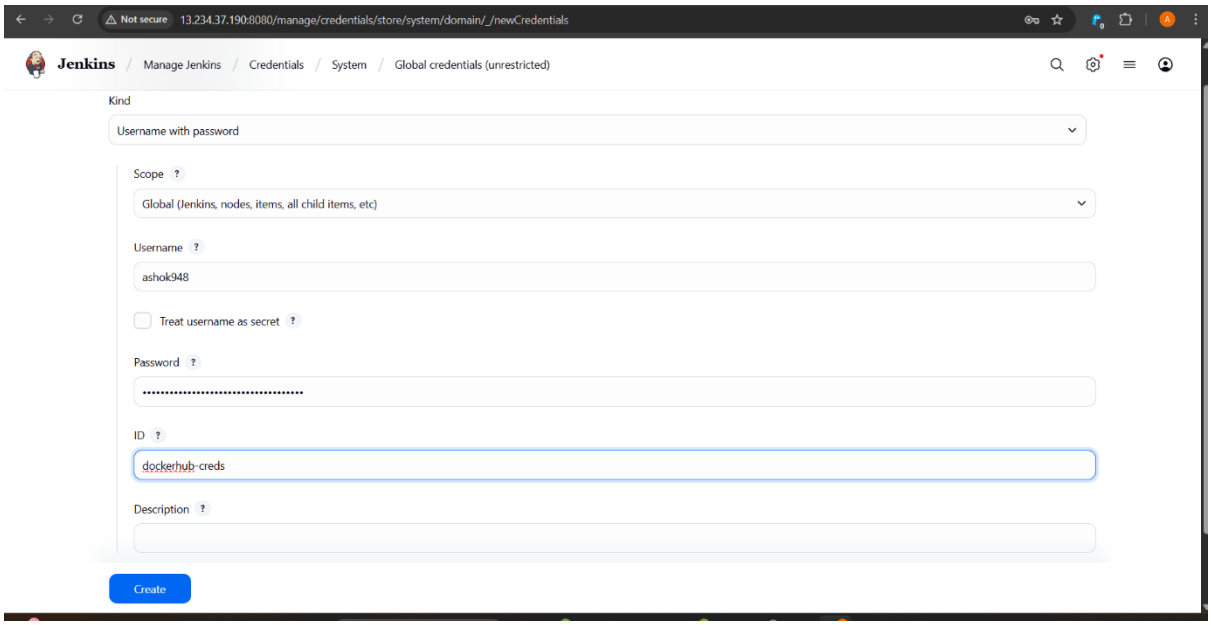

Jenkins / Manage Jenkins / Plugins
Plugins
pipeline
Install
Updates
Available plugins
Installed plugins
Advanced settings
Download progress
Install
Name ↓
Released
Health
Pipeline Graph Analysis 241.vc3d48fb_b_2582
Library plugins (for use by other plugins)
Provides a REST API to access pipeline and pipeline run data.
2 mo 26 days ago
100
Pipeline: REST API 2.38
User Interface
Provides a REST API to access pipeline and pipeline run data.
3 mo 28 days ago
99
Pipeline: Stage View 2.38
User Interface
Pipeline Stage View Plugin.
3 mo 28 days ago
99
Lockable Resources 1412.v3f305a_fb_a_117
pipeline Cluster Management Agent Management
This plugin allows to define external resources (such as printers, phones, computers) that can be locked by builds. If a build requires an external resource which is already locked, it will wait for the resource to be free.
18 days ago
100
Pipeline: Deprecated Groovy Libraries 615.vb_b_0664a_b_19f3
Miscellaneous
Hosting of Pipeline Groovy libraries inside a Jenkins Git server. Deprecated. Use Pipeline: Groovy Libraries instead. If you see this plugin installed just because you upgraded, you can probably uninstall it

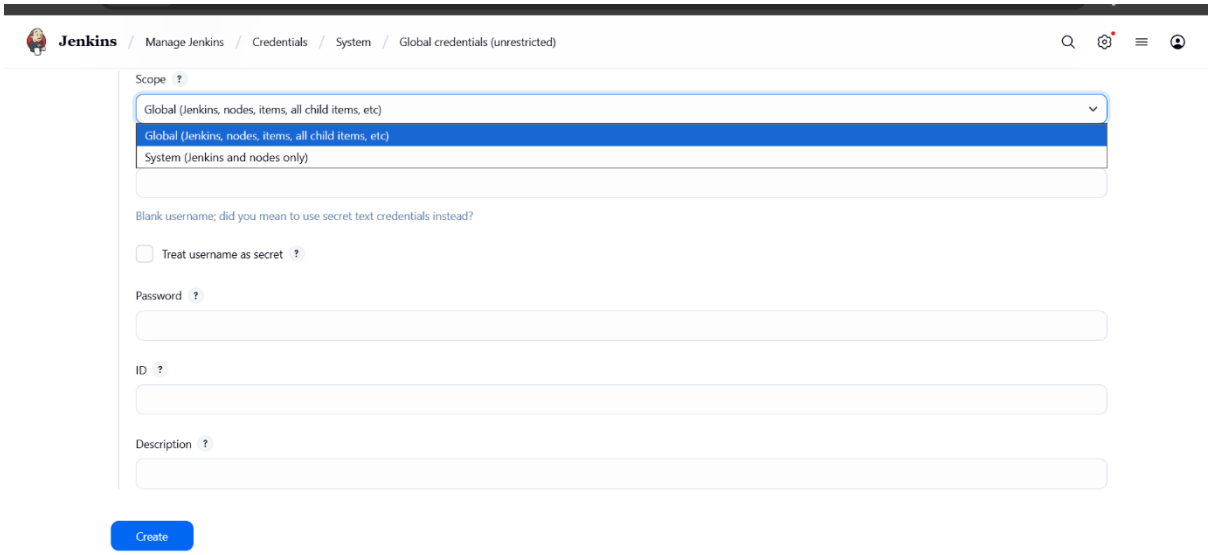

Not secure 13.234.37.190:8080/manage/pluginManager/updates/

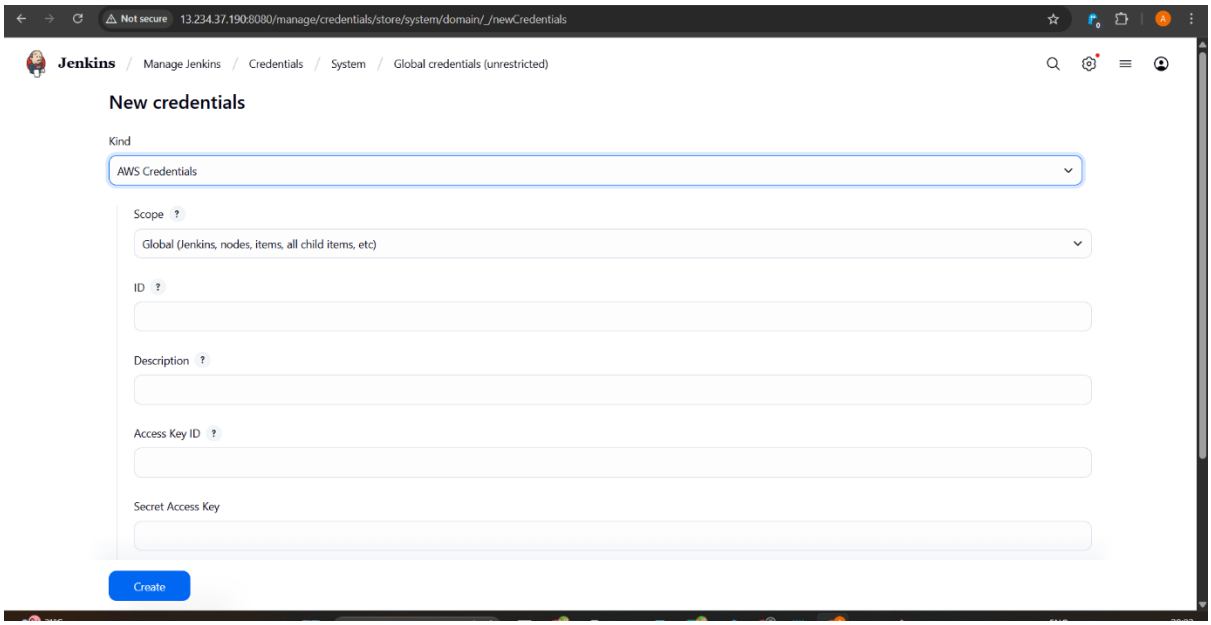

Jenkins is restarting
Your browser will reload automatically when Jenkins is ready.
Safe Restart
Builds on agents can usually continue.

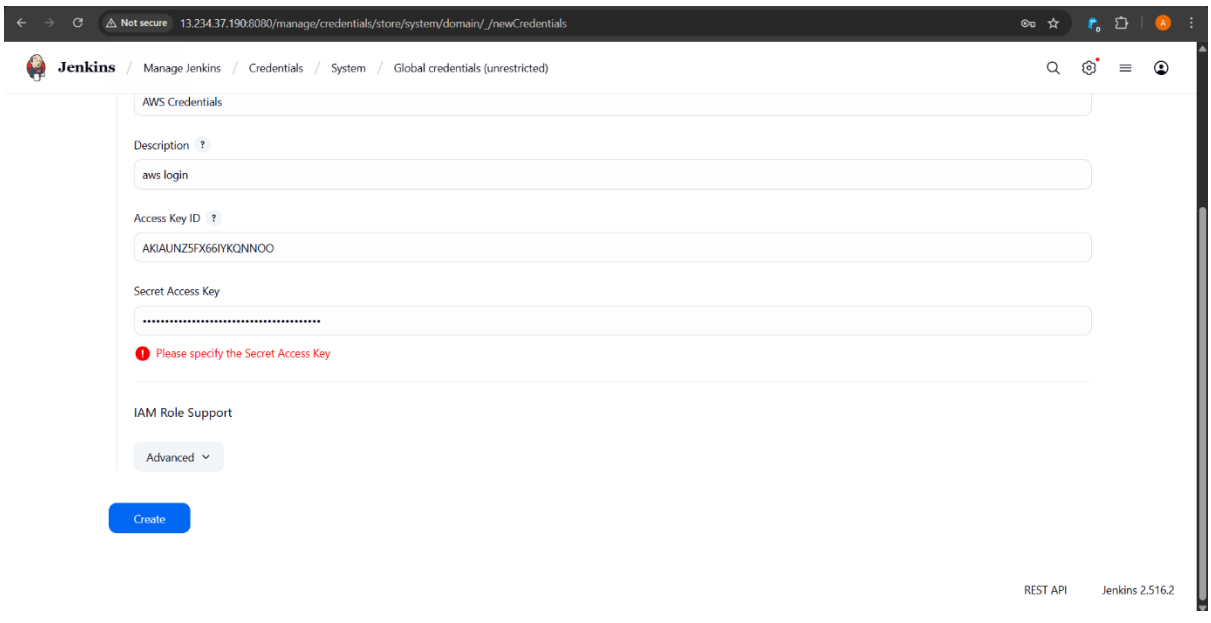

Jenkins / Manage Jenkins / Credentials
Credentials
T P Store ↓ Domain ID Name
Stores scoped to Jenkins
P Store ↓ Domains
System (global) Docker-auth
Icon: S M L
REST API Jenkins 2.516.2

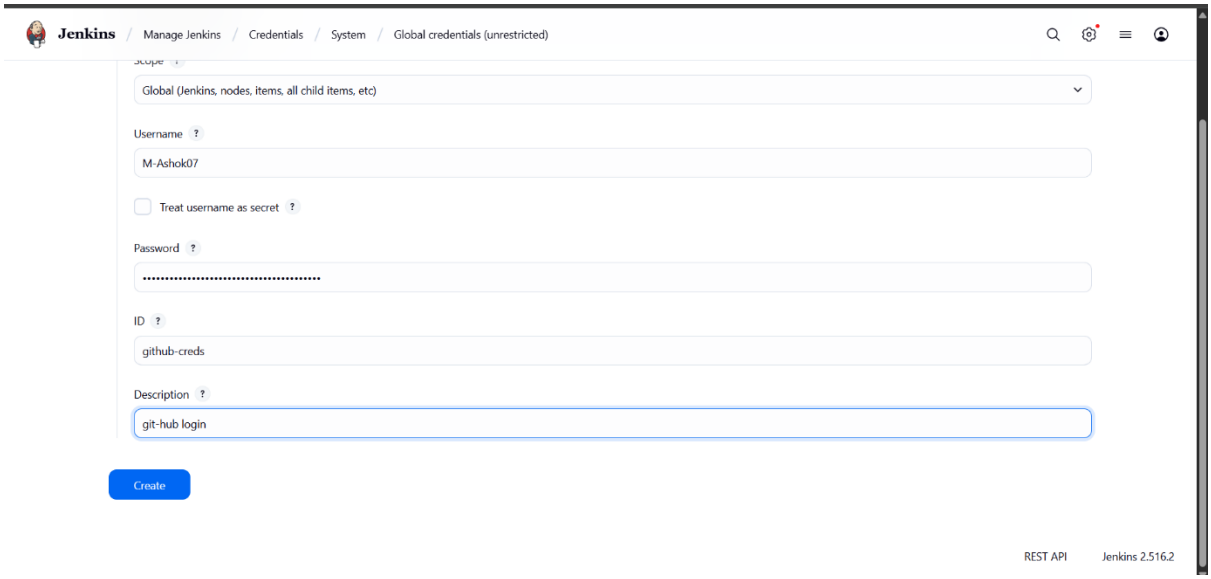

Not secure 13.234.37.190:8080/manage/credentials/store/system/
Jenkins / Manage Jenkins / Credentials / System
System
+ Add domain
Domain ↓ Description
Docker-auth
Global credentials (unrestricted) Credentials that should be available irrespective of domain specification to requirements matching.
Icon: S M L
REST API Jenkins 2.516.2

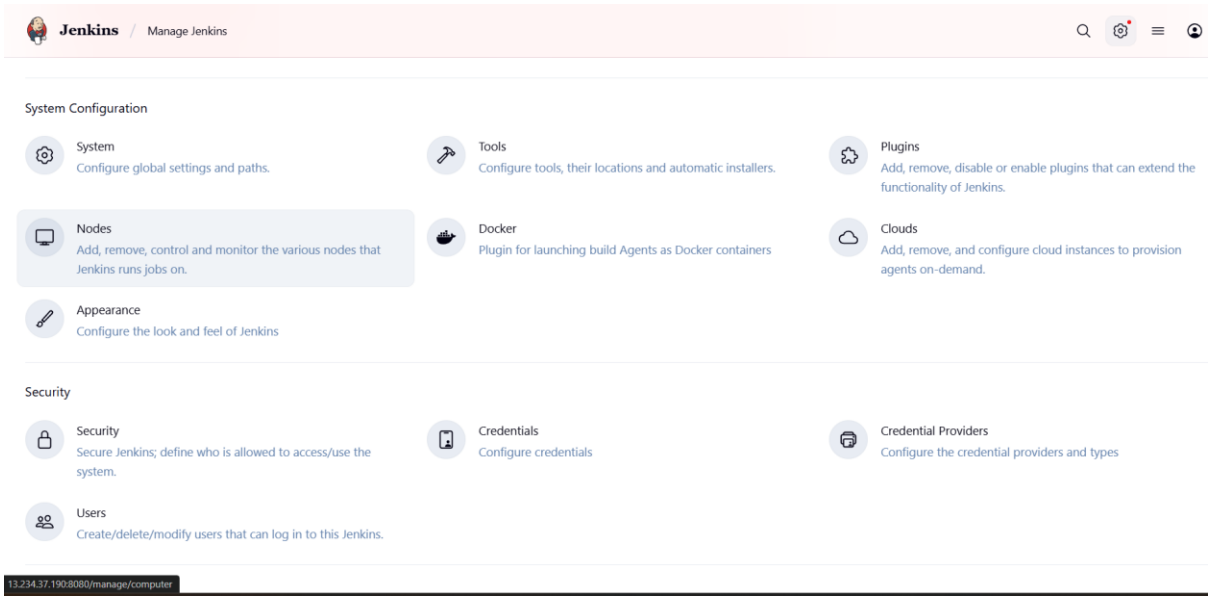

Not secure 13.234.37.190:8080/manage/credentials/store/system/domain/_/newCredentials
Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)
Kind
Username with password
Scope ?
Global (Jenkins, nodes, items, all child items, etc)
Username ?
ashok948
Treat username as secret ?
Password ?
ID ?
dockerhub-creds
Description ?
Create

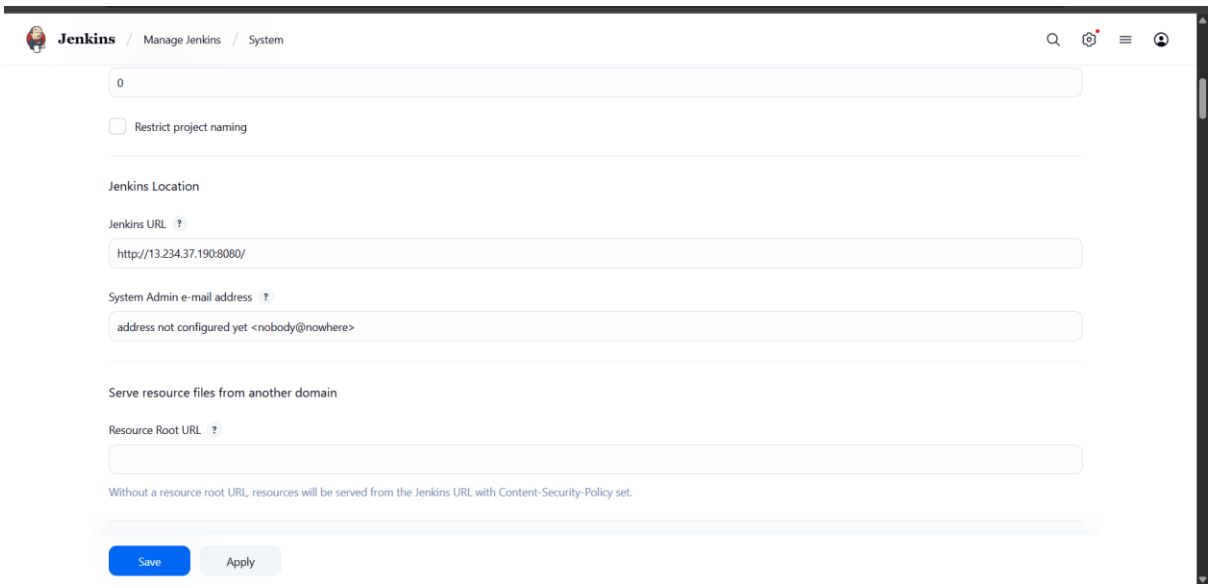

Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)
Scope
Global (Jenkins, nodes, items, all child items, etc)
Global (Jenkins, nodes, items, all child items, etc)
System (Jenkins and nodes only)
Blank username; did you mean to use secret text credentials instead?
Treat username as secret
Password
ID
Description
Create

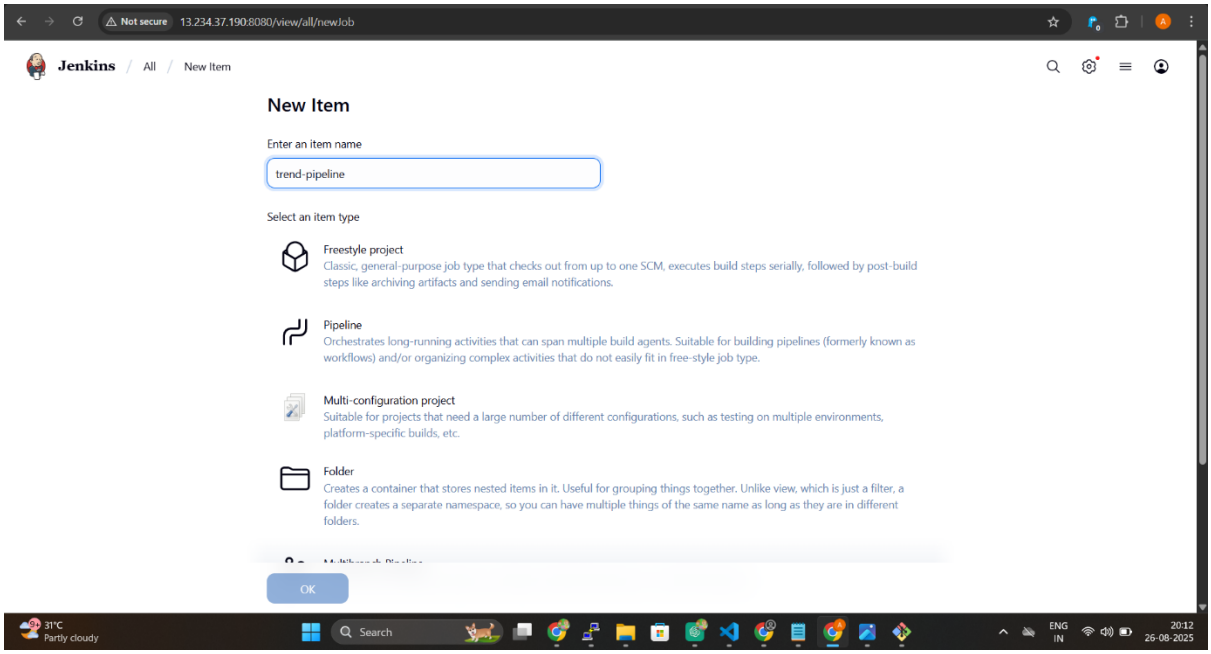

Not secure 13.234.37.190:8080/manage/credentials/store/system/domain/_/newCredentials
Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)
New credentials
Kind
AWS Credentials
Scope
Global (Jenkins, nodes, items, all child items, etc)
ID
Description
Access Key ID
Secret Access Key
Create

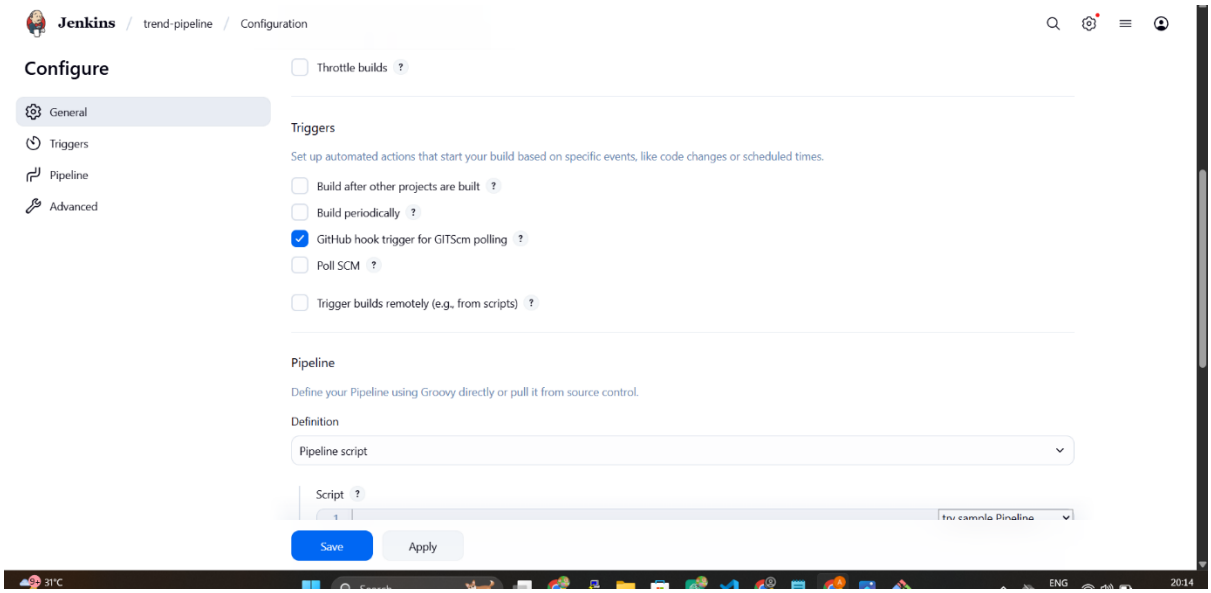

Not secure 13.234.37.190:8080/manage/credentials/store/system/domain/_/newCredentials
Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)
AWS Credentials
Description
aws login
Access Key ID
AKIAUNZ5FX66IYKQNNOO
Secret Access Key
Please specify the Secret Access Key
IAM Role Support
Advanced
Create
REST API
Jenkins 2.516.2

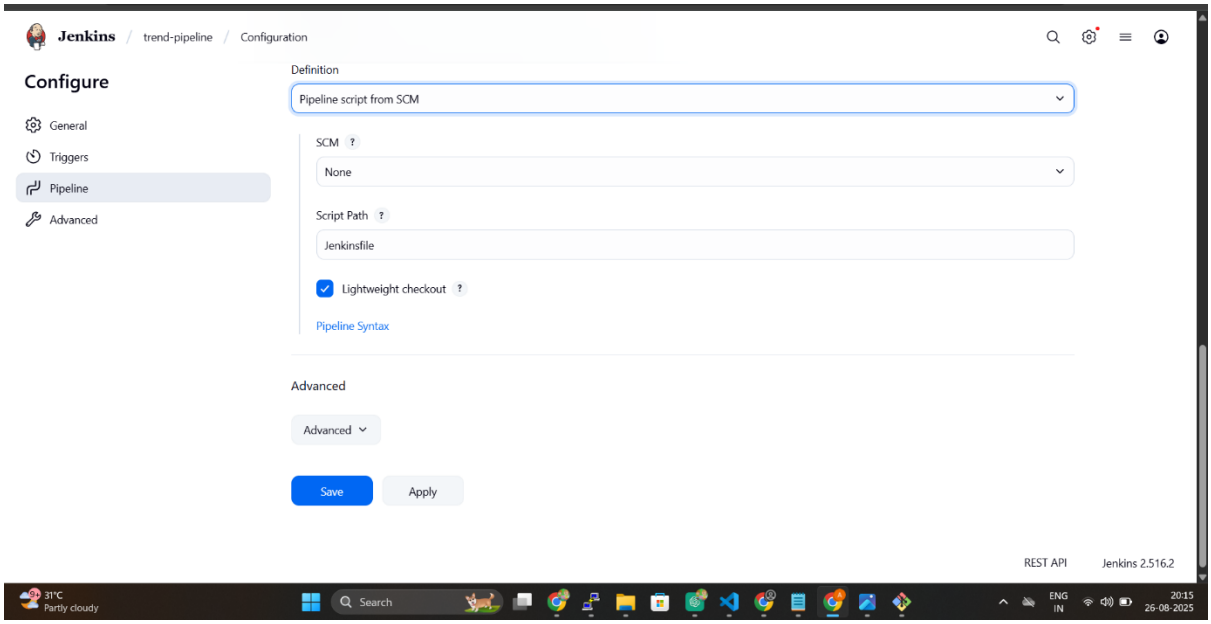

Jenkins / Manage Jenkins / Credentials / System / Global credentials (unrestricted)
Global (Jenkins, nodes, items, all child items, etc)
Username
M-Ashok07
Treat username as secret
Password
ID
github-creds
Description
git-hub login
Create
REST API
Jenkins 2.516.2

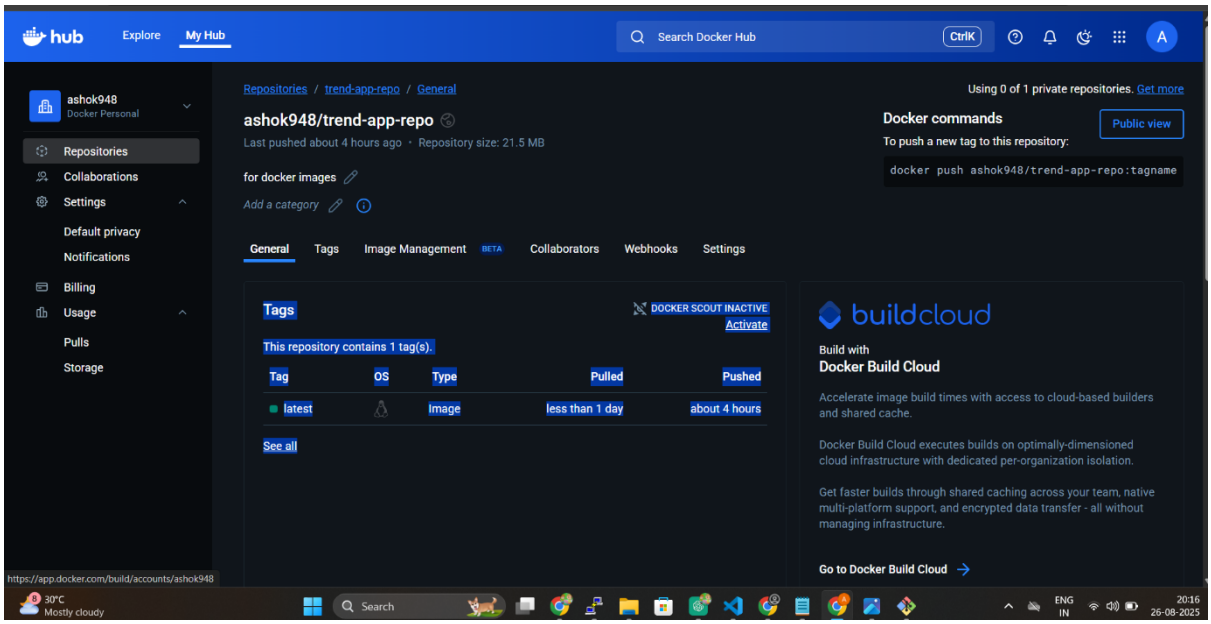

Jenkins / Manage Jenkins
System Configuration
System
Configure global settings and paths.
Tools
Configure tools, their locations and automatic installers.
Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.
Nodes
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.
Docker
Plugin for launching build Agents as Docker containers
Clouds
Add, remove, and configure cloud instances to provision agents on-demand.
Appearance
Configure the look and feel of Jenkins
Security
Security
Secure Jenkins; define who is allowed to access/use the system.
Credentials
Configure credentials
Credential Providers
Configure the credential providers and types
Users
Create/delete/modify users that can log in to this Jenkins.
13.234.37.190:8080/manage/computer

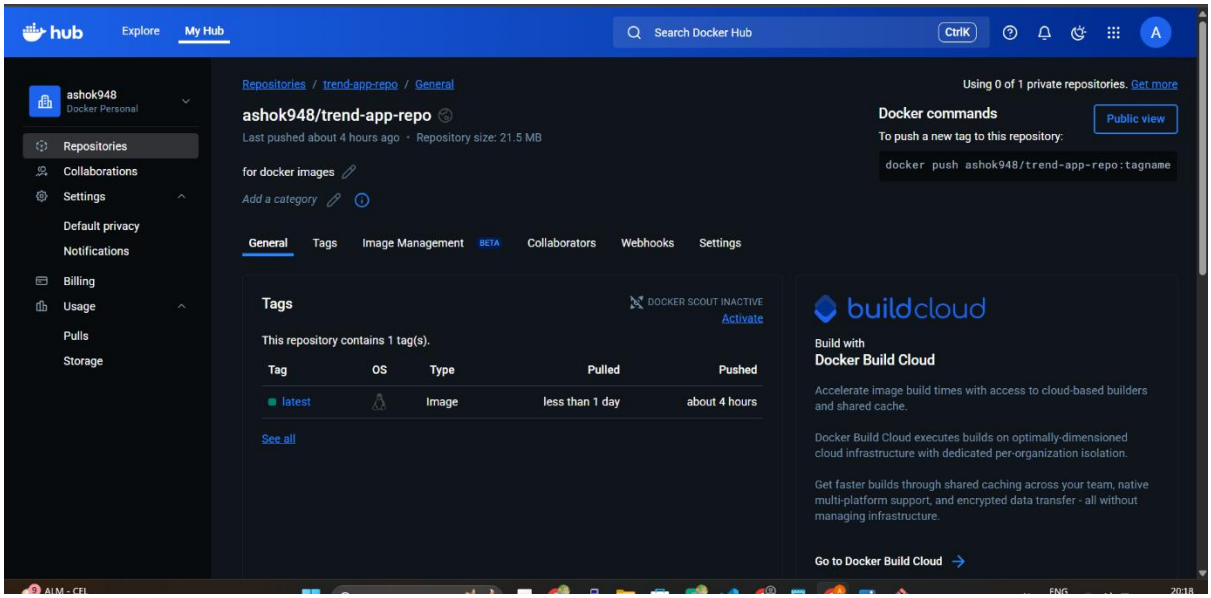

Jenkins / Manage Jenkins / System
0
Restrict project naming
Jenkins Location
Jenkins URL
http://13.234.37.190:8080/
System Admin e-mail address
address not configured yet <nobody@nowhere>
Serve resource files from another domain
Resource Root URL
Without a resource root URL, resources will be served from the Jenkins URL with Content-Security-Policy set.
Save
Apply

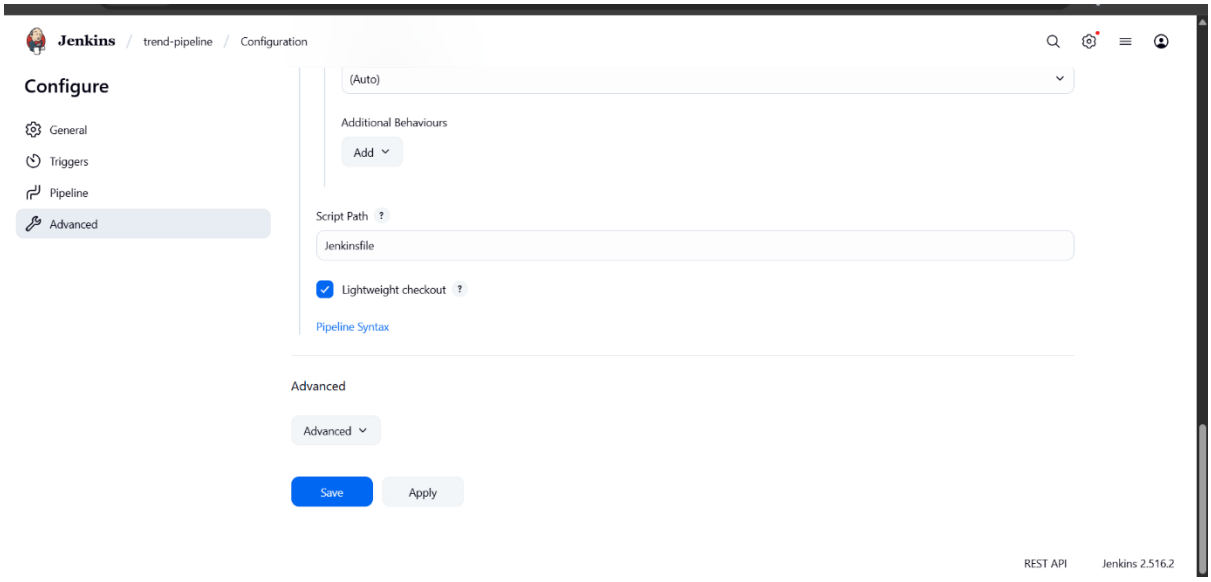

Not secure 13.234.37.190:8080/view/all/newJob
Jenkins / All / New Item
New Item
Enter an item name
trend-pipeline
Select an item type
Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.
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.
OK
31°C
Partly cloudy
Search
ENG
IN
20:12
26-08-2025

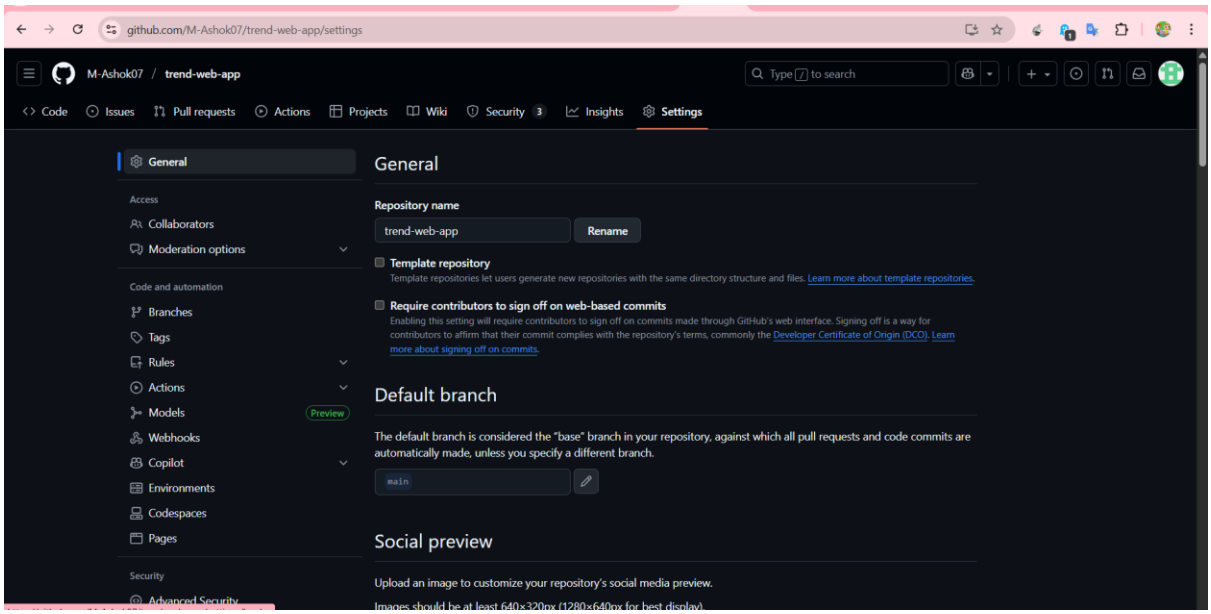

Jenkins / trend-pipeline / Configuration
Configure
General
Triggers
Pipeline
Advanced
Throttle builds
Triggers
Set up automated actions that start your build based on specific events, like code changes or scheduled times.
Build after other projects are built
Build periodically
GitHub hook trigger for 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
Script
try sample Pipeline
Save
Apply
31°C
ENG
20:14

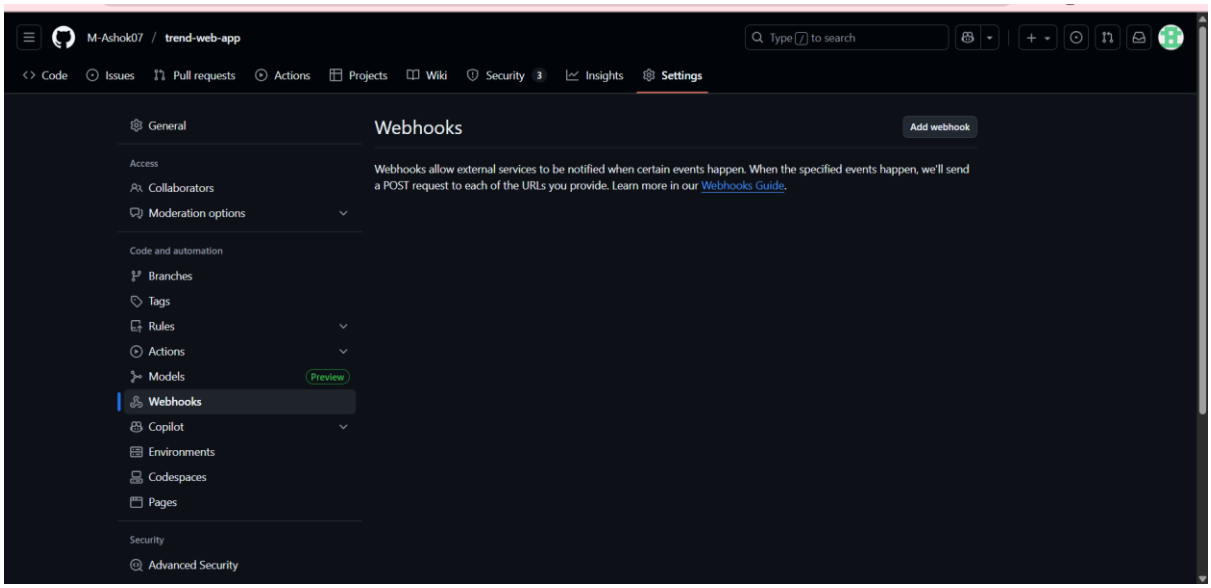

Jenkins / trend-pipeline / Configuration
Configure
General
Triggers
Pipeline
Advanced
Definition
Pipeline script from SCM
SCM
None
Script Path
Jenkinsfile
Lightweight checkout
Pipeline Syntax
Advanced
Advanced
Save
Apply
REST API
Jenkins 2.516.2

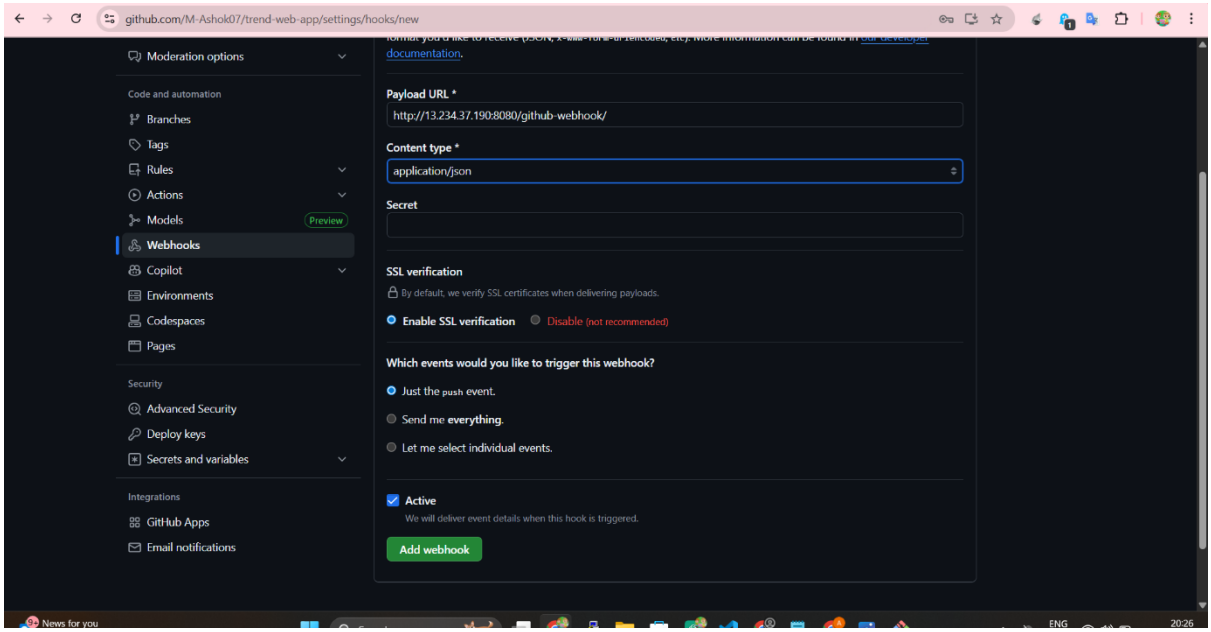

hub
Explore
My Hub
Search Docker Hub
CtrlK
ashok948
Docker Personal
Repositories
Collaborations
Settings
Default privacy
Notifications
Billing
Usage
Pulls
Storage
Repositories / trend-app-repo / General
ashok948/trend-app-repo
Last pushed about 4 hours ago • Repository size: 21.5 MB
for docker images
Add a category
Using 0 of 1 private repositories. Get more
Docker commands
Public view
To push a new tag to this repository:
docker push ashok948/trend-app-repo:tagname
General
Tags
Image Management
BETA
Collaborators
Webhooks
Settings
Tags
DOCKER SCOUT INACTIVE
Activate
This repository contains 1 tag(s).
Tag
OS
Type
Pulled
Pushed
latest
Image
less than 1 day
about 4 hours
See all
buildcloud
Build with
Docker Build Cloud
Accelerate image build times with access to cloud-based builders and shared cache.
Docker Build Cloud executes builds on optimally-dimensioned cloud infrastructure with dedicated per-organization isolation.
Get faster builds through shared caching across your team, native multi-platform support, and encrypted data transfer - all without managing infrastructure.
Go to Docker Build Cloud
https://app.docker.com/build/accounts/ashok948

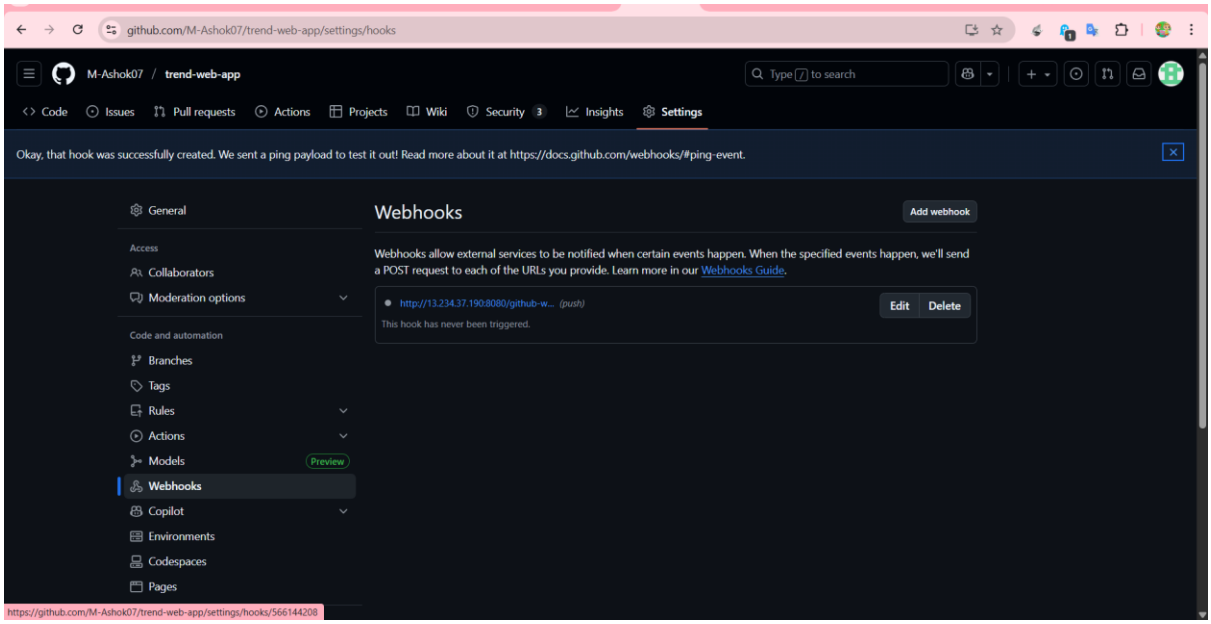

hub
Explore
My Hub
Search Docker Hub
CtrlK
ashok948
Docker Personal
Repositories
Collaborations
Settings
Default privacy
Notifications
Billing
Usage
Pulls
Storage
Repositories / trend-app-repo / General
ashok948/trend-app-repo
Last pushed about 4 hours ago • Repository size: 21.5 MB
for docker images
Add a category
Using 0 of 1 private repositories. Get more
Docker commands
Public view
To push a new tag to this repository:
docker push ashok948/trend-app-repo:tagname
General
Tags
Image Management
BETA
Collaborators
Webhooks
Settings
Tags
DOCKER SCOUT INACTIVE
Activate
This repository contains 1 tag(s).
Tag
OS
Type
Pulled
Pushed
latest
Image
less than 1 day
about 4 hours
See all
buildcloud
Build with
Docker Build Cloud
Accelerate image build times with access to cloud-based builders and shared cache.
Docker Build Cloud executes builds on optimally-dimensioned cloud infrastructure with dedicated per-organization isolation.
Get faster builds through shared caching across your team, native multi-platform support, and encrypted data transfer - all without managing infrastructure.
Go to Docker Build Cloud

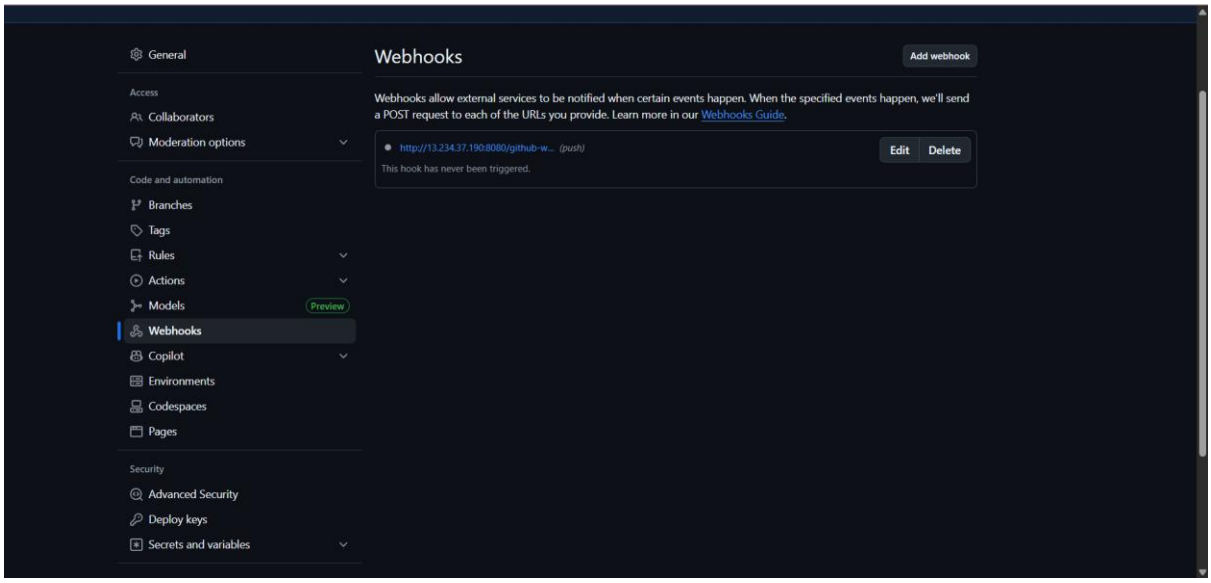

Jenkins
trend-pipeline
Configuration
Configure
General
Triggers
Pipeline
Advanced
(Auto)
Additional Behaviours
Add
Script Path
Jenkinsfile
Lightweight checkout
Pipeline Syntax
Advanced
Advanced
Save
Apply
REST API
Jenkins 2.516.2


github.com/M-Ashok07/trend-web-app/settings
M-Ashok07 / trend-web-app
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
General
Access
Collaborators
Moderation options
Code and automation
Branches
Tags
Rules
Actions
Models
Preview
Webhooks
Copilot
Environments
Codespaces
Pages
Security
General
Repository name
trend-web-app
Rename
Template repository
Template repositories let users generate new repositories with the same directory structure and files. Learn more about template repositories.
Require contributors to sign off on web-based commits
Enabling this setting will require contributors to sign off on commits made through GitHub's web interface. Signing off is a way for contributors to affirm that their commit complies with the repository's terms, commonly the Developer Certificate of Origin (DCO). Learn more about signing off on commits.
Default branch
The default branch is considered the "base" branch in your repository, against which all pull requests and code commits are automatically made, unless you specify a different branch.
main
Social preview
Upload an image to customize your repository's social media preview.

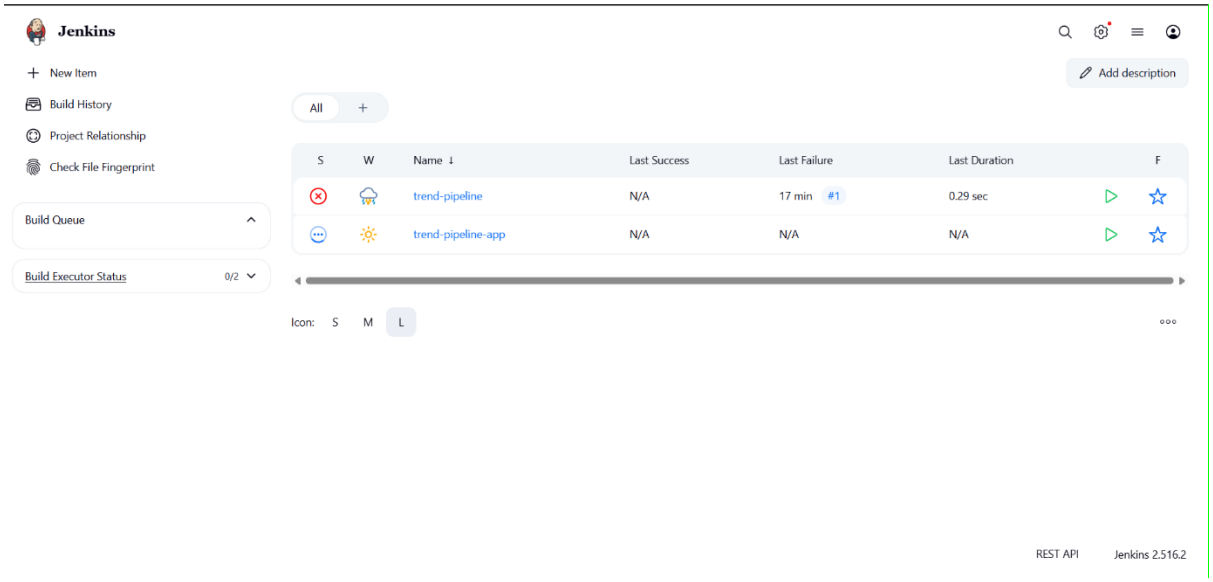

M-Ashok07 / trend-web-app
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security 3
Insights
Settings
General
Access
Collaborators
Moderation options
Code and automation
Branches
Tags
Rules
Actions
Models
Preview
Webhooks
Copilot
Environments
Codespaces
Pages
Security
Advanced Security
Webhooks
Add webhook
Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.


github.com/M-Ashok07/trend-web-app/settings/hooks/new
Moderation options
Code and automation
Branches
Tags
Rules
Actions
Models
Preview
Webhooks
Copilot
Environments
Codespaces
Pages
Security
Advanced Security
Deploy keys
Secrets and variables
Integrations
GitHub Apps
Email notifications
documentation.
Payload URL *
http://13.234.37.190:8080/github-webhook/
Content type *
application/json
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
News for you
ENG
20:26


github.com/M-Ashok07/trend-web-app/settings/hooks
M-Ashok07 / trend-web-app
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security 3
Insights
Settings
Okay, that hook was successfully created. We sent a ping payload to test it out! Read more about it at https://docs.github.com/webhooks/#ping-event.
General
Access
Collaborators
Moderation options
Code and automation
Branches
Tags
Rules
Actions
Models
Preview
Webhooks
Copilot
Environments
Codespaces
Pages
Webhooks
Add webhook
Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.
http://13.234.37.190:8080/github-w... (push)
Edit
Delete
This hook has never been triggered.
https://github.com/M-Ashok07/trend-web-app/settings/hooks/566144208

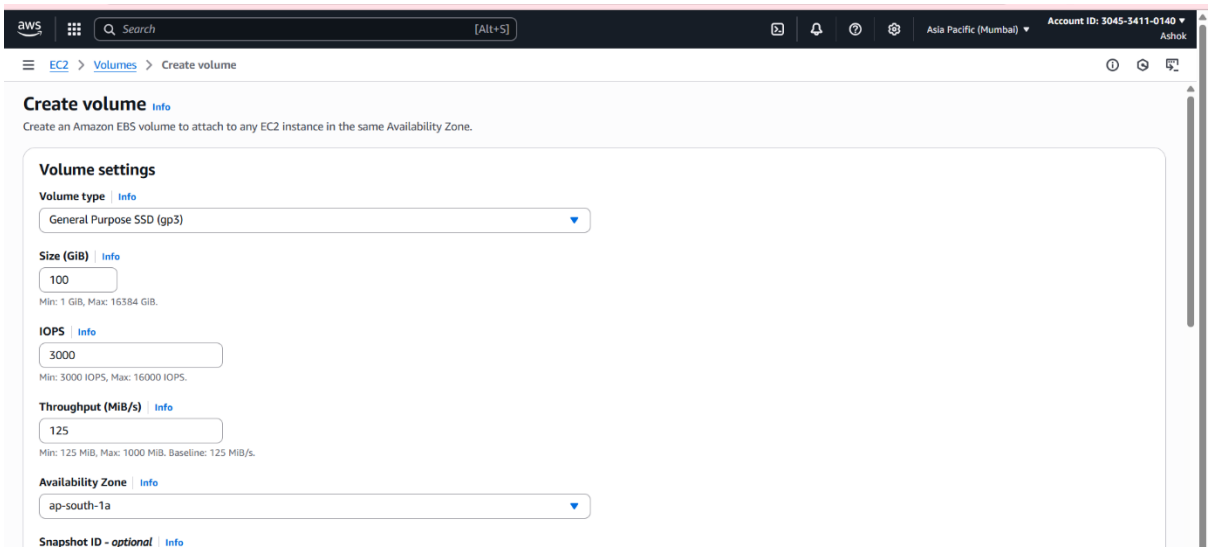

General
Access
Collaborators
Moderation options
Code and automation
Branches
Tags
Rules
Actions
Models
Preview
Webhooks
Copilot
Environments
Codespaces
Pages
Security
Advanced Security
Deploy keys
Secrets and variables
Webhooks
Add webhook
Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.
http://13.234.37.190:8080/github-w... (push)
Edit
Delete
This hook has never been triggered.

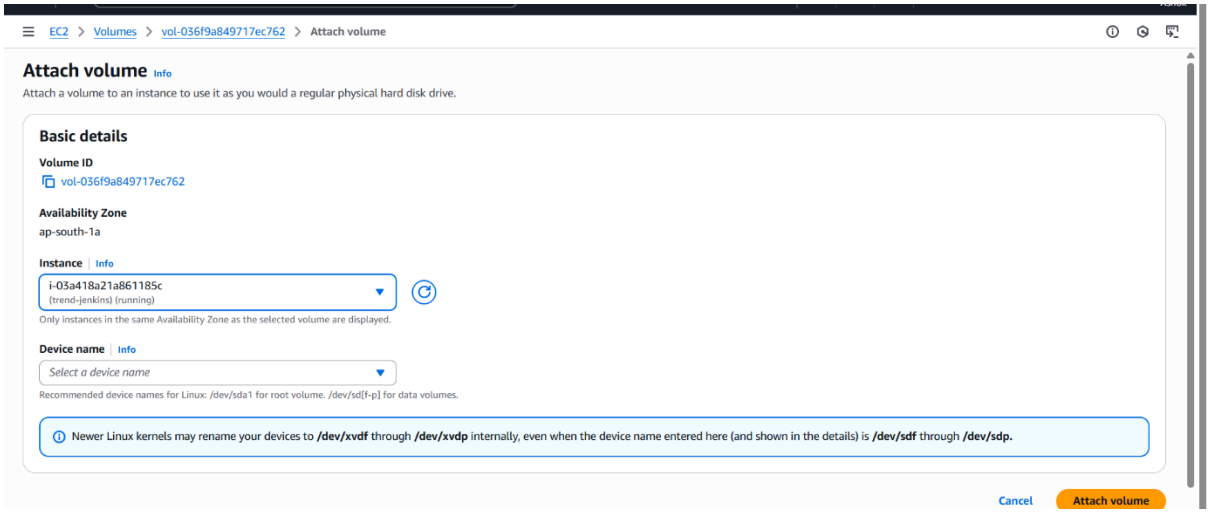

project ubuntu
root@ip-10-20-1-7:/home# cd project/
root@ip-10-20-1-7:/home/project# ls
trend infra k8s
root@ip-10-20-1-7:/home/project# nano Jenkinsfile
root@ip-10-20-1-7:/home/project# git add .
root@ip-10-20-1-7:/home/project# git commit -m "jenkinsfile"
[main 1f942b3] jenkinsfile
Committer: root <root@ip-10-20-1-7.ap-south-1.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
git config --global --edit
After doing this, you may fix the identity used for this commit with:
git commit --amend --reset-author
1 file changed, 86 insertions(+)
create mode 100644 Jenkinsfile
root@ip-10-20-1-7:/home/project# git branch -M main
root@ip-10-20-1-7:/home/project# git push -u origin main
Username for 'https://github.com': M-Ashok07
Password for 'https://M-Ashok07@github.com':
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 2 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 1.07 KiB | 1.07 MiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/M-Ashok07/trend-web-app.git
3b7a8cd..1f942b3 main -> main
Branch 'main' set up to track remote branch 'main' from 'origin'.
root@ip-10-20-1-7:/home/project#

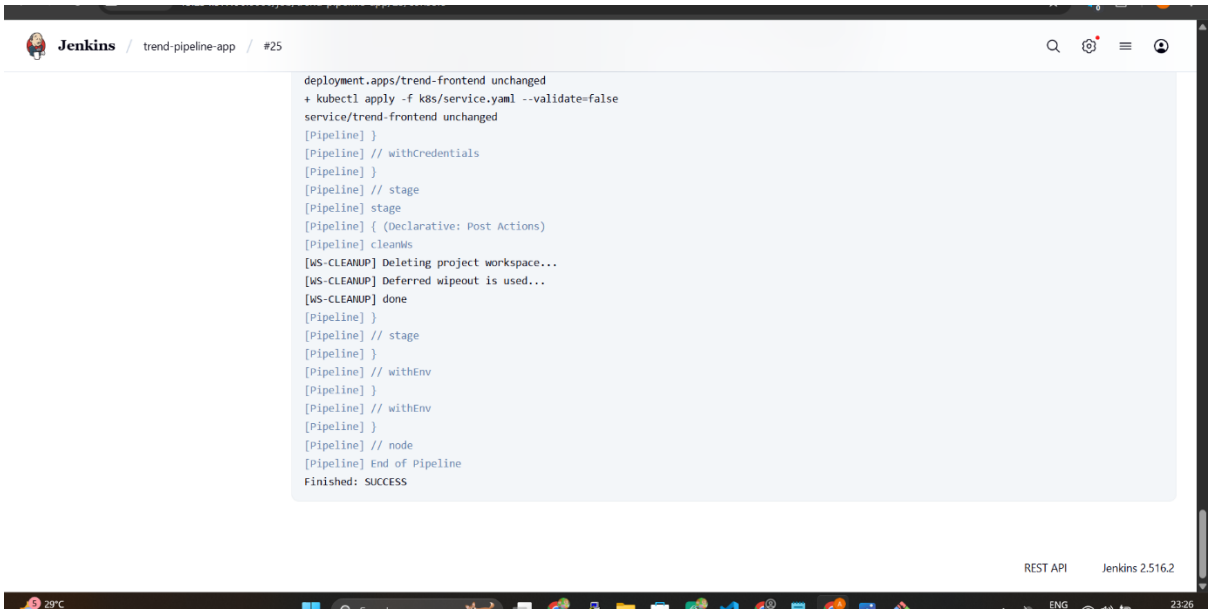


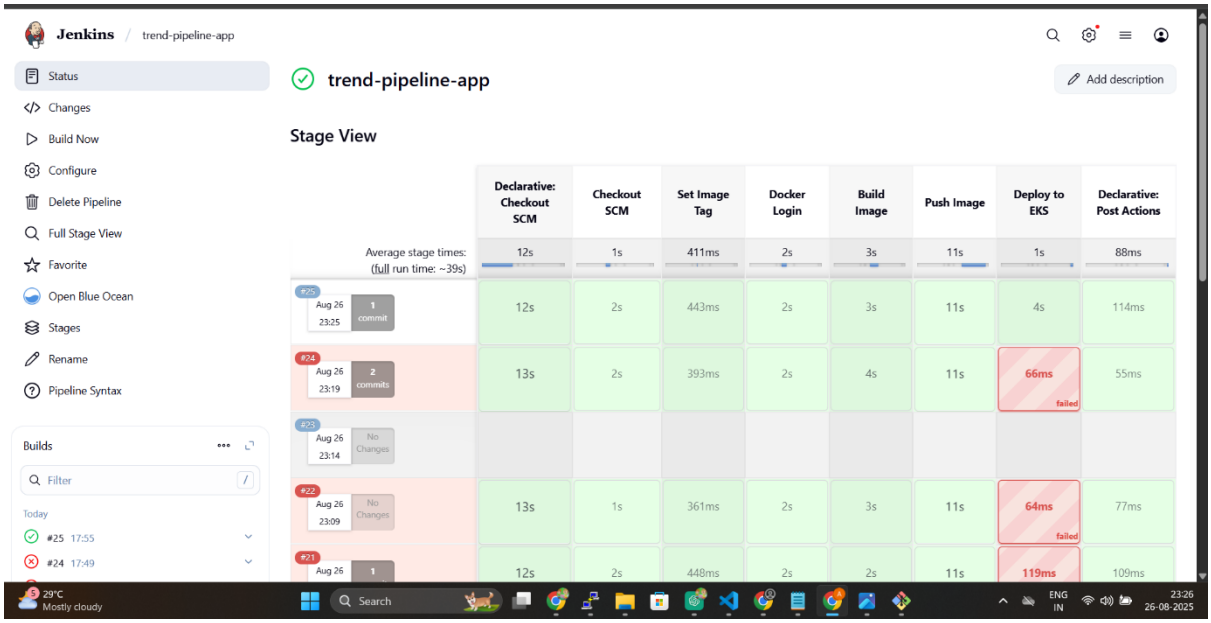
Additional volume attach:

- During Jenkins CI/CD deployment, I faced a storage shortage on the EC2 instance which caused build failures. To fix this, I attached and mounted an **EBS volume** to the instance, giving Jenkins enough space for builds and Docker images. After this, the pipeline ran smoothly without interruptions.

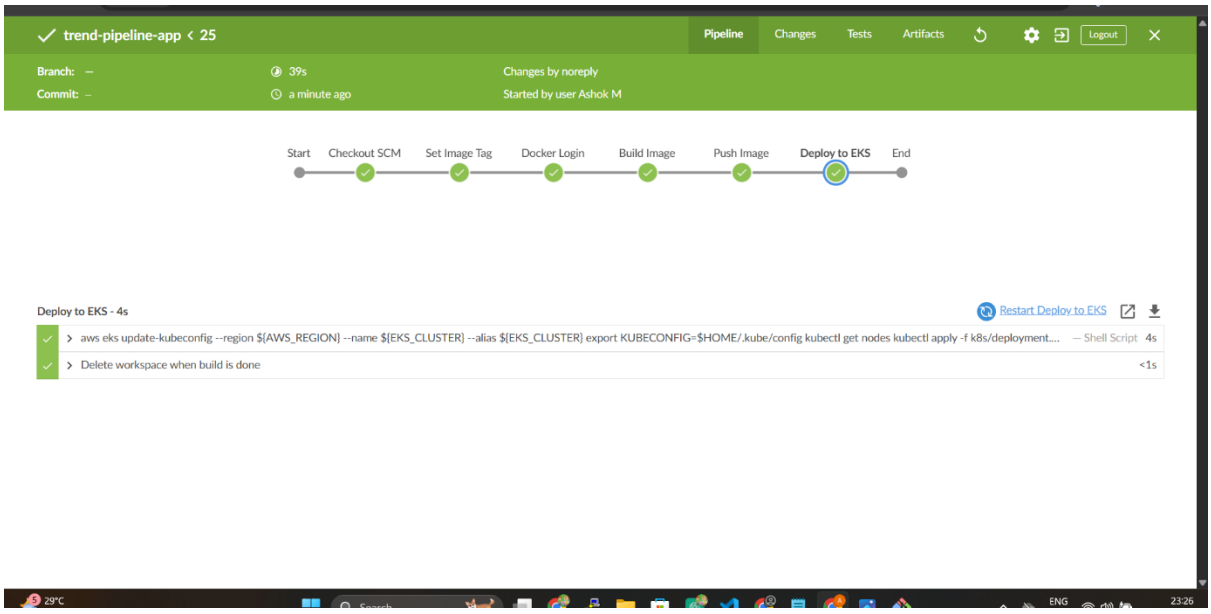


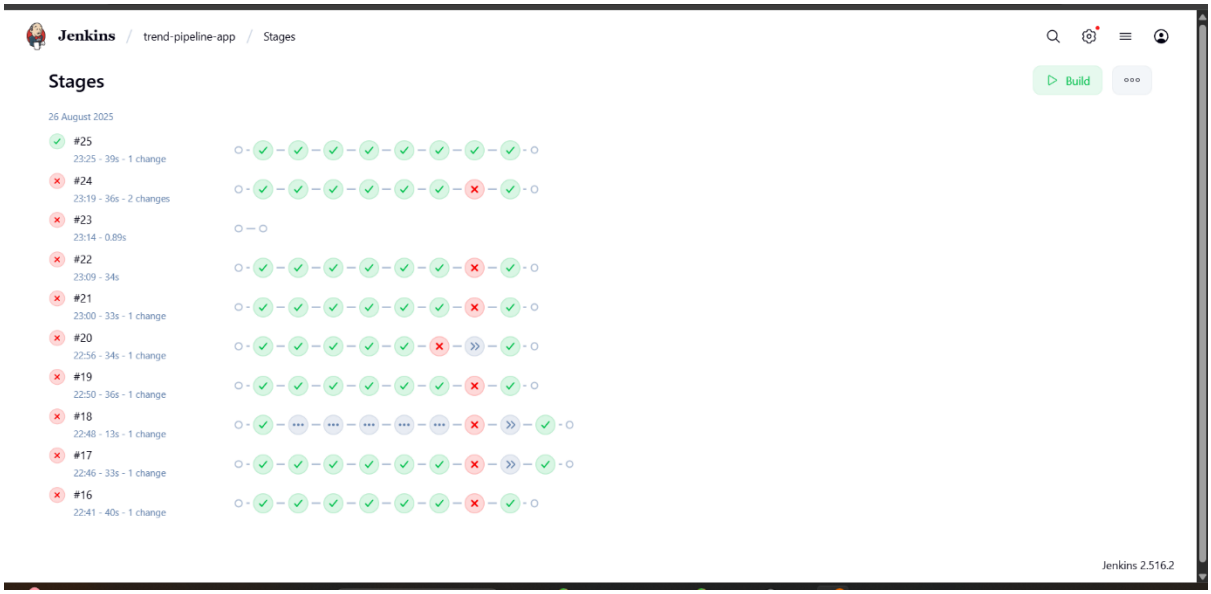

EC2 > Volumes > vol-036f9a849717ec762 > Attach volume
Attach volume Info
Attach a volume to an instance to use it as you would a regular physical hard disk drive.
Basic details
Volume ID
vol-036f9a849717ec762
Availability Zone
ap-south-1a
Instance | Info
i-03a418a21a861185c
(trend-jenkins) (running)
Only instances in the same Availability Zone as the selected volume are displayed.
Device name | Info
Select a device name
Recommended device names for Linux: /dev/sda1 for root volume. /dev/sd[f-p] for data volumes.
Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.
Cancel
Attach volume

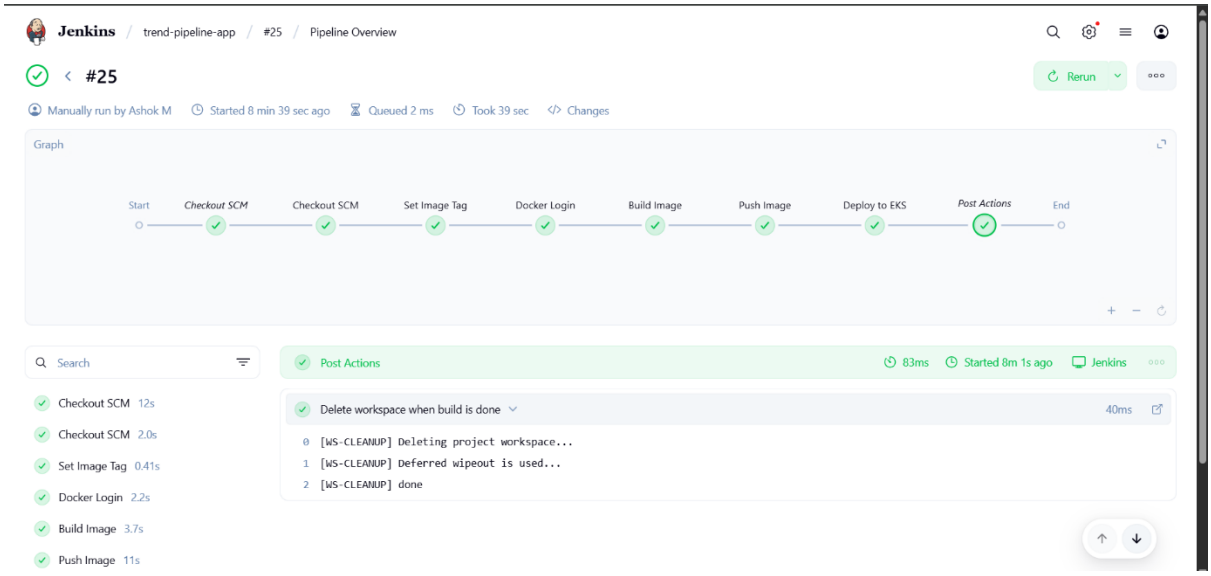

Jenkins / trend-pipeline-app / #25
deployment.apps/trend-frontend unchanged
+ kubectl apply -f k8s/service.yaml --validate=false
service/trend-frontend unchanged
[Pipeline] }
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Declarative: Post Actions)
[Pipeline] cleanWs
[WS-CLEANUP] Deleting project workspace...
[WS-CLEANUP] Deferred wipeout is used...
[WS-CLEANUP] done
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
REST API
Jenkins 2.516.2


Jenkins / trend-pipeline-app
Status
Changes
Build Now
Configure
Delete Pipeline
Full Stage View
Favorite
Open Blue Ocean
Stages
Rename
Pipeline Syntax
Builds
Filter
Today
#25 17:55
#24 17:49
trend-pipeline-app
Add description
Stage View
Declarative: Checkout SCM
Checkout SCM
Set Image Tag
Docker Login
Build Image
Push Image
Deploy to EKS
Declarative: Post Actions
Average stage times: (full run time: ~39s)
12s 1s 411ms 2s 3s 11s 1s 88ms
#25 Aug 26 23:25 1 commit 12s 2s 443ms 2s 3s 11s 4s 114ms
#24 Aug 26 23:19 2 commits 13s 2s 393ms 2s 4s 11s 66ms failed 55ms
#23 Aug 26 23:14 No Changes
#22 Aug 26 23:09 No Changes 13s 1s 361ms 2s 3s 11s 64ms failed 77ms
#21 Aug 26 1 12s 2s 448ms 2s 2s 11s 119ms 109ms
29°C Mostly cloudy
Search
ENG IN
23:26 26-08-2025


Jenkins / trend-pipeline-app / Full Stage View
trend-pipeline-app - Stage View
Declarative: Checkout SCM
Checkout SCM
Set Image Tag
Docker Login
Build Image
Push Image
Deploy to EKS
Declarative: Post Actions
Average stage times: (full run time: ~39s)
12s 1s 411ms 2s 3s 11s 1s 88ms
#25 Aug 26 23:25 1 commit
12s 2s 443ms 2s 3s 11s 4s 114ms
#24 Aug 26 23:19 2 commits
13s 2s 393ms 2s 4s 11s 66ms failed 55ms
#23 Aug 26 23:14 No Changes
#22 Aug 26 23:09 No Changes
13s 1s 361ms 2s 3s 11s 64ms failed 77ms
#21 Aug 26 23:00 1 commit
12s 2s 448ms 2s 2s 11s 119ms failed 109ms


trend-pipeline-app < 25
Pipeline
Changes
Tests
Artifacts
Logout
Branch: –
Commit: –
39s
a minute ago
Changes by noreply
Started by user Ashok M
Start
Checkout SCM
Set Image Tag
Docker Login
Build Image
Push Image
Deploy to EKS
End
Deploy to EKS - 4s
Restart Deploy to EKS
aws eks update-kubeconfig --region ${AWS_REGION} --name ${EKS_CLUSTER} --alias ${EKS_CLUSTER} export KUBECONFIG=$HOME/.kube/config kubectl get nodes kubectl apply -f k8s/deployment.... – Shell Script 4s
Delete workspace when build is done <1s

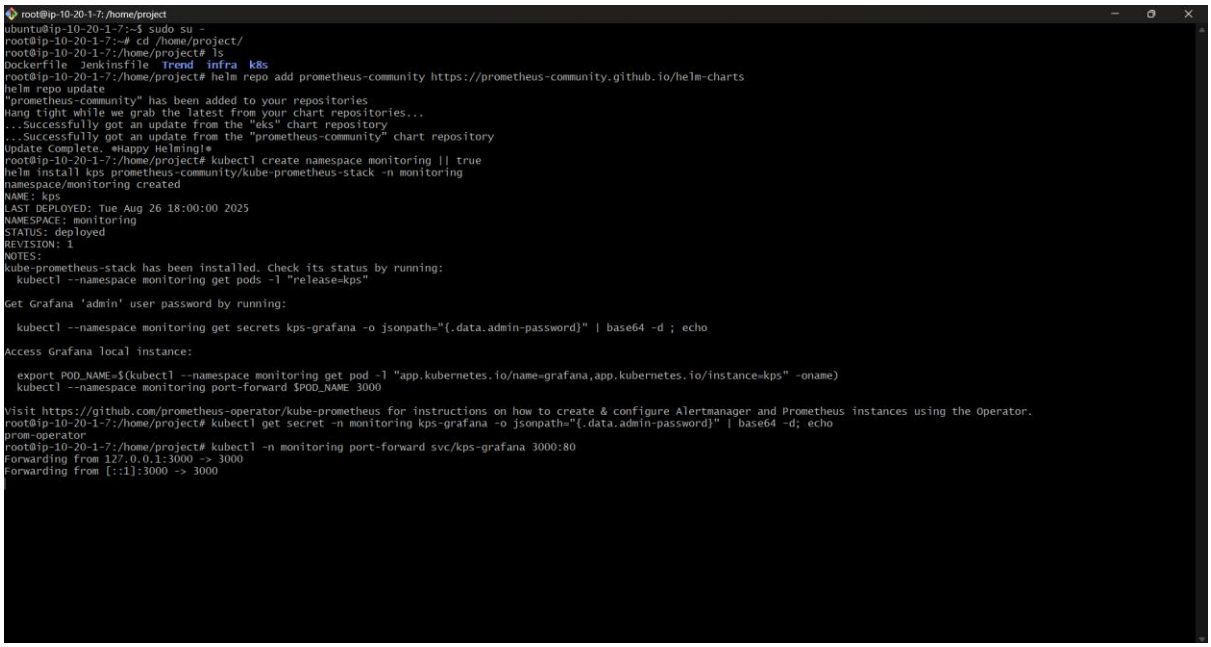

Jenkins / trend-pipeline-app / Stages
Stages
Build
26 August 2025
#25 23:25 - 39s - 1 change
#24 23:19 - 36s - 2 changes
#23 23:14 - 0.89s
#22 23:09 - 34s
#21 23:00 - 33s - 1 change
#20 22:56 - 34s - 1 change
#19 22:50 - 36s - 1 change
#18 22:48 - 13s - 1 change
#17 22:46 - 33s - 1 change
#16 22:41 - 40s - 1 change
Jenkins 2.516.2

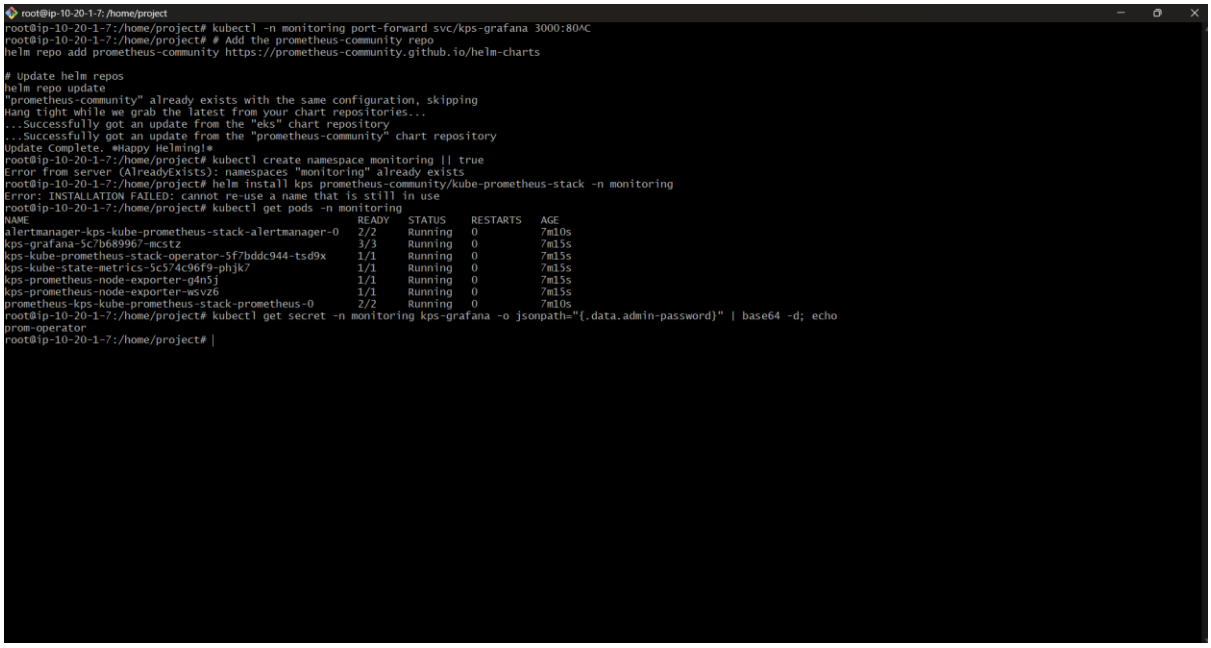


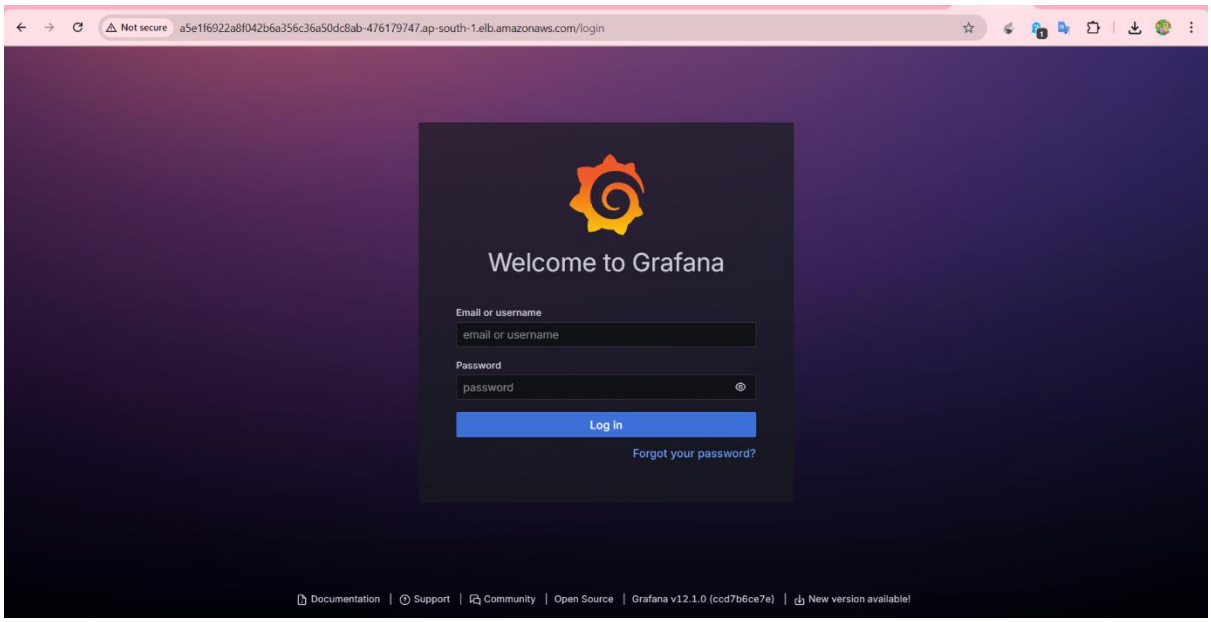
Monitoring:

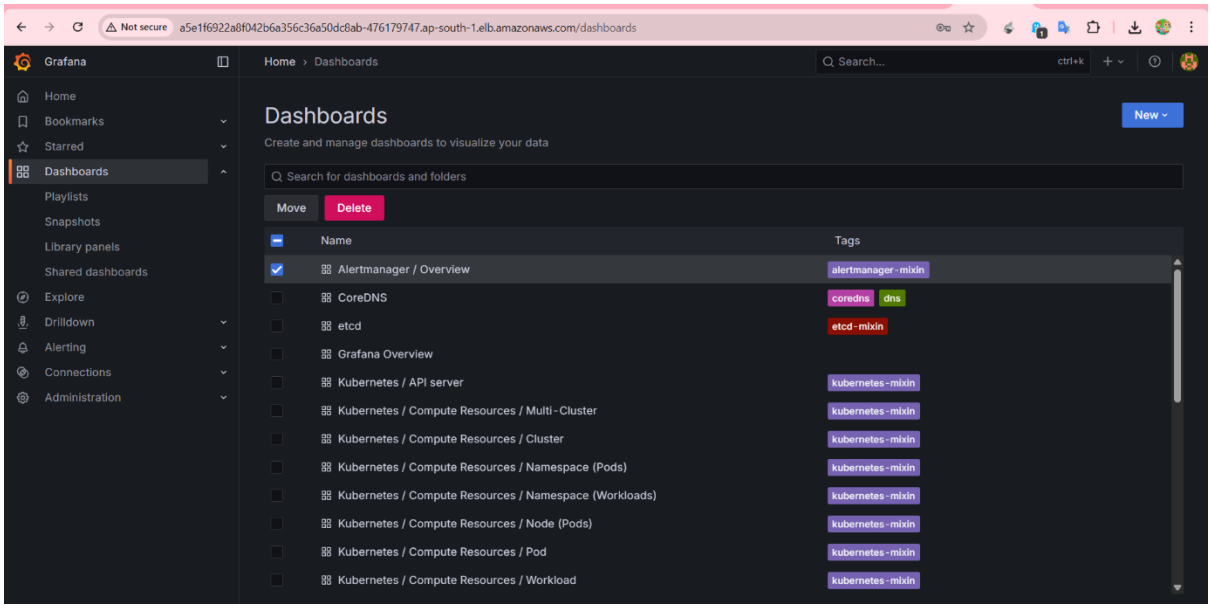
Monitoring Setup:

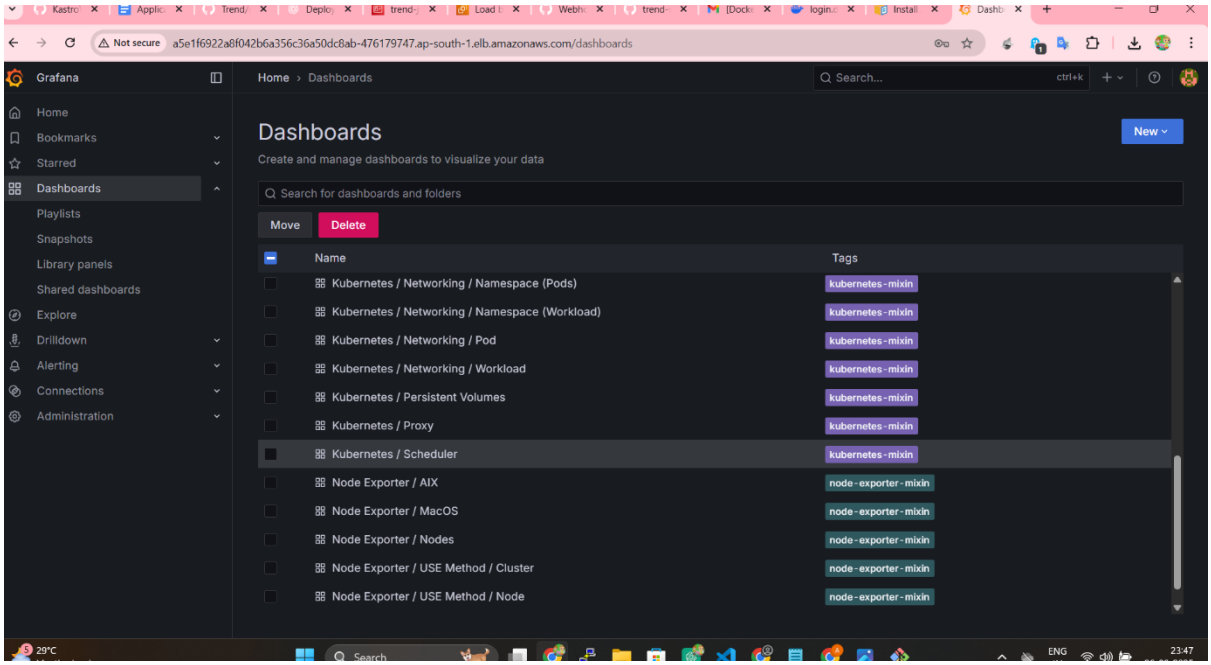
- To monitor the health of the Kubernetes cluster and the deployed application, I set up **Prometheus**, an open-source monitoring tool.
    - Installed Prometheus in the EKS cluster.
    - Configured Prometheus to scrape metrics from the cluster components and application pods.
    - Verified that Prometheus was collecting metrics such as CPU usage, memory utilization, and pod status.

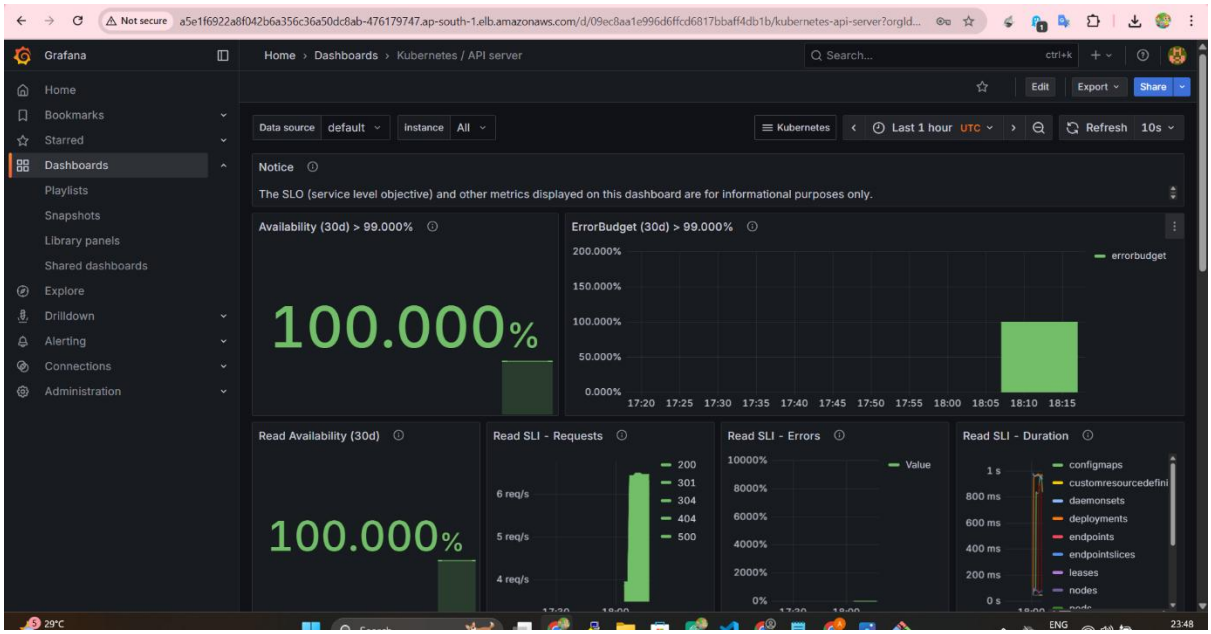


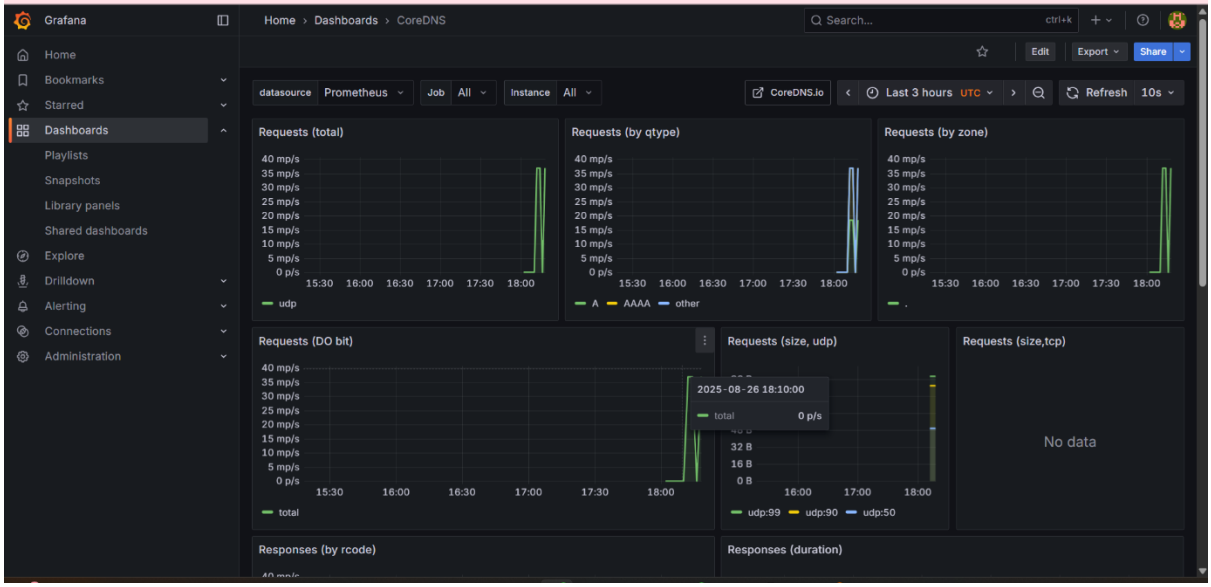

root@ip-10-20-1-7: /home/project
root@ip-10-20-1-7:/home/project# kubectl -n monitoring port-forward svc/kps-grafana 3000:80^C
root@ip-10-20-1-7:/home/project# # Add the prometheus-community repo
helm repo add prometheus-community https://prometheus-community.github.io/helm-charts
Update helm repos
helm repo update
"prometheus-community" already exists with the same configuration, skipping
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "eks" chart repository
...Successfully got an update from the "prometheus-community" chart repository
Update Complete. ⎈Happy Helming!⎈
root@ip-10-20-1-7:/home/project# kubectl create namespace monitoring || true
Error from server (AlreadyExists): namespaces "monitoring" already exists
root@ip-10-20-1-7:/home/project# helm install kps prometheus-community/kube-prometheus-stack -n monitoring
Error: INSTALLATION FAILED: cannot re-use a name that is still in use
root@ip-10-20-1-7:/home/project# kubectl get pods -n monitoring
NAME READY STATUS RESTARTS AGE
alertmanager-kps-kube-prometheus-stack-alertmanager-0 2/2 Running 0 7m10s
kps-grafana-5c7b68967-mcstz 3/3 Running 0 7m15s
kps-kube-prometheus-stack-operator-5f7bddc944-tsd9x 1/1 Running 0 7m15s
kps-kube-state-metrics-5c574c96f9-phjk7 1/1 Running 0 7m15s
kps-prometheus-node-exporter-g4n5j 1/1 Running 0 7m15s
kps-prometheus-node-exporter-wsvz6 1/1 Running 0 7m15s
prometheus-kps-kube-prometheus-stack-prometheus-0 2/2 Running 0 7m10s
root@ip-10-20-1-7:/home/project# kubectl get secret -n monitoring kps-grafana -o jsonpath="{.data.admin-password}" | base64 -d; echo
prom-operator
root@ip-10-20-1-7:/home/project#

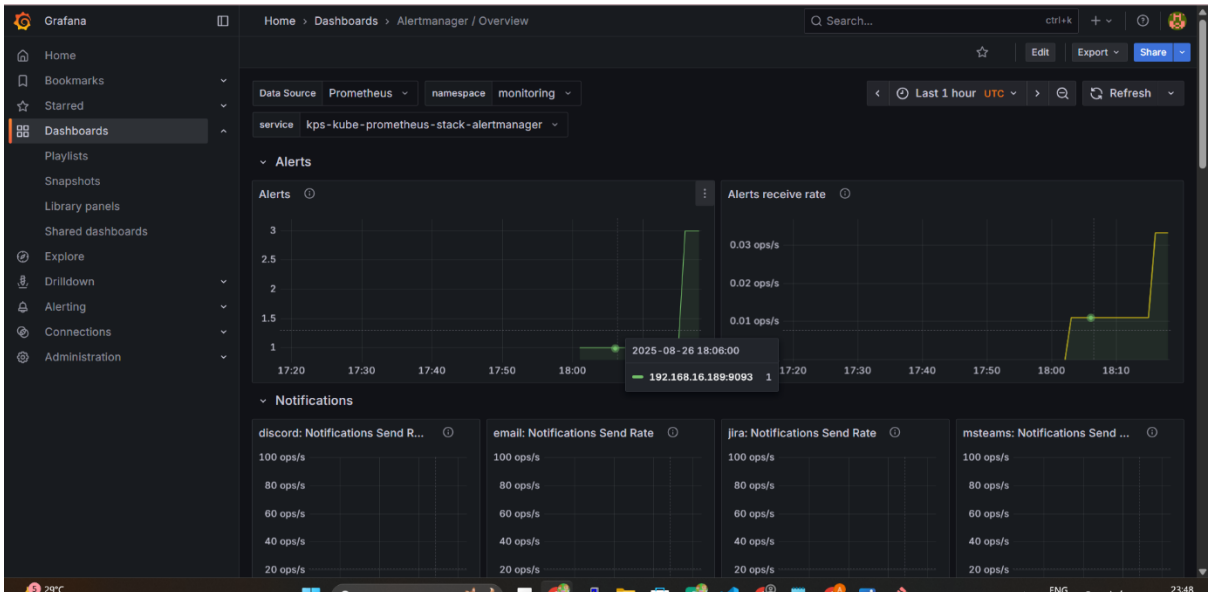

Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/login
Welcome to Grafana
Email or username
email or username
Password
password
Log in
Forgot your password?
Documentation | Support | Community | Open Source | Grafana v12.1.0 (ccd7b6ce7e) | New version available!

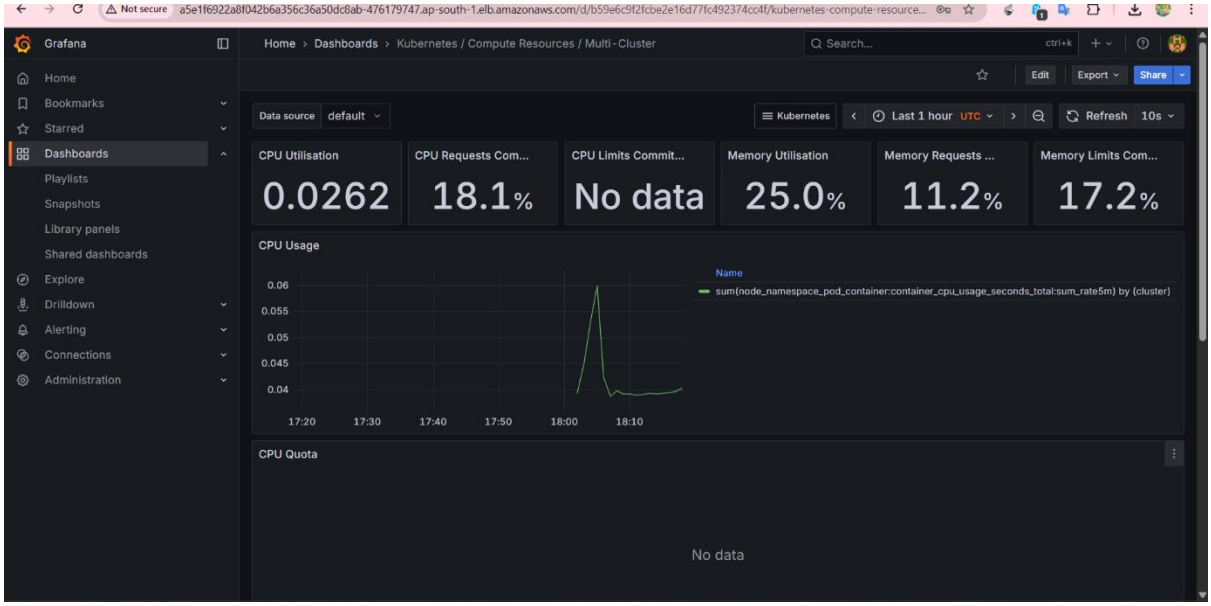

Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/dashboards
Grafana
Home › Dashboards
Search...
ctrl+k
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Dashboards
Create and manage dashboards to visualize your data
New
Search for dashboards and folders
Move
Delete
Name
Tags
Alertmanager / Overview
alertmanager-mixin
CoreDNS
coredns
dns
etcd
etcd-mixin
Grafana Overview
Kubernetes / API server
kubernetes-mixin
Kubernetes / Compute Resources / Multi-Cluster
Kubernetes / Compute Resources / Cluster
Kubernetes / Compute Resources / Namespace (Pods)
Kubernetes / Compute Resources / Namespace (Workloads)
Kubernetes / Compute Resources / Node (Pods)
Kubernetes / Compute Resources / Pod
Kubernetes / Compute Resources / Workload

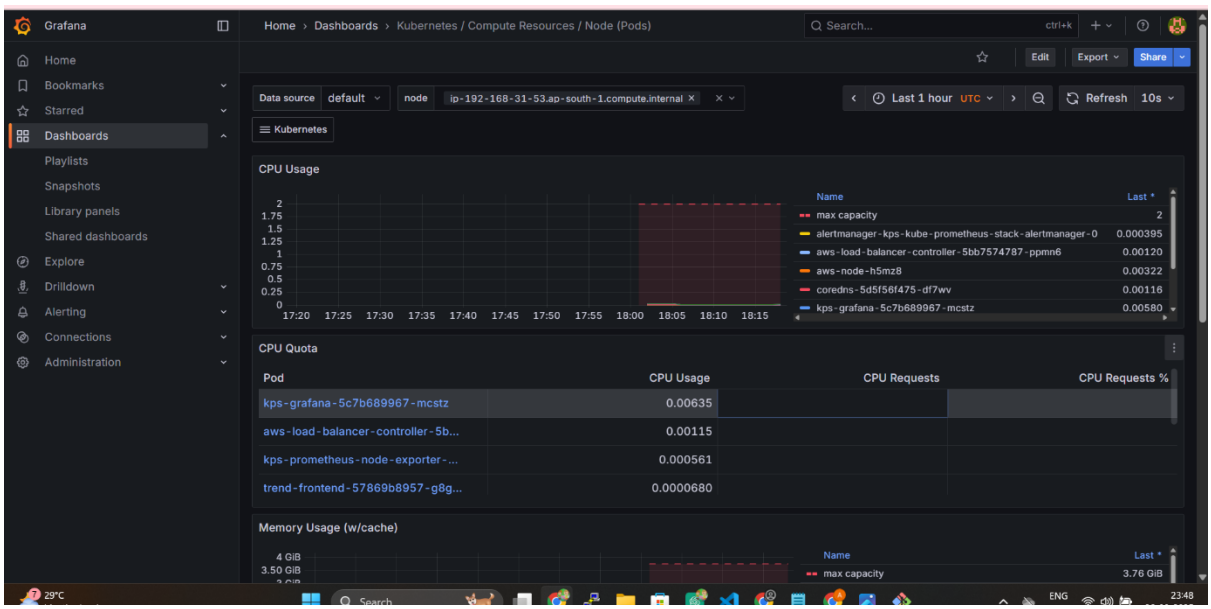

Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/dashboards
Grafana
Home › Dashboards
Search...
ctrl+k
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Dashboards
Create and manage dashboards to visualize your data
New
Search for dashboards and folders
Move
Delete
Name
Tags
Kubernetes / Networking / Namespace (Pods)
kubernetes-mixin
Kubernetes / Networking / Namespace (Workload)
Kubernetes / Networking / Pod
Kubernetes / Networking / Workload
Kubernetes / Persistent Volumes
Kubernetes / Proxy
Kubernetes / Scheduler
Node Exporter / AIX
node-exporter-mixin
Node Exporter / MacOS
Node Exporter / Nodes
Node Exporter / USE Method / Cluster
Node Exporter / USE Method / Node

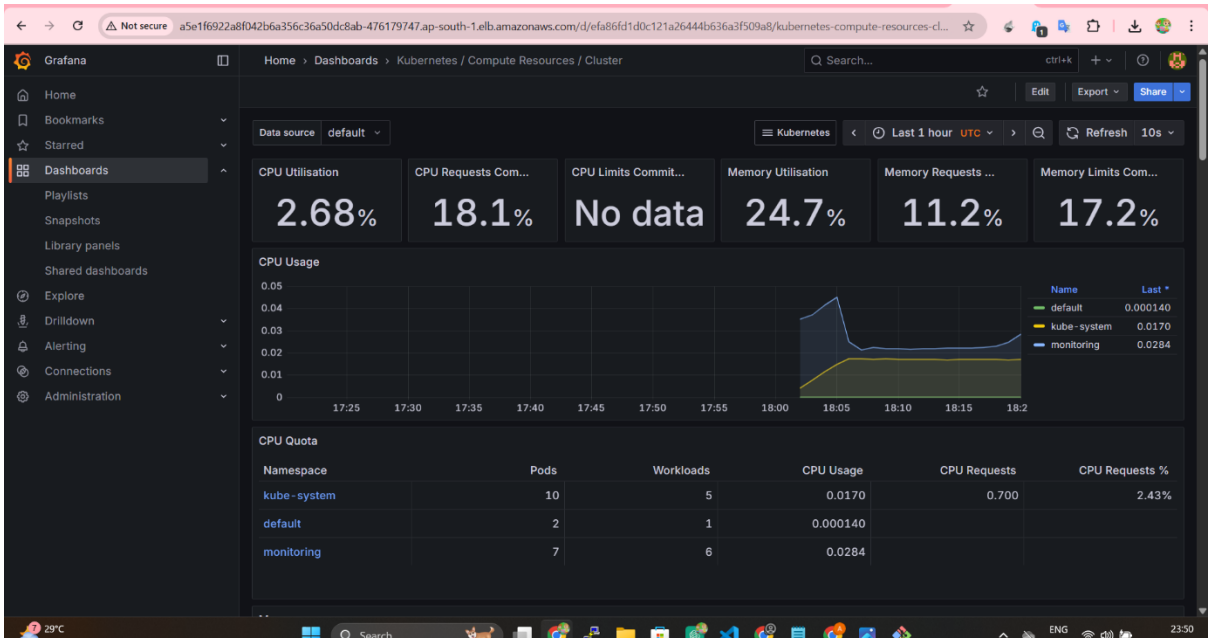

Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/d/09ec8aa1e996d6ffcd6817bbaff4db1b/kubernetes-api-server?orgId...
Grafana
Home › Dashboards › Kubernetes / API server
Search...
ctrl+k
Edit
Export
Share
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Data source default
instance All
Kubernetes
Last 1 hour UTC
Refresh 10s
Notice
The SLO (service level objective) and other metrics displayed on this dashboard are for informational purposes only.
Availability (30d) > 99.000%
100.000%
ErrorBudget (30d) > 99.000%
errorbudget
200.000%
150.000%
100.000%
50.000%
0.000%
17:20 17:25 17:30 17:35 17:40 17:45 17:50 17:55 18:00 18:05 18:10 18:15
Read Availability (30d)
100.000%
Read SLI - Requests
6 req/s
5 req/s
4 req/s
200
301
304
404
500
Read SLI - Errors
Value
10000%
8000%
6000%
4000%
2000%
0%
Read SLI - Duration
1 s
800 ms
600 ms
400 ms
200 ms
0 s
configmaps
customresourcedefini
daemonsets
deployments
endpoints
endpointslices
leases
nodes
29°C
ENG
23:48

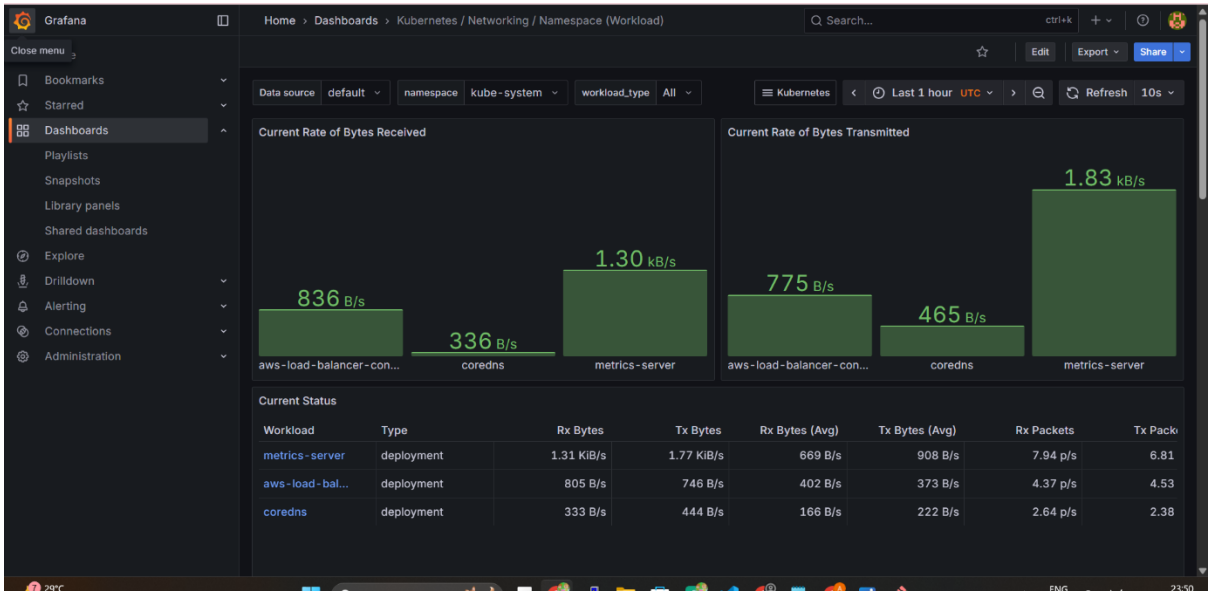

Grafana
Home › Dashboards › CoreDNS
Search...
ctrl+k
Edit
Export
Share
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
datasource Prometheus
Job All
Instance All
CoreDNS.io
Last 3 hours UTC
Refresh 10s
Requests (total)
40 mp/s
35 mp/s
30 mp/s
25 mp/s
20 mp/s
15 mp/s
10 mp/s
5 mp/s
0 p/s
15:30 16:00 16:30 17:00 17:30 18:00
udp
Requests (by qtype)
A
AAAA
other
Requests (by zone)
Requests (DO bit)
total
2025-08-26 18:10:00
0 p/s
Requests (size, udp)
32 B
16 B
0 B
udp:99
udp:90
udp:50
Requests (size,tcp)
No data
Responses (by rcode)
Responses (duration)

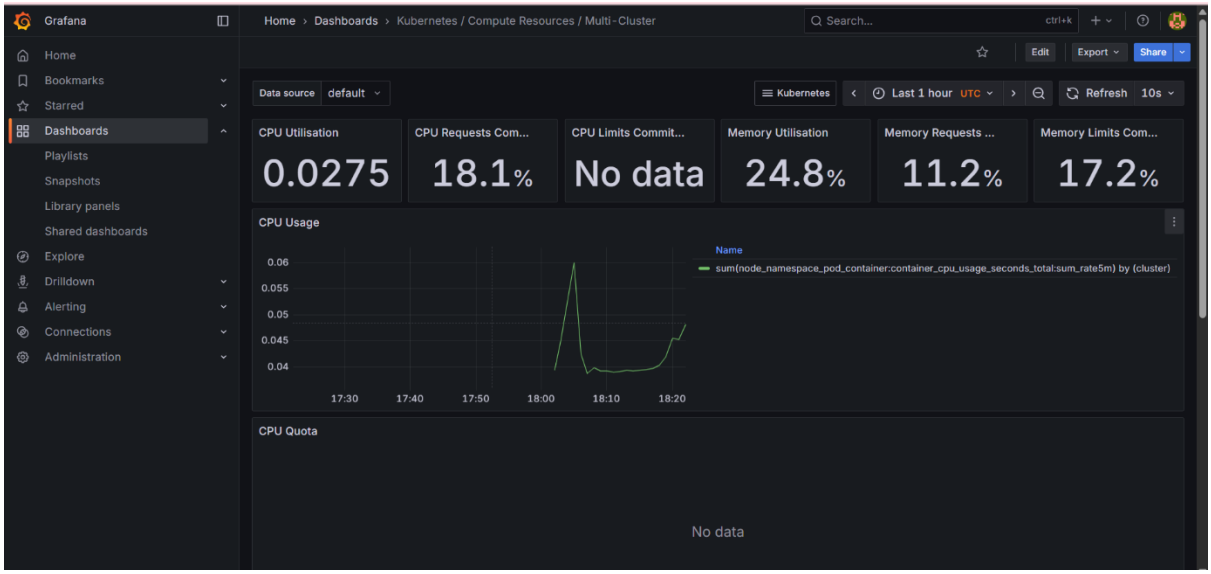

Grafana
Home › Dashboards › Alertmanager / Overview
Search...
Edit
Export
Share
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Data Source
Prometheus
namespace
monitoring
Last 1 hour
UTC
Refresh
service
kps-kube-prometheus-stack-alertmanager
Alerts
Alerts
Alerts receive rate
0.03 ops/s
0.02 ops/s
0.01 ops/s
2025-08-26 18:06:00
192.168.16.189:9093
Notifications
discord: Notifications Send R...
email: Notifications Send Rate
jira: Notifications Send Rate
msteams: Notifications Send ...
100 ops/s
80 ops/s
60 ops/s
40 ops/s
20 ops/s

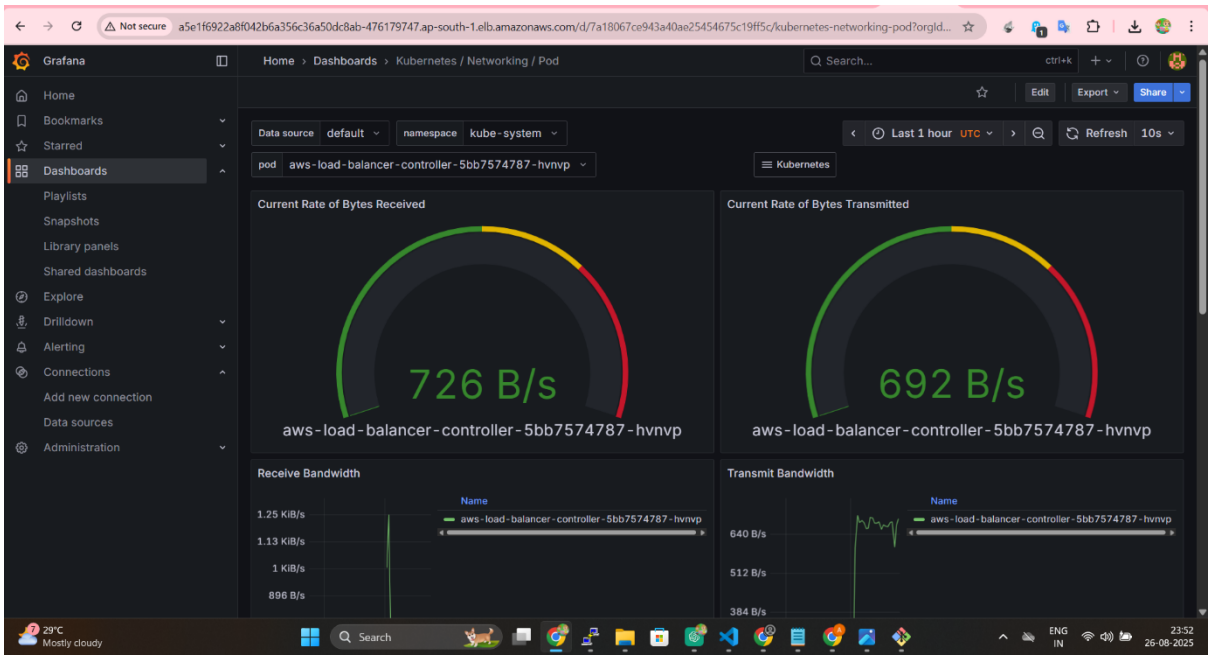

Not secure
Grafana
Home › Dashboards › Kubernetes / Compute Resources / Multi-Cluster
Search...
Edit
Export
Share
Data source
default
Kubernetes
Last 1 hour
UTC
Refresh
10s
CPU Utilisation
0.0262
CPU Requests Com...
18.1%
CPU Limits Commit...
No data
Memory Utilisation
25.0%
Memory Requests ...
11.2%
Memory Limits Com...
17.2%
CPU Usage
Name
sum(node_namespace_pod_container:container_cpu_usage_seconds_total:sum_rate5m) by (cluster)
CPU Quota
No data

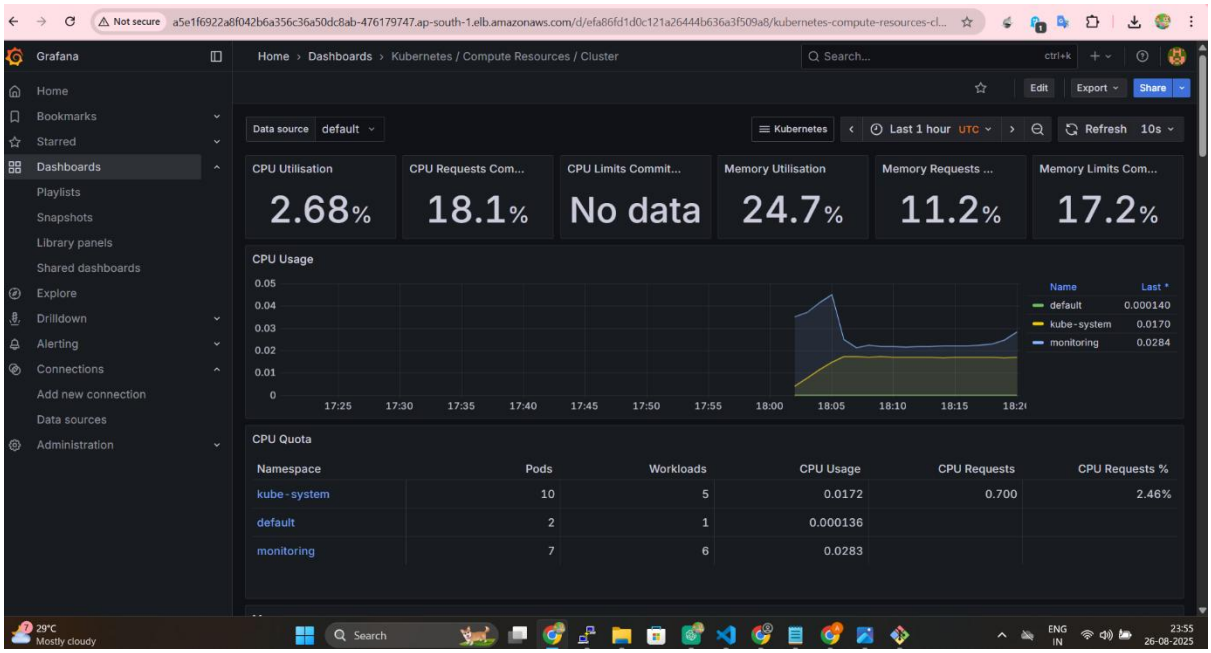

Grafana
Home › Dashboards › Kubernetes / Compute Resources / Node (Pods)
Search...
Edit
Export
Share
Data source
default
node
ip-192-168-31-53.ap-south-1.compute.internal
Last 1 hour
UTC
Refresh
10s
Kubernetes
CPU Usage
Name
Last *
max capacity
alertmanager-kps-kube-prometheus-stack-alertmanager-0
aws-load-balancer-controller-5bb7574787-ppmn6
aws-node-h5mz8
coredns-5d5f56f475-df7wv
kps-grafana-5c7b689967-mcstz
CPU Quota
Pod
CPU Usage
CPU Requests
CPU Requests %
kps-grafana-5c7b689967-mcstz
aws-load-balancer-controller-5b...
kps-prometheus-node-exporter-...
trend-frontend-57869b8957-g8g...
Memory Usage (w/cache)
max capacity
3.76 GiB

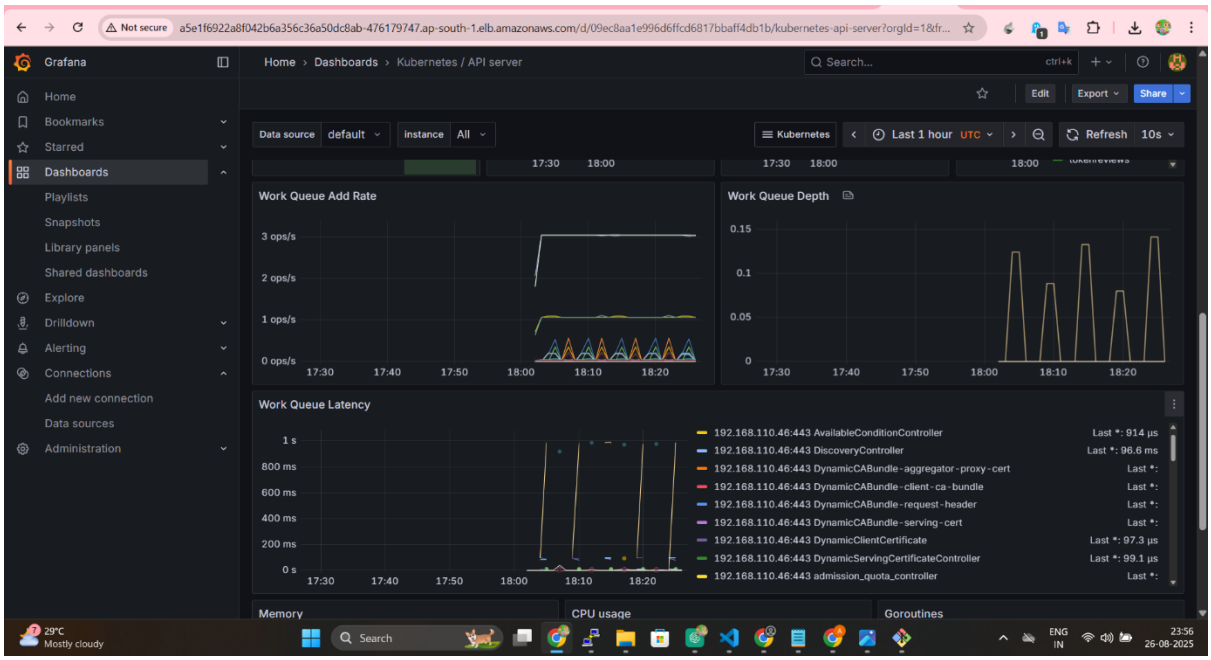

Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/d/efa86fd1d0c121a26444b636a3f509a8/kubernetes-compute-resources-cl...
Grafana
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Home › Dashboards › Kubernetes / Compute Resources / Cluster
Search...
ctrl+k
Edit
Export
Share
Data source
default
Kubernetes
Last 1 hour
UTC
Refresh
10s
CPU Utilisation
2.68%
CPU Requests Com...
18.1%
CPU Limits Commit...
No data
Memory Utilisation
24.7%
Memory Requests ...
11.2%
Memory Limits Com...
17.2%
CPU Usage
0.05
0.04
0.03
0.02
0.01
0
17:25
17:30
17:35
17:40
17:45
17:50
17:55
18:00
18:05
18:10
18:15
18:2
Name
Last *
default
0.000140
kube-system
0.0170
monitoring
0.0284
CPU Quota
Namespace
Pods
Workloads
CPU Usage
CPU Requests
CPU Requests %
kube-system
10
5
0.0170
0.700
2.43%
default
2
1
0.000140
monitoring
7
6
0.0284
29°C
ENG
23:50

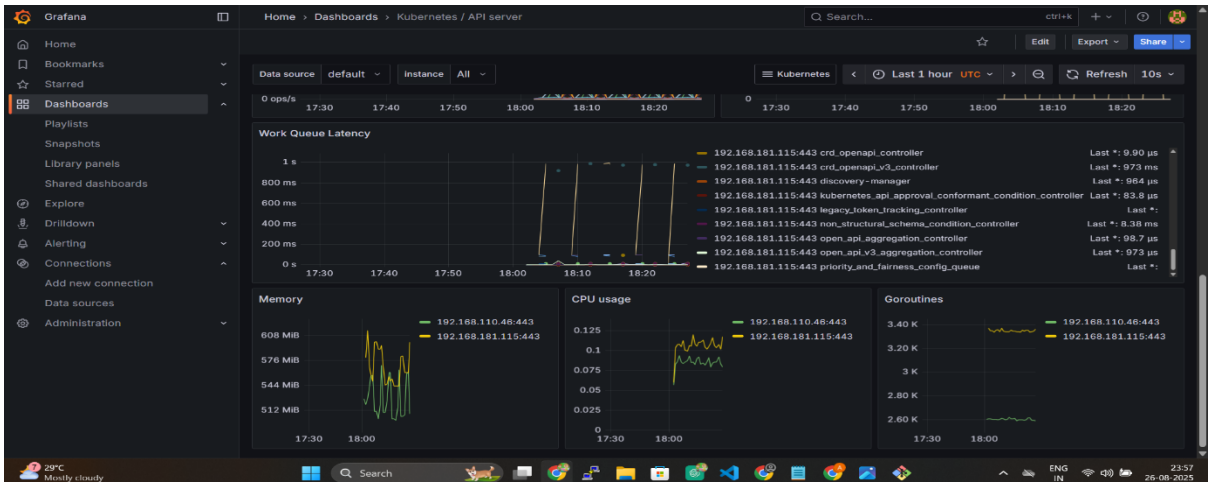

Grafana
Close menu
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Home › Dashboards › Kubernetes / Networking / Namespace (Workload)
Search...
ctrl+k
Edit
Export
Share
Data source
default
namespace
kube-system
workload_type
All
Kubernetes
Last 1 hour
UTC
Refresh
10s
Current Rate of Bytes Received
836 B/s
336 B/s
1.30 kB/s
aws-load-balancer-con...
coredns
metrics-server
Current Rate of Bytes Transmitted
775 B/s
465 B/s
1.83 kB/s
aws-load-balancer-con...
coredns
metrics-server
Current Status
Workload
Type
Rx Bytes
Tx Bytes
Rx Bytes (Avg)
Tx Bytes (Avg)
Rx Packets
Tx Packe
metrics-server
deployment
1.31 KiB/s
1.77 KiB/s
669 B/s
908 B/s
7.94 p/s
6.81
aws-load-bal...
deployment
805 B/s
746 B/s
402 B/s
373 B/s
4.37 p/s
4.53
coredns
deployment
333 B/s
444 B/s
166 B/s
222 B/s
2.64 p/s
2.38
29°C
ENG
23:50


Grafana
Home › Dashboards › Kubernetes / Compute Resources / Multi-Cluster
Search...
Edit
Export
Share
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Administration
Data source default
Kubernetes
Last 1 hour UTC
Refresh 10s
CPU Utilisation
0.0275
CPU Requests Com...
18.1%
CPU Limits Commit...
No data
Memory Utilisation
24.8%
Memory Requests ...
11.2%
Memory Limits Com...
17.2%
CPU Usage
Name
sum(node_namespace_pod_container:container_cpu_usage_seconds_total:sum_rate5m) by (cluster)
0.06
0.055
0.05
0.045
0.04
17:30
17:40
17:50
18:00
18:10
18:20
CPU Quota
No data

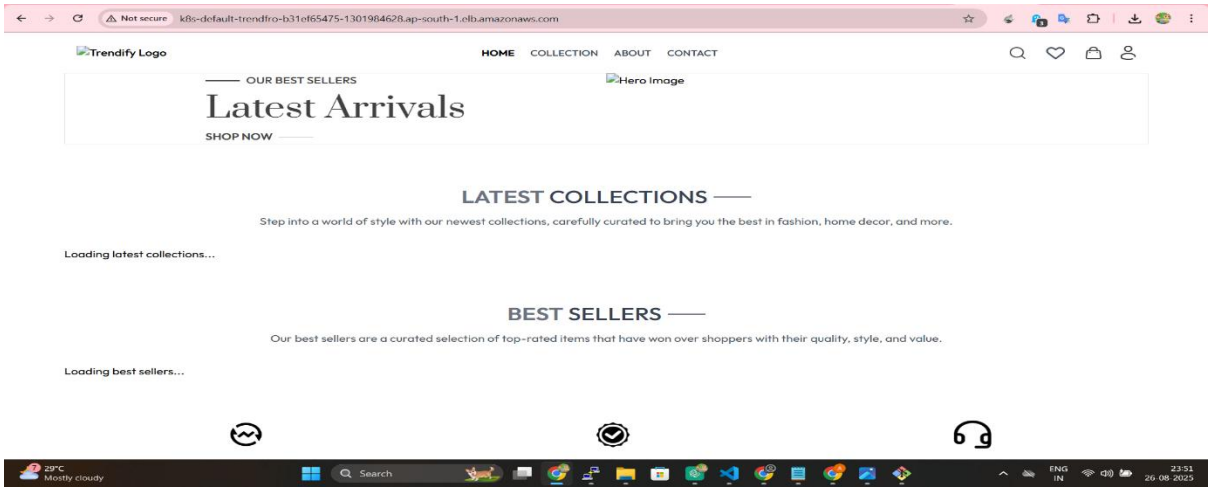

Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/d/7a18067ce943a40ae25454675c19ff5c/kubernetes-networking-pod?orgId...
Grafana
Home › Dashboards › Kubernetes / Networking / Pod
Search...
Edit
Export
Share
Home
Bookmarks
Starred
Dashboards
Playlists
Snapshots
Library panels
Shared dashboards
Explore
Drilldown
Alerting
Connections
Add new connection
Data sources
Administration
Data source default
namespace kube-system
pod aws-load-balancer-controller-5bb7574787-hvnvp
Kubernetes
Last 1 hour UTC
Refresh 10s
Current Rate of Bytes Received
726 B/s
aws-load-balancer-controller-5bb7574787-hvnvp
Current Rate of Bytes Transmitted
692 B/s
aws-load-balancer-controller-5bb7574787-hvnvp
Receive Bandwidth
Name
aws-load-balancer-controller-5bb7574787-hvnvp
1.25 KiB/s
1.13 KiB/s
1 KiB/s
896 B/s
Transmit Bandwidth
Name
aws-load-balancer-controller-5bb7574787-hvnvp
640 B/s
512 B/s
384 B/s
29°C
Mostly cloudy
Search
ENG
IN
23:52
26-08-2025


Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/d/efa86fd1d0c121a26444b636a3f509a8/kubernetes-compute-resources-cl...
Grafana
Home › Dashboards › Kubernetes / Compute Resources / Cluster
Search...
Edit
Export
Share
Data source default
Kubernetes
Last 1 hour UTC
Refresh 10s
CPU Utilisation
2.68%
CPU Requests Com...
18.1%
CPU Limits Commit...
No data
Memory Utilisation
24.7%
Memory Requests ...
11.2%
Memory Limits Com...
17.2%
CPU Usage
Name Last *
default 0.000140
kube-system 0.0170
monitoring 0.0284
CPU Quota
Namespace Pods Workloads CPU Usage CPU Requests CPU Requests %
kube-system 10 5 0.0172 0.700 2.46%
default 2 1 0.000136
monitoring 7 6 0.0283
29°C
Mostly cloudy
Search
ENG
IN
23:55
26-08-2025


Not secure
a5e1f6922a8f042b6a356c36a50dc8ab-476179747.ap-south-1.elb.amazonaws.com/d/09ec8aa1e996d6ffcd6817bbaff4db1b/kubernetes-api-server?orgId=1&fr...
Grafana
Home › Dashboards › Kubernetes / API server
Search...
Edit
Export
Share
Data source default
instance All
Kubernetes
Last 1 hour UTC
Refresh 10s
Work Queue Add Rate
Work Queue Depth
Work Queue Latency
192.168.110.46:443 AvailableConditionController Last *: 914 µs
192.168.110.46:443 DiscoveryController Last *: 96.6 ms
192.168.110.46:443 DynamicCABundle-aggregator-proxy-cert
192.168.110.46:443 DynamicCABundle-client-ca-bundle
192.168.110.46:443 DynamicCABundle-request-header
192.168.110.46:443 DynamicCABundle-serving-cert
192.168.110.46:443 DynamicClientCertificate Last *: 97.3 µs
192.168.110.46:443 DynamicServingCertificateController Last *: 99.1 µs
192.168.110.46:443 admission_quota_controller
Memory
CPU usage
Goroutines
29°C
Mostly cloudy
Search
ENG
IN
23:56
26-08-2025


Grafana
Home › Dashboards › Kubernetes / API server
Search...
Edit
Export
Share
Data source default
instance All
Kubernetes
Last 1 hour UTC
Refresh 10s
Work Queue Latency
192.168.181.115:443 crd_openapi_controller Last *: 9.90 µs
192.168.181.115:443 crd_openapi_v3_controller Last *: 973 ms
192.168.181.115:443 discovery-manager Last *: 964 µs
192.168.181.115:443 kubernetes_api_approval_conformant_condition_controller Last *: 83.8 µs
192.168.181.115:443 legacy_token_tracking_controller
192.168.181.115:443 non_structural_schema_condition_controller Last *: 8.38 ms
192.168.181.115:443 open_api_aggregation_controller Last *: 98.7 µs
192.168.181.115:443 open_api_v3_aggregation_controller Last *: 973 µs
192.168.181.115:443 priority_and_fairness_config_queue
Memory
192.168.110.46:443
192.168.181.115:443
CPU usage
Goroutines
29°C
Mostly cloudy
Search
ENG
IN
23:57
26-08-2025

Application deployed kubernetes Loadbalancer ARN:



Pipeline setup:

- The Jenkins pipeline was set up to fully automate the process from code to deployment. Whenever new code is pushed to GitHub, the pipeline automatically checks out the latest code, builds a Docker image using the Dockerfile, pushes the image to DockerHub, and then deploys the updated version of the application to the Kubernetes cluster (EKS) using kubectl/Helm. This way, every commit triggers a complete CI/CD flow without manual steps, ensuring the application is always up to date and running smoothly.

Conclusion:

- This project demonstrated the complete lifecycle of deploying and managing a modern application using DevOps practices. The application was cloned and deployed locally, containerized with Docker, and stored in DockerHub. Terraform was used to provision infrastructure on AWS, including VPC and EC2 instances with Jenkins. Kubernetes on EKS was set up for container orchestration, and deployments were automated with Jenkins pipelines integrated with GitHub webhooks. Helm simplified the deployment process, while Prometheus provided monitoring for application and cluster health. Altogether, this setup delivers a robust CI/CD pipeline that ensures smooth, automated, and reliable delivery of application updates.

Architecture Diagram: