

Project : Trendstore

Clone Repository

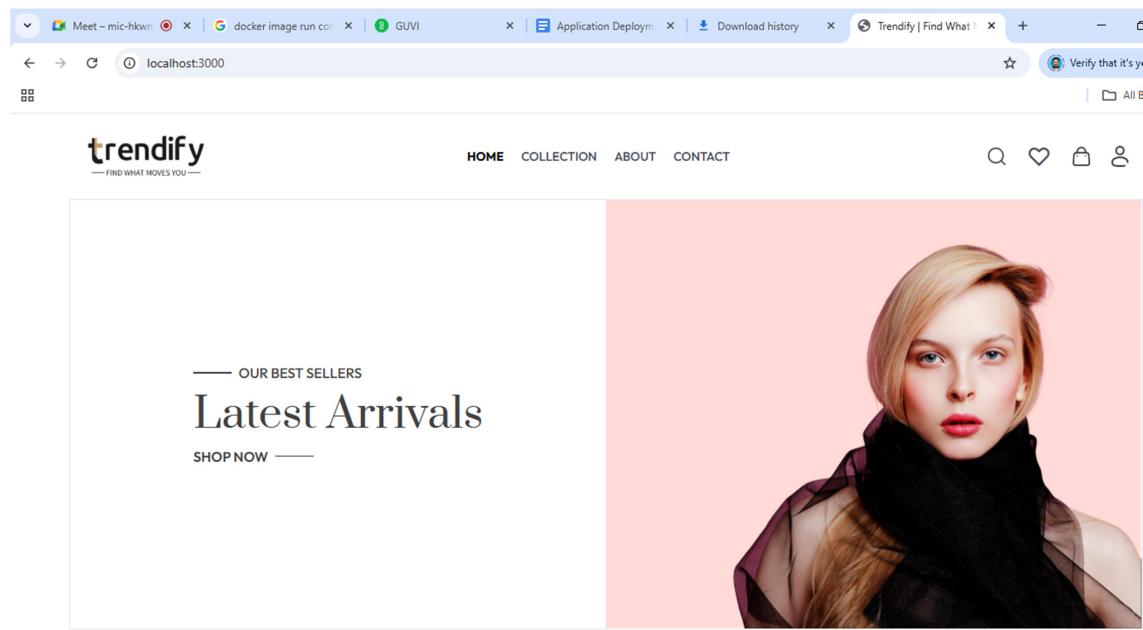
```
root@Yugan:~/Trend/Trend# git clone https://github.com/Vennilavan12/Trend.git
Cloning into 'Trend'...
remote: Enumerating objects: 77, done.
remote: Counting objects: 100% (2/2), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 77 (delta 0), reused 0 (delta 0), pack-reused 75 (from 1)
Receiving objects: 100% (77/77), 8.58 MiB | 2.59 MiB/s, done.
Resolving deltas: 100% (1/1), done.
root@Yugan:~/Trend/Trend# apt list npm
```

Installing npm & Ran the service

```
root@Yugan:~/Trend/Trend/dist# npx serve -l 3000
ERROR Cannot copy server address to clipboard: Command failed with exit code 1: /root/.npm/_npn/aab42732f01924e5/node_modules/clipboard_x86_64.exe --copy
/root/.npm/_npn/aab42732f01924e5/node_modules/clipboard/fallbacks/windows/clipboard_x86_64.exe: Invalid argument.
```

Serving!
- Local: http://localhost:3000
- Network: http://172.28.2.176:3000

Verified the Application in Browser



Docker File

```
root@Yugan:~/Trend/Trend# cat Dockerfile
FROM nginx:alpine
COPY dist/ /usr/share/nginx/html
EXPOSE 80
root@Yugan:~/Trend/Trend#
```

Building Docker Image

```
root@Yugan:~/Trend/Trend# docker build -t trend-app2 .
+] Building 4.1s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 99B
=> [internal] load metadata for docker.io/library/nginx:alpine
=> [auth] library/nginx:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 3.87kB
=> [1/2] FROM docker.io/library/nginx:alpine@sha256:1d13701a5f9f3fb01aaa88cef2344d65b6b5bf6b7d9fa4cf0dca557a8d7702ba
=> => resolve docker.io/library/nginx:alpine@sha256:1d13701a5f9f3fb01aaa88cef2344d65b6b5bf6b7d9fa4cf0dca557a8d7702ba
=> CACHED [2/2] COPY dist/ /usr/share/nginx/html
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:55eb04924d8a57dae22e5a1d4df0e4179d494a7035211a61b95c6df8d395d9d5
=> => exporting config sha256:15d3e3127154d4c470e0b9815881778210a4382c6524234c42d94f4959efdd48
=> => exporting attestation manifest sha256:9d1c9f300d3fac5c7ca058dc985e506a1177bfcf2127e2a55d8e10d533bb02e
=> => exporting manifest list sha256:364def0f25bd5347c8a9c9472f665a737832c36ebba800e969201586779c08b0
=> => naming to docker.io/library/trend-app2:latest
=> => unpacking to docker.io/library/trend-app2:latest
root@Yugan:~/Trend/Trend#
```

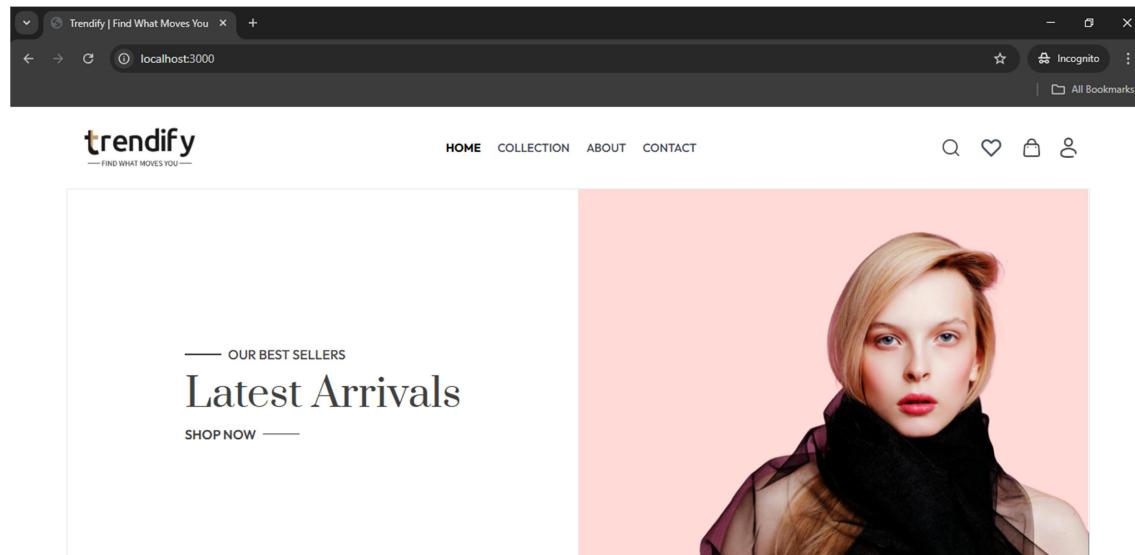
Verify the Docker Images

```
root@Yugan:~/Trend/Trend# docker images
REPOSITORY      TAG          IMAGE ID      CREATED        SIZE
trend-app2      latest       364def0f25bd   2 days ago    111MB
root@Yugan:~/Trend/Trend#
```

Run the Docker Image

```
root@Yugan:~/Trend/Trend# docker run -d -p 3000:80 --name trend-container1 trend-app2
f68c2b94d78746a8b4a12c5d0db19719b97665721ec7c0c29ac266dec41de08c
root@Yugan:~/Trend/Trend#
```

Verify the output in Browser



Tagging the Docker Image

```
root@Yugan:~/Trend/Trend# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
trend-app2 latest 364def0f25bd 2 days ago 111MB
root@Yugan:~/Trend/Trend# docker tag trend-app2:latest balannaganathan/trend-app:latest
root@Yugan:~/Trend/Trend# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
balannaganathan/trend-app latest 364def0f25bd 2 days ago 111MB
trend-app2 latest 364def0f25bd 2 days ago 111MB
root@Yugan:~/Trend/Trend#
```

Docker Push to HUB

```
root@Yugan:~/Trend/Trend# docker push balannaganathan/trend-app:latest
The push refers to repository [docker.io/balannaganathan/trend-app]
589002ba0eae: Pushed
6b7b6c7061b7: Pushed
5e7756927bef: Pushed
955a8478f9ac: Pushed
4efbb8f77a13: Pushed
69af8fc6e4bd: Pushed
bca5d04786e1: Pushed
399d0898a94e: Pushed
6d397a54a185: Pushed
3e2c181db1b0: Pushed
latest: digest: sha256:364def0f25bd5347c8a9c9472f665a737832c36ebba806e969201586779c08b0 size: 856
root@Yugan:~/Trend/Trend#
```

Verify the Docker Images in HUB

Tags	OS	Vulnerabilities	Last pushed	Size	Actions
balannaganathan/trend-app latest		Inactive	2 minutes ago	34.96 MB	Pull
balannaganathan/jenkins latest		Inactive	24 days ago	409.83 MB	Pull
balannaganathan/deployto... latest		Inactive	2 months ago	80.31 MB	Pull
balannaganathan/balan_ngi... latest		Inactive	2 months ago	22.98 MB	Pull

GitHub Repository will all files

The screenshot shows a GitHub repository named "Trendproject-2". The repository has 1 branch and 0 tags. The main file is "main". The commit history shows 10 commits from "BalanNaganathan1" over the last 52 minutes. The commits include updates to Dockerfiles, configuration files, and Jenkinsfiles, along with initiation of various files.

File	Commit Message	Time Ago
main	Initiate	4 days ago
Trend	Config Files	4 days ago
.deployment.yaml.swp	Initiate	4 days ago
.gitignore	Initiate	4 days ago
.service.yaml.swp	Initiate	4 days ago
Dockerfile	Update Dockerfile	52 minutes ago
deployment.yaml	Initiate	4 days ago
gitignore	Initiate	4 days ago
jenkinsfile	Update jenkinsfile	1 hour ago
main.tf	Initiate	4 days ago
service.yaml	Update service.yaml	1 hour ago

Created Ec2 Keypair

The screenshot shows the AWS IAM console under the "Access Management" section. A new user named "Terraformtask" has been created. The "Summary" tab shows the ARN of the user, which is "arn:aws:iam::166647428737:user/Terraformtask". The user has two access keys: "Access key 1" (Active, Never used, Created today) and "Access key 2" (Never used). The "Permissions" tab shows that the user has one policy attached. The "Last Accessed" tab shows that the user has not yet signed in.

Terraform Init/Plan/Validate/Apply

```
root@Yugan:~/Trend/Trend# terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.100.0

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@Yugan:~/Trend/Trend# terraform validate
Success! The configuration is valid.
```

```
root@Yugan:~/Trend/Trend# terraform plan
Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_iam_instance_profile.jenkins_profile will be created
+ resource "aws_iam_instance_profile" "jenkins_profile" {
  + arn      = (known after apply)
  + create_date = (known after apply)
  + id       = (known after apply)
  + name     = "jenkins-instance-profile"
  + name_prefix = (known after apply)
  + path     = "/"
  + role     = "jenkins-ec2-role"
  + tags_all = (known after apply)
  + unique_id = (known after apply)
}
```

```
root@Yugan:~/Trend/Trend# terraform apply
Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_iam_instance_profile.jenkins_profile will be created
+ resource "aws_iam_instance_profile" "jenkins_profile" {
  + arn      = (known after apply)
  + create_date = (known after apply)
  + id       = (known after apply)
  + name     = "jenkins-instance-profile"
  + name_prefix = (known after apply)
  + path     = "/"
  + role     = "jenkins-ec2-role"
  + tags_all = (known after apply)
  + unique_id = (known after apply)
}
```

```
aws_security_group.jenkins_sg: Creation complete after 4s [id=sg-0100db7eeeabad0e9]
aws_subnet.public_subnet: Still creating... [10s elapsed]
aws_subnet.public_subnet: Creation complete after 11s [id=subnet-0eecce5ddf1fa9a45]
aws_route_table_association.rta: Creating...
aws_instance.jenkins_server: Creating...
aws_route_table_association.rta: Creation complete after 0s [id=rtbassoc-0caf649e43f804815]
aws_instance.jenkins_server: Still creating... [10s elapsed]
aws_instance.jenkins_server: Creation complete after 13s [id=i-04609e83e5dd6fc53]

Apply complete! Resources: 10 added, 0 changed, 0 destroyed.

Outputs:
jenkins_public_ip = "13.233.174.205"
jenkins_url = "http://13.233.174.205:8080"
root@Yugan:~/Trend/Trend#
```

Jenkins Ec2 created and verified in Browser

The screenshot shows a browser window with the URL `13.233.245.207:8080/login?from=%2F`. The page title is "Getting Started". The main heading is "Unlock Jenkins". A text block explains that a password has been written to the log and provides the path `/var/lib/jenkins/secrets/initialAdminPassword`. It instructs the user to copy the password from either location and paste it below. There is a text input field labeled "Administrator password" and a blue "Continue" button.

User creation in Jenkins

The screenshot shows a browser window with the URL `13.233.245.207:8080/user/balan/`. The page title is "Jenkins / Balan Naganathan". The user profile section shows the Jenkins User ID: balan. Below this is a sidebar with navigation links: Profile (selected), Builds, My Views, Account, Appearance, Preferences, Security, and Experiments.

The screenshot shows a Jenkins 'Getting Started' page. At the top, there's a navigation bar with icons for back, forward, and search, followed by the URL 'Not secure 13.233.245.207:8080'. Below the header is a 'Getting Started' section with a large title 'Getting Started'. A grid of icons and labels follows:

Folders	UWASP Markup Formatter	Build Timeout	Credentials Binding
Timestamper	Workspace Cleanup	Ant	Gradle
Pipeline	Github Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline Graph View
Git	SSH Build Agents	Matrix Authorization Strategy	LDAP
Email Extension	Mailer	Dark Theme	

On the right side of the grid, there are two sections: 'Jenkins API' and 'Ionicons API'. The 'Jenkins API' section lists 'Timestamper', 'Pipeline', 'Git', and 'Email Extension' as required dependencies. The 'Ionicons API' section lists 'UWASP Markup Formatter', 'Build Timeout', 'Credentials Binding', 'Ant', 'Gradle', 'Pipeline Graph View', 'LDAP', and 'Dark Theme' as optional dependencies.

The screenshot shows a browser window with the address bar displaying 'Not secure 13.233.174.205:8080'. The main content area has a header 'Getting Started' followed by a large section titled 'Instance Configuration'. Within this section, there is a 'Jenkins URL:' label next to a text input field containing 'http://13.233.174.205:8080/'. Below the input field is a descriptive paragraph about the Jenkins URL's purpose. A note below states that the proposed default value is not saved yet. At the bottom right are 'Not now' and 'Save and Finish' buttons.

Getting Started

Instance Configuration

Jenkins URL:

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the `BUILD_URL` environment variable provided to build steps.

The proposed default value shown is **not saved** yet and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.541.2

Not now

Save and Finish

```
client version: v1.29.0
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
[root@ip-10-0-1-149 ~]# eksctl version
0.223.0
[root@ip-10-0-1-149 ~]# ||
```

EKS cluster Installation

```

root@ip-10-0-1-149:~# eksctl create cluster --name Trend-eks-cluster --region ap-south-1 --nodegroup-name Trend-nodes --node-type m7i-flex.large --nodes 2 --nodes-min 2 --nodes-max 2
[...]
0024-04-21 09:51:20 [1] using region ap-south-1
0024-04-22 09:51:20 [1] setting availability zones to [ap-south-1b ap-south-1b ap-south-1a]
0024-04-21 09:51:20 [1] subnet for ap-south-1b : public.192.168.32.0/16 private.192.168.128.0/16
0024-04-22 09:51:20 [1] subnets for ap-south-1b : public.192.168.64.0/16 private.192.168.160.0/16
0024-04-21 09:51:20 [1] subnets for ap-south-1a : public.192.168.64.0/16 private.192.168.160.0/16
0024-04-22 09:51:20 [1] nodegroup "Trend-nodes" will be created
[...]
0024-04-22 09:51:20 [1] explicitly set "autoNodeConfig.enabled: false" in your cluster configuration. Learn more: https://eksctl.io/useage/auto-node/
0024-04-21 09:51:20 [1] using Kuberenetes version 1.14
0024-04-22 09:51:20 [1] creating CloudFormation stack "Trend-eks-cluster" in "ap-south-1" region with managed nodes
0024-04-22 09:51:20 [1] will create 2 separate CloudFormation stacks for cluster itself and the initial managed nodegroup
0024-04-21 09:51:20 [1] if you encounter any issues, check CloudFormation console or try 'eksctl util describe-stacks' --region=ap-south-1 --cluster=Trend-eks-cluster'
0024-04-22 09:51:20 [1] CloudWatch Metrics logging is disabled by default (unless you enable it via 'eksctl util update-cluster-logging' for clusters "Trend-eks-cluster" in "ap-south-1")
0024-04-22 09:51:20 [1] you can enable it with 'eksctl util update-cluster-logging' --enable-type=[SPECIFY-YOUR-LOG-TYPES-HERE (e.g. all)] --region=ap-south-1 --cluster=Trend-eks-cluster'
0024-04-22 09:51:20 [1] defaults addons kube-proxy, coredns, metrics-servers, vpc-cni were not specified, will install them as EKS addons
0024-04-22 09:51:20 [1] sequential tasks: (create cluster control plane "Trend-eks-cluster",
2 sequential sub-tasks):
    1 sequential tasks:
        1 task: (create addons),
        waits for control plane to become ready,
        [...]

```

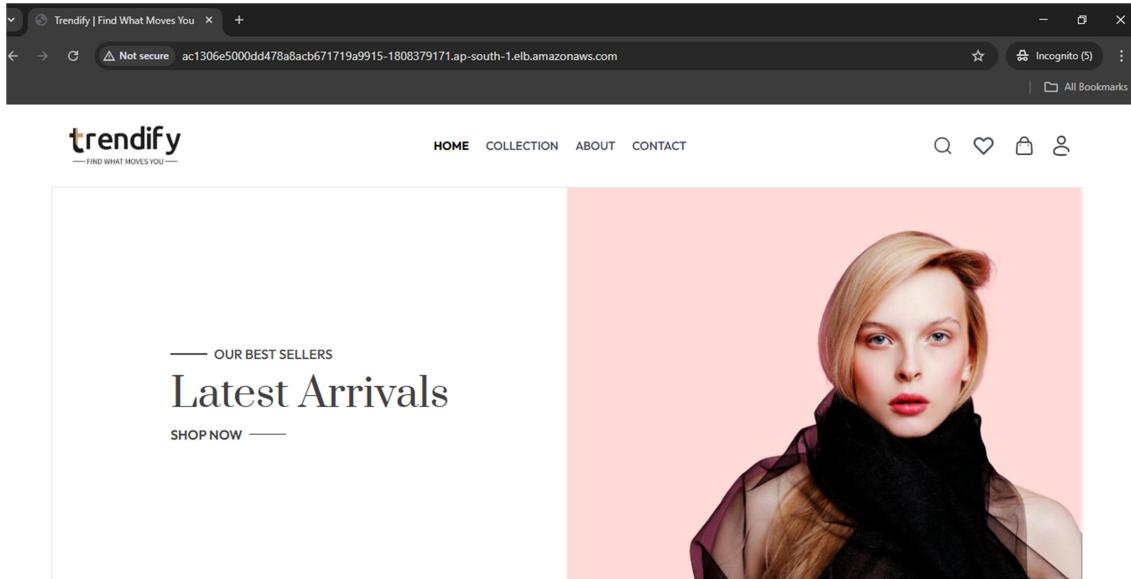
```
[root@ip-10-0-0-149 ~]# kubectl get pods -n kube-system
NAME                                READY   STATUS    RESTARTS   AGE
vpc-cni                             1/1     Running   0          10m
[root@ip-10-0-0-149 ~]# recommended policies were found for "vpc-cni" add-on, but since OIDC is disabled on the cluster, skectl cannot configure the requested permissions; the recommended way to provide IAM permissions for "vpc-cni" add-on is via pod identity associations; after add-on creation is completed, add all recommended policies to the config file, under 'addon.PodIdentityAssociations', and run 'skectl update addon'
[024-02-22 10:00:02] (1) creating add-on: vpc-cni
[024-02-22 10:00:02] (1) creating add-on: vpc-cni
[024-02-22 10:00:02] (1) creating add-on: vpc-cni
[024-02-22 10:00:02] (1) building managed nodegroup stack "k8s1-Trend-eks-cluster-nodegroup-Trend-nodes"
[024-02-22 10:00:13] (1) deploying stack "k8s1-Trend-eks-cluster-nodegroup-Trend-nodes"
[024-02-22 10:00:13] (1) waiting for CloudFormation stack "k8s1-Trend-eks-cluster-nodegroup-Trend-nodes" to reach the "CREATE_IN_PROGRESS" state
[024-02-22 10:00:13] (1) waiting for CloudFormation stack "k8s1-Trend-eks-cluster-nodegroup-Trend-nodes" to reach the "CREATE_FAILED" state
[024-02-22 10:00:13] (1) waiting for CloudFormation stack "k8s1-Trend-eks-cluster-nodegroup-Trend-nodes" to reach the "CREATE_COMPLETE" state
[024-02-22 10:00:13] (1) waiting for the control plane to become ready
[024-02-22 10:00:13] (1) saved history to "/root/.skecth_history"
[024-02-22 10:00:19] (1) no tasks
[024-02-22 10:00:19] (1) all EBS cluster resources for "Trend-eks-cluster" have been created
[024-02-22 10:00:19] (1) node "ip-192-168-5-257.ap-south-1.compute.internal" is ready
[024-02-22 10:00:19] (1) node "ip-192-168-5-176.ap-south-1.compute.internal" is ready
[024-02-22 10:00:19] (1) waiting for the control plane to become ready in "Trend-nodes"
[024-02-22 10:00:19] (1) node "Trend-nodes" has 2 node(s)
[024-02-22 10:00:19] (1) node "ip-192-168-5-257.ap-south-1.compute.internal" is ready
[024-02-22 10:00:19] (1) node "ip-192-168-5-176.ap-south-1.compute.internal" is ready
[024-02-22 10:00:19] (1) node "Trend-nodes" has 2 node(s)
[024-02-22 10:00:19] (1) creating add-on: metrics-server
[024-02-22 10:00:19] (1) successfully created add-on: metrics-server
[024-02-22 10:00:19] (1) successfully created add-on: kubelet-conf
[024-02-22 10:00:19] (1) EKS cluster "Trend-eks-cluster" in "ap-south-1" region is ready
[024-02-22 10:00:19] (1) [root@ip-10-0-1-149 ~]
```

```
[root@ip-10-0-1-149 ~]# node -v
v18.20.8
[root@ip-10-0-1-149 ~]# npm -v
10.8.2
[root@ip-10-0-1-149 ~]#
```

Load balancer IP reachability check in Browser

```
[root@ip-10-0-1-149 ~]# kubectl get svc
NAME           TYPE      CLUSTER-IP   EXTERNAL-IP
kubernetes     ClusterIP  10.100.0.1   <none>
prometheus-operator ClusterIP  None        <none>
react-app-service LoadBalancer 10.100.85.186 ad9294772adeb420b8f1c257e201111a-2031592783.ap-south-1.elb.amazonaws.com
trend-service   LoadBalancer 10.100.78.164 ac1306e5000dd478a8acb671719a9915-1808379171.ap-south-1.elb.amazonaws.com
[root@ip-10-0-1-149 ~]#
```

ac1306e5000dd478a8acb671719a9915-1808379171.ap-south-1.elb.amazonaws.com



Grafana & Prometheus nodes are Running

```
[root@ip-10-0-1-149 ~]# kubectl get pods -n monitoring --show-labels
NAME                               READY   STATUS    RESTARTS   AGE   LABELS
alertmanager-monitoring-lube-prometheus-alertmanager-0   0/2   Terminating   0          10m   alertmanager=monitoring-lube-prometheus-alertmanager,app.kubernetes.io/instance=monitoring-lube-prometheus-alertmanager,app.kubernetes.io/pod-index=0,controller-revision-hash=alertmanager-monitoring-lube-prometheus-alertmanager-57fb4465,labels=kube-state-metrics,pod-template-hash=78d974b4c-jmb7d
monitoring-grafana-7hb9574b4c-jmb7d   3/3   Running   0          7m21s   grafana=1.1.7,pod-template-hash=7hb9574b4c
monitoring-lube-prometheus-stack-0   0/2   Terminating   0          10m   app.kubernetes.io/component=monitoring-stack,app.kubernetes.io/instance=monitoring,app.kubernetes.io/managed-by=Helm,app.kubernetes.io/name=lube-prometheus-stack,pod-template-hash=5b7fc0bd65,release=monitoring
monitoring-lube-prometheus-stack-1   1/1   Running   0          7m21s   app.kubernetes.io/component=metrics,app.kubernetes.io/instance=monitoring,app.kubernetes.io/managed-by=Helm,app.kubernetes.io/managed-by=operator,app.kubernetes.io/pod-template-hash=78d9505c5c,app.kubernetes.io/pod-template-hash=78d9505c5c,labels=kube-state-metrics-1.0,labels=kube-state-metrics-1.0,pod-template-hash=78d9505c5c,release=monitoring
monitoring-prometheus-node-exporter-17d2   1/1   Running   0          7m21s   app.kubernetes.io/component=metrics,app.kubernetes.io/instance=monitoring,app.kubernetes.io/managed-by=Helm,app.kubernetes.io/managed-by=operator,app.kubernetes.io/pod-template-hash=78d9505c5c,app.kubernetes.io/pod-template-hash=78d9505c5c,labels=kube-state-metrics-1.0,pod-template-hash=78d9505c5c,release=monitoring
monitoring-prometheus-node-exporter-wjgn   1/1   Running   0          7m21s   app.kubernetes.io/component=metrics,app.kubernetes.io/instance=monitoring,app.kubernetes.io/managed-by=Helm,app.kubernetes.io/managed-by=operator,app.kubernetes.io/pod-template-hash=78d9505c5c,app.kubernetes.io/pod-template-hash=78d9505c5c,labels=kube-state-metrics-1.0,pod-template-hash=78d9505c5c,release=monitoring
[root@ip-10-0-1-149 ~]#
```

Launched Grafana in Browser

