CI/CD pipeline
Terraform-EKS-Jenkins

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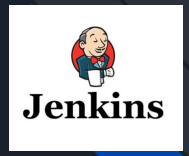
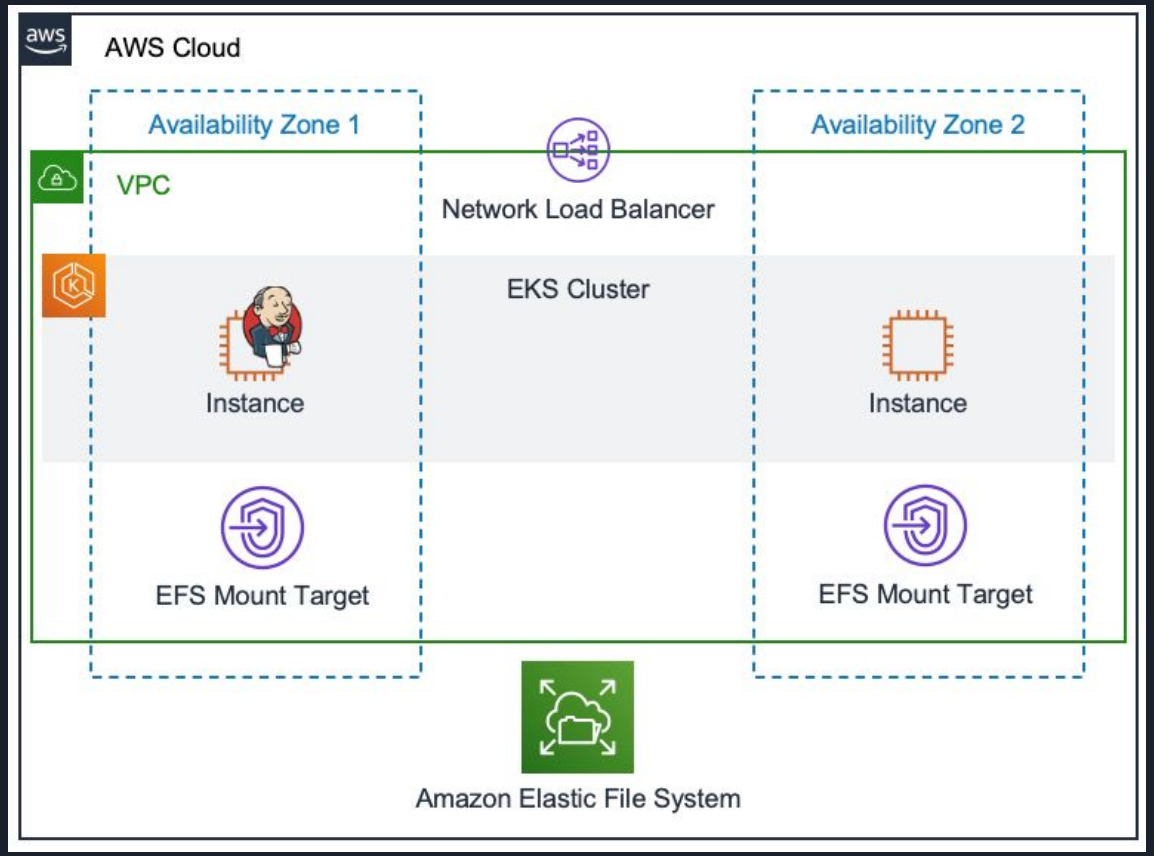
EPAM DevOps course winter 2020-21

Used Technologies and Tools

- Git
- GitHub
- Docker
- Docker Hub
- Terraform
- Kubernetes
- AWS EKS
- Jenkins



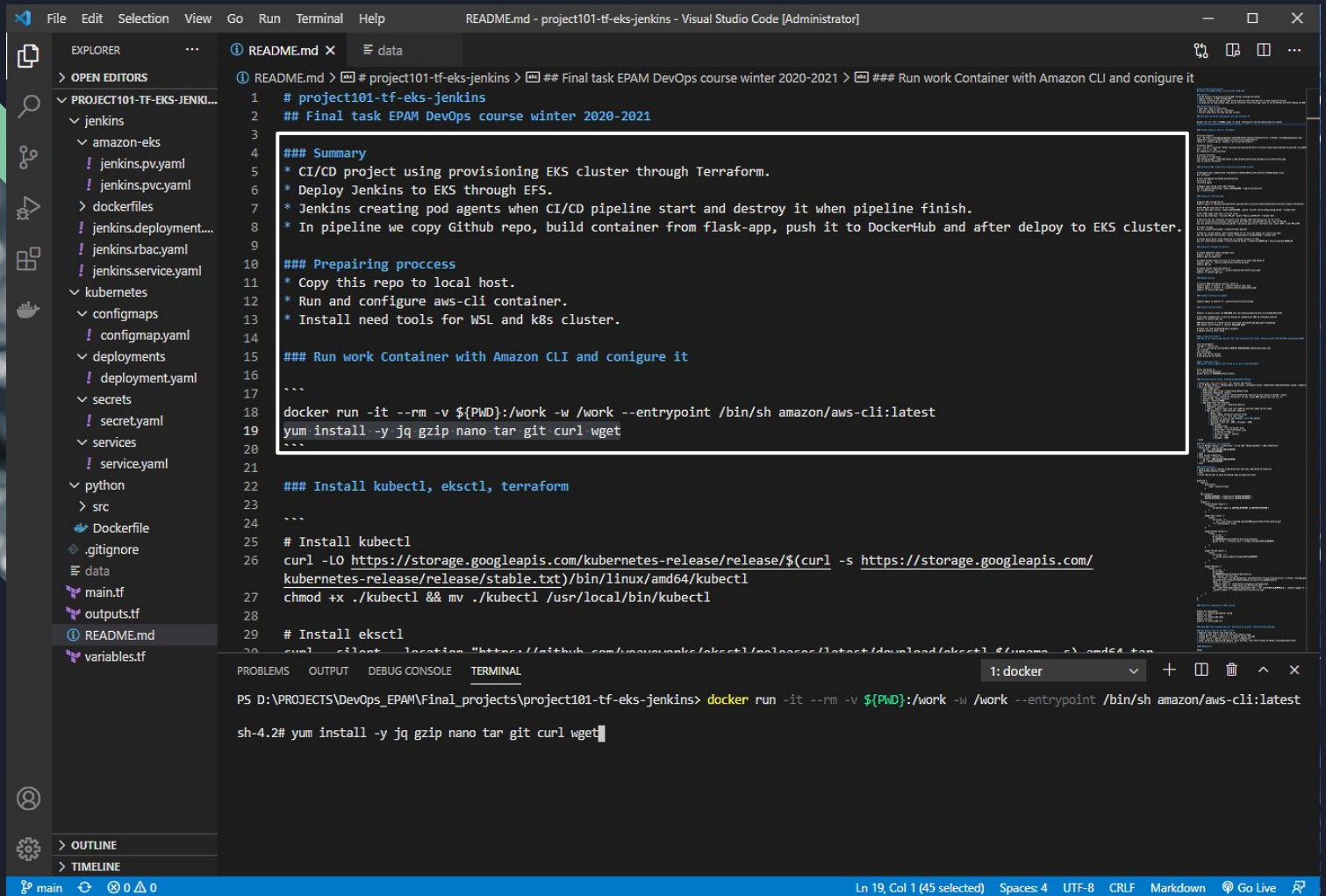
Scheme of task.



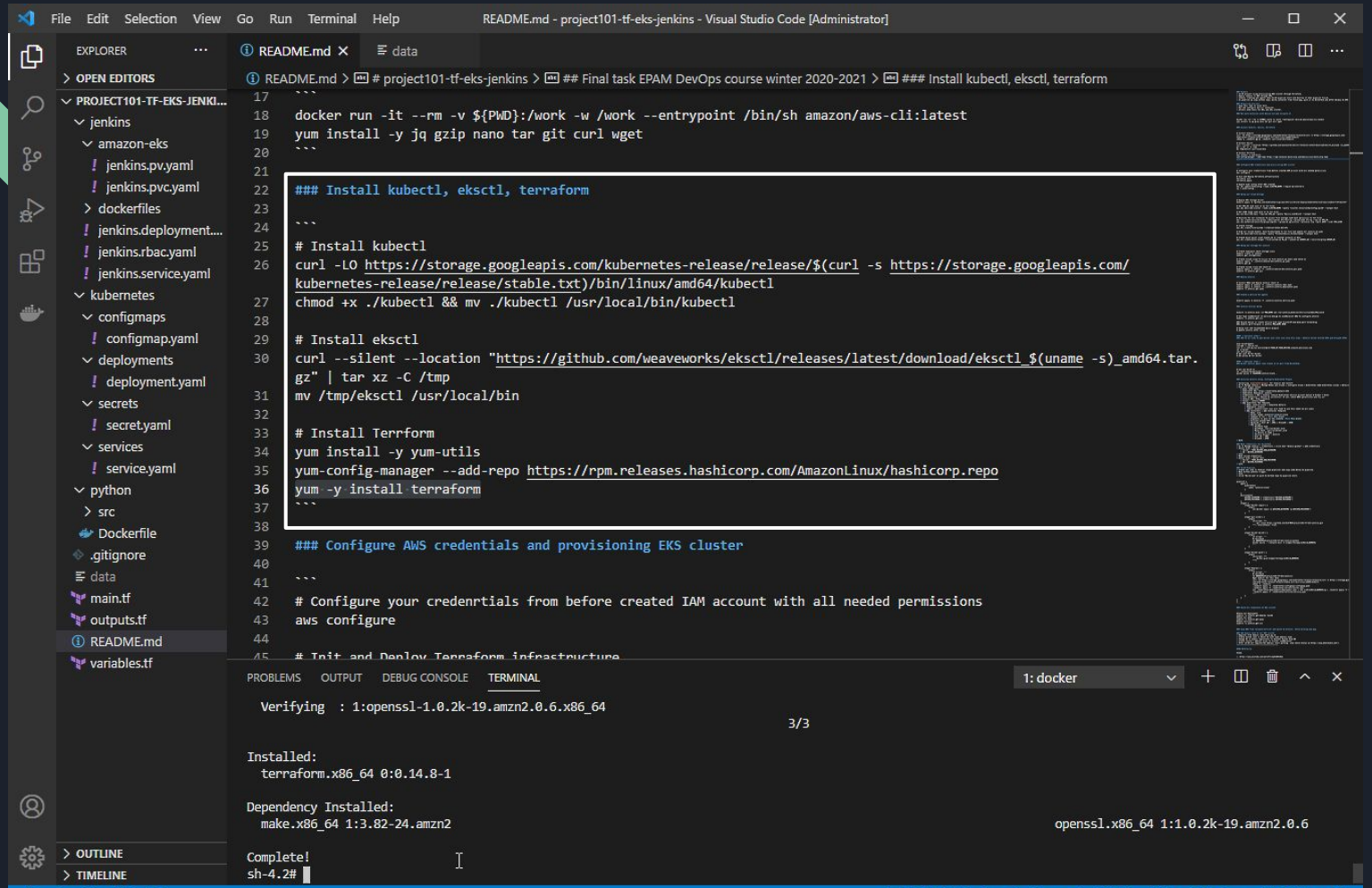
Common Steps of Task

1. Provisioning EKS cluster by Terraform.
2. Setup EFS storage and mount it.
3. Setup storage for Jenkins and Deploy it.
4. Apply service for Jenkins.
5. Jenkins initial setup and configure.
6. Make a pipeline.
7. Add domain to EKS ELB through Route 53.

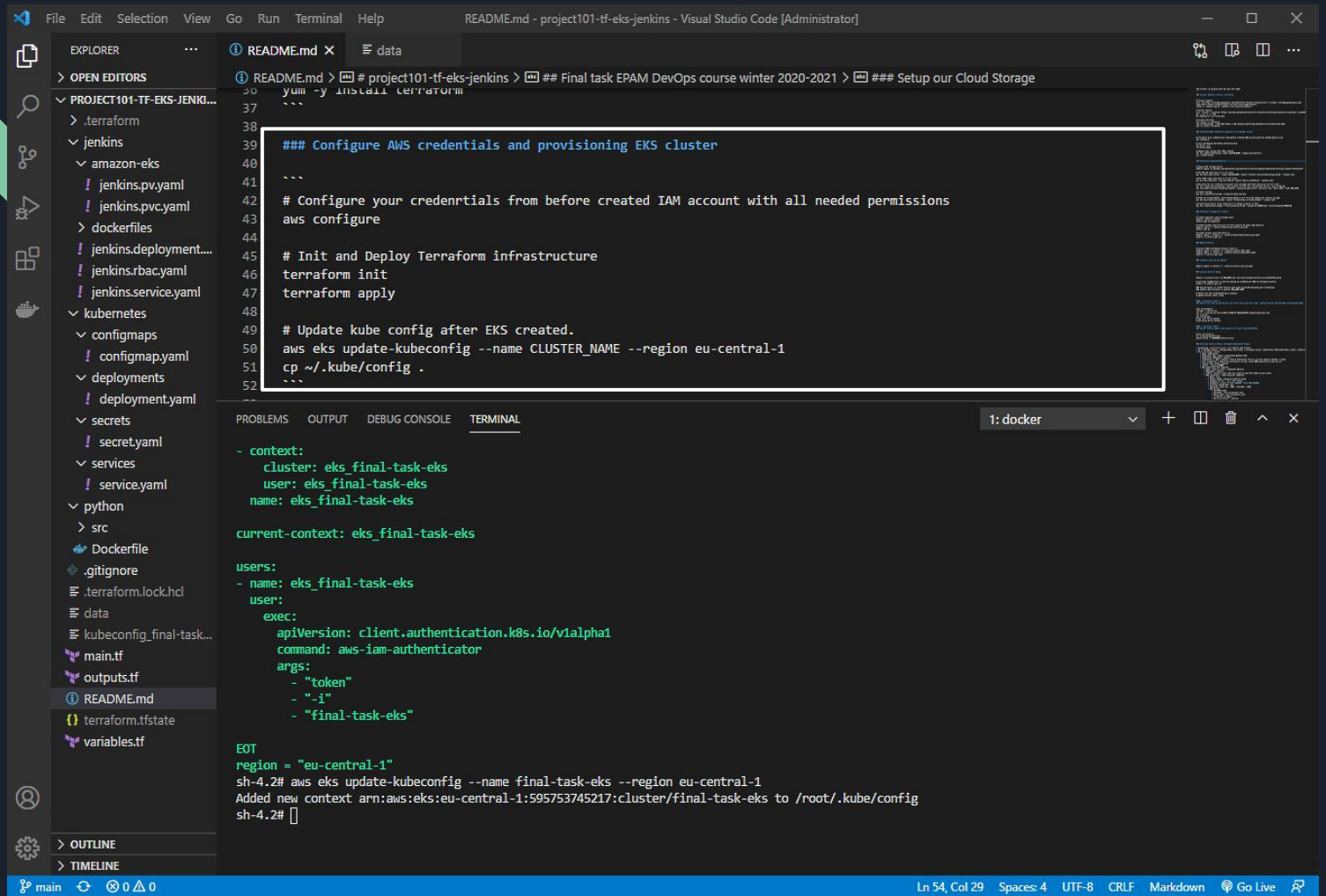
Provisioning steps.



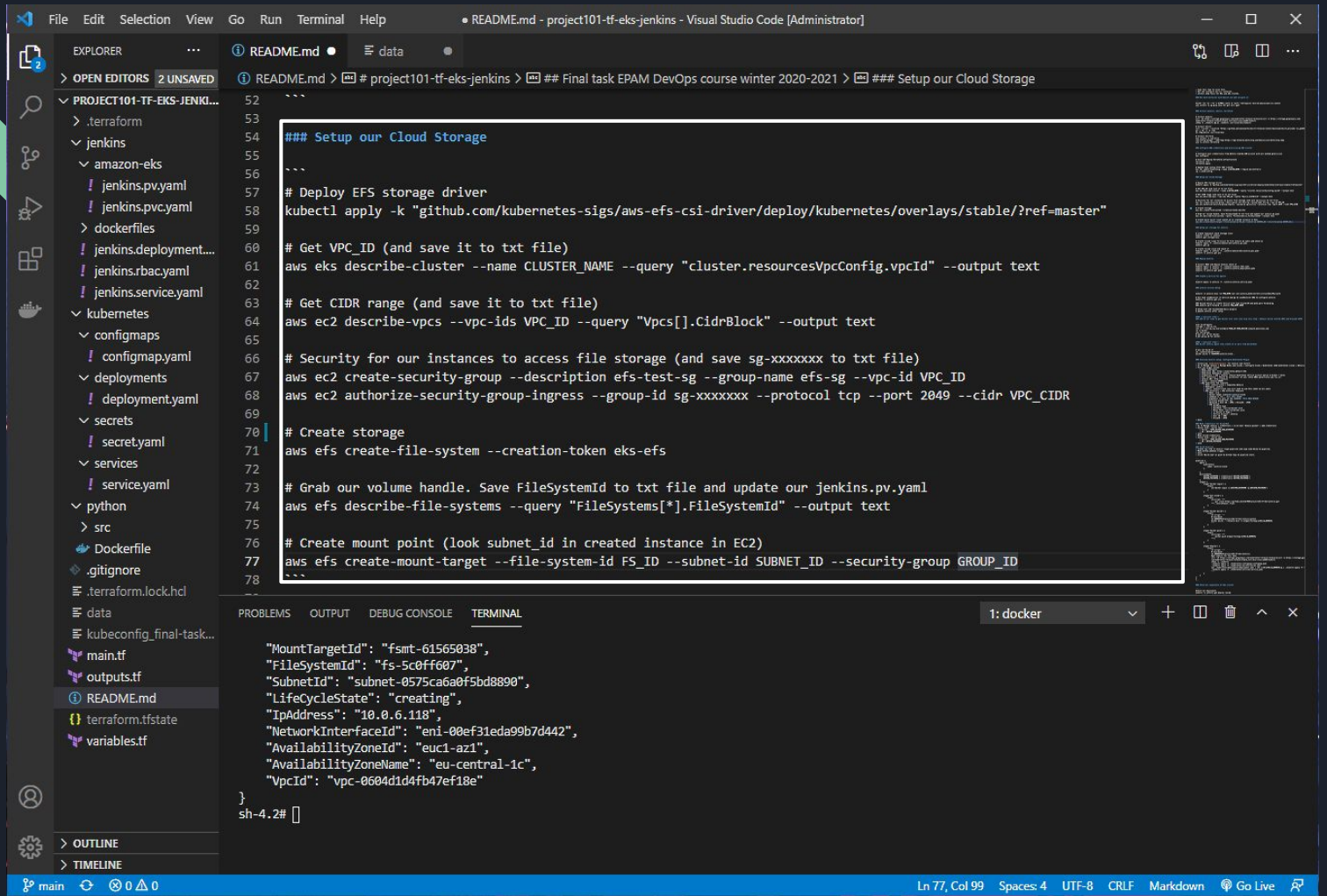
Provisioning steps.



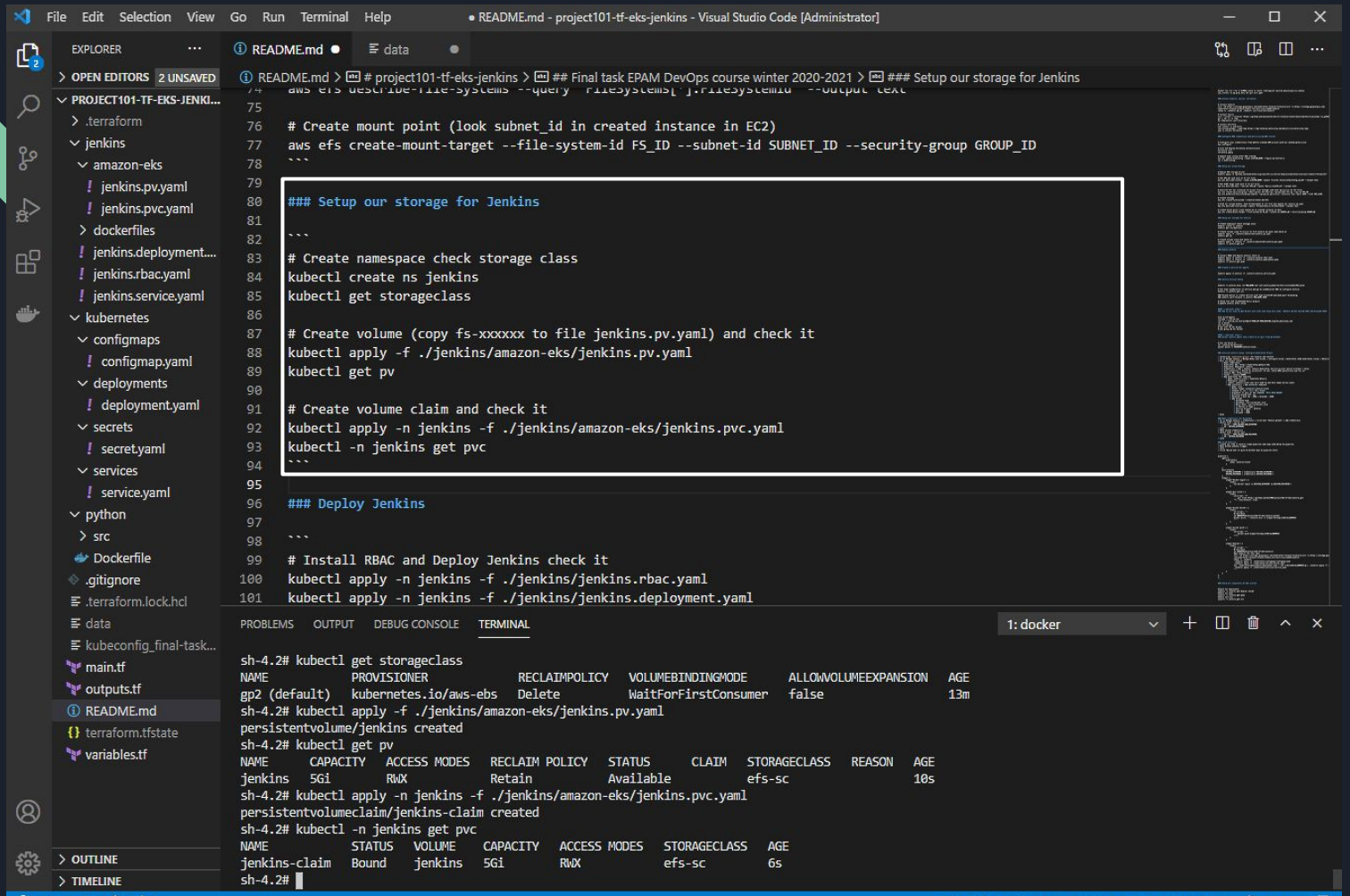
Provisioning steps.



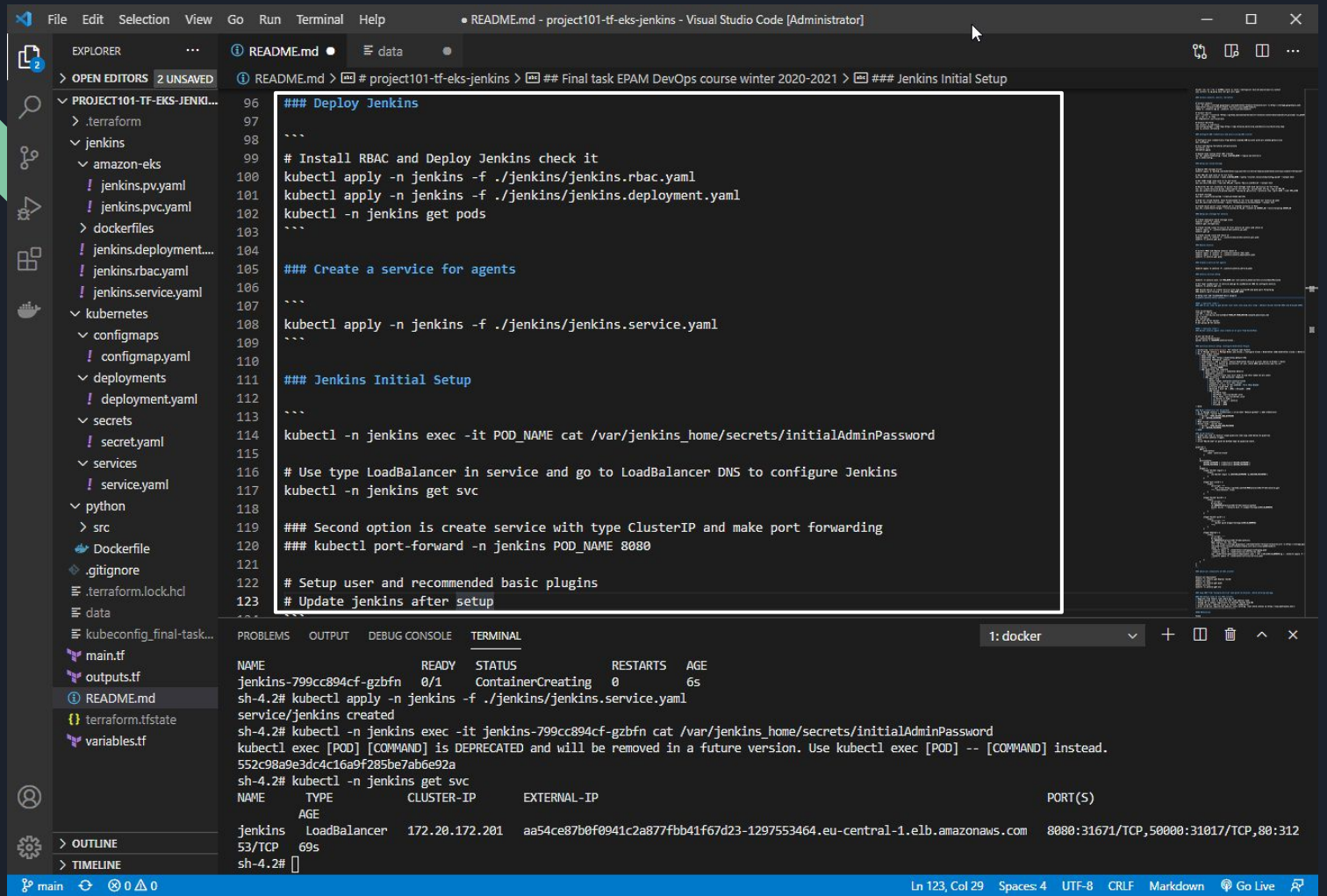
Setup cloud storage.



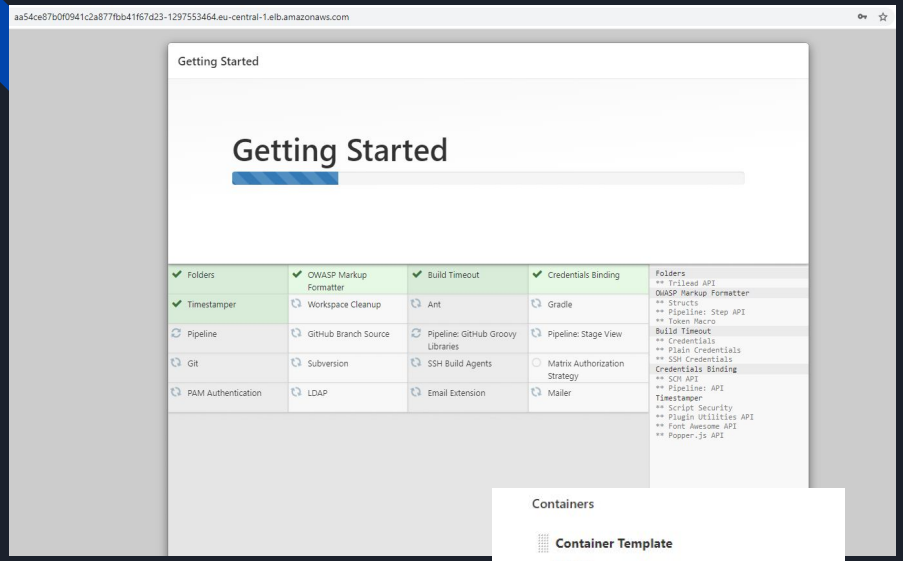
Setup storage for jenkins.

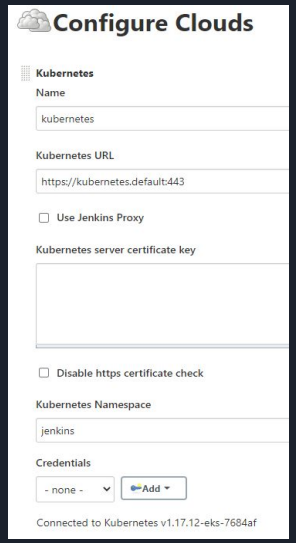


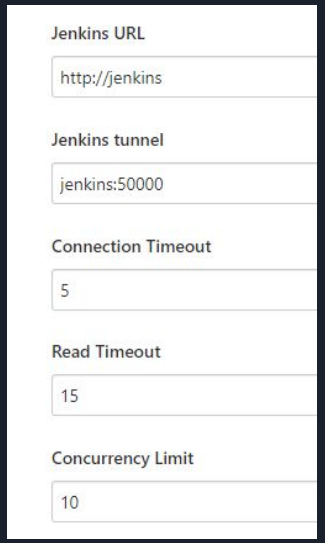
Deploy Jenkins.

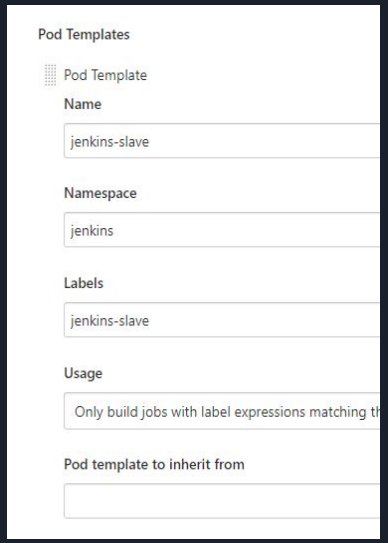


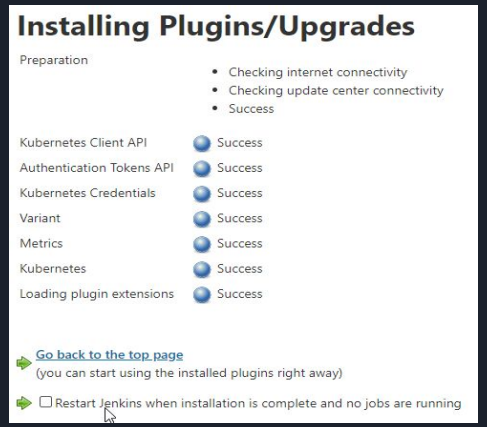
Setup Jenkins and Kubernetes plugin.

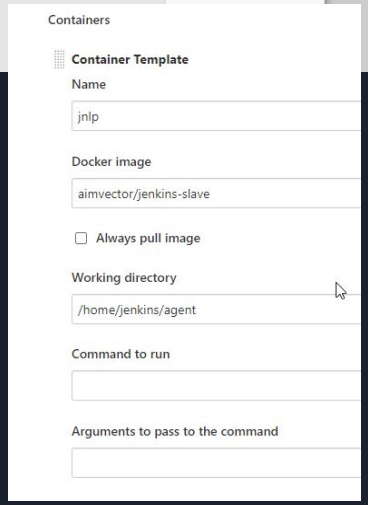


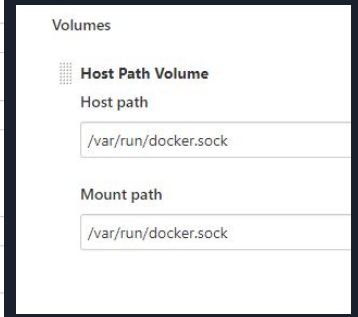


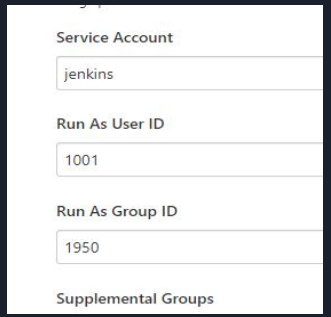


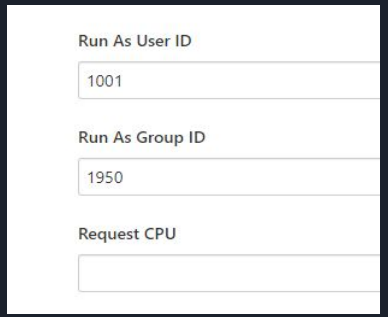


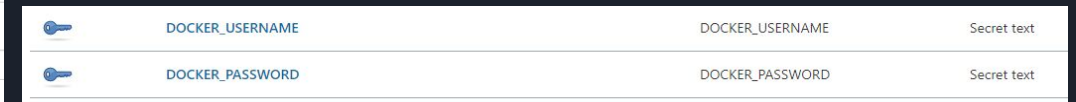




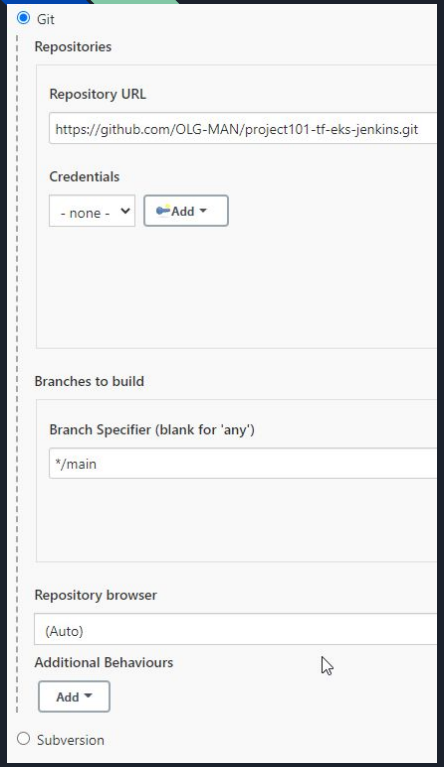


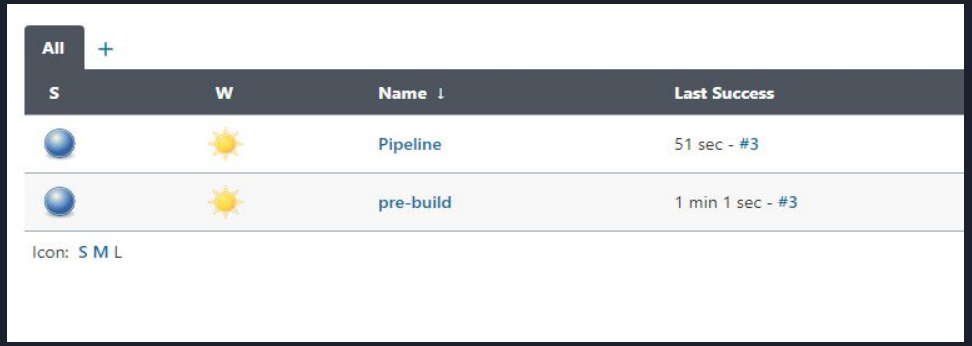


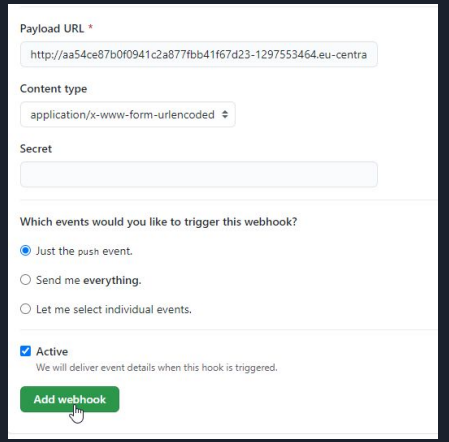


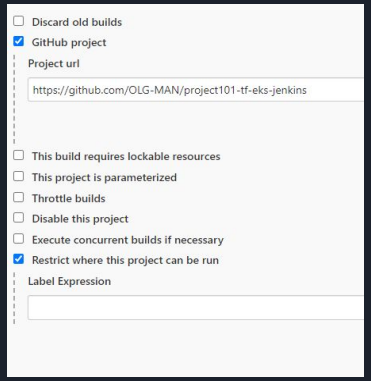


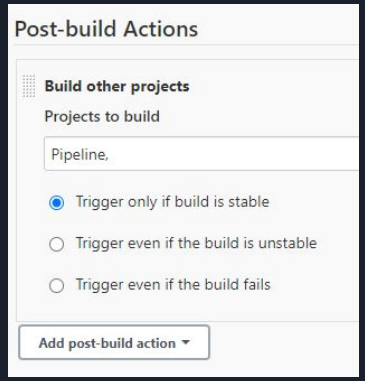
Make a pipeline.

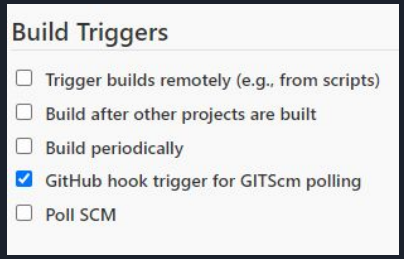












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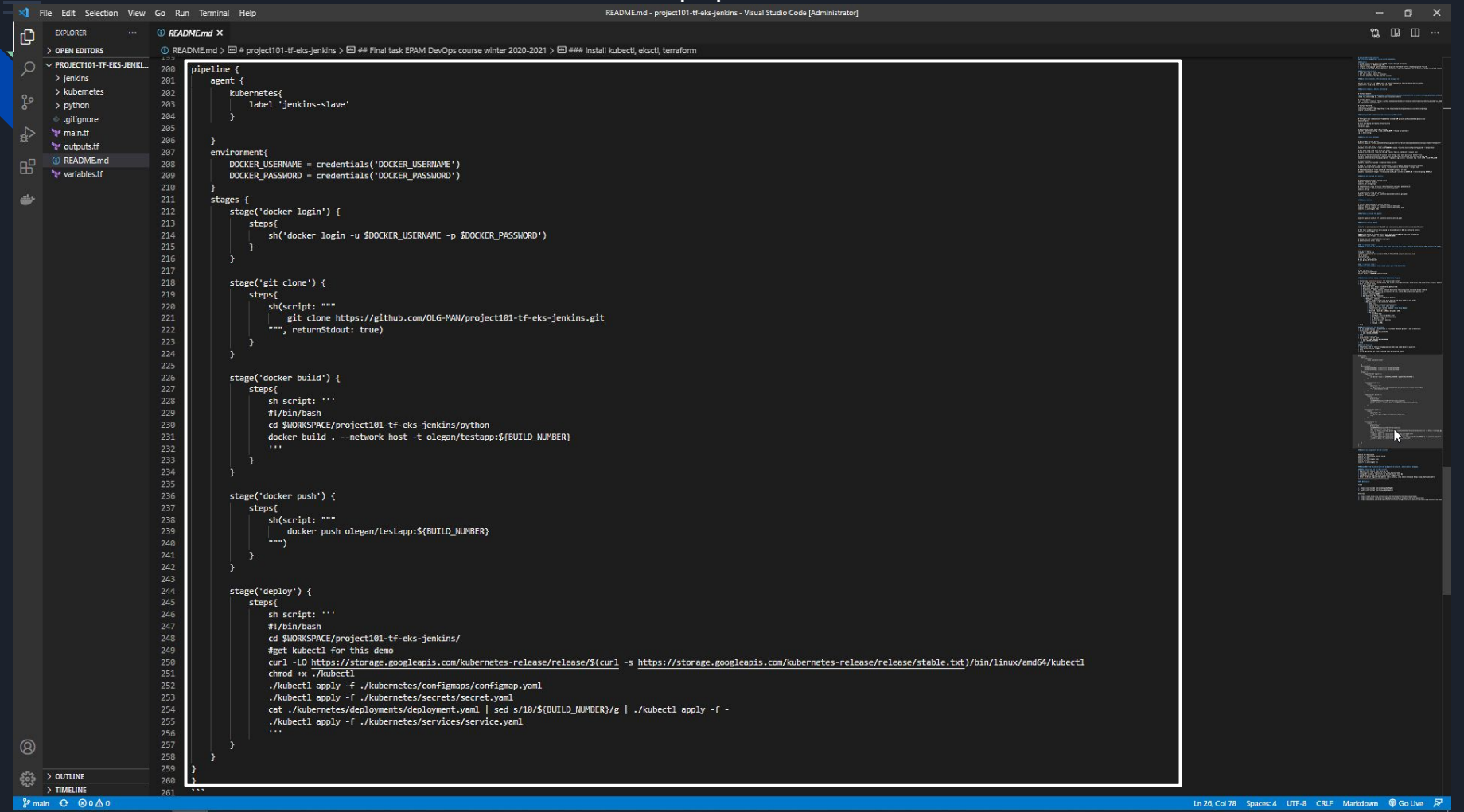
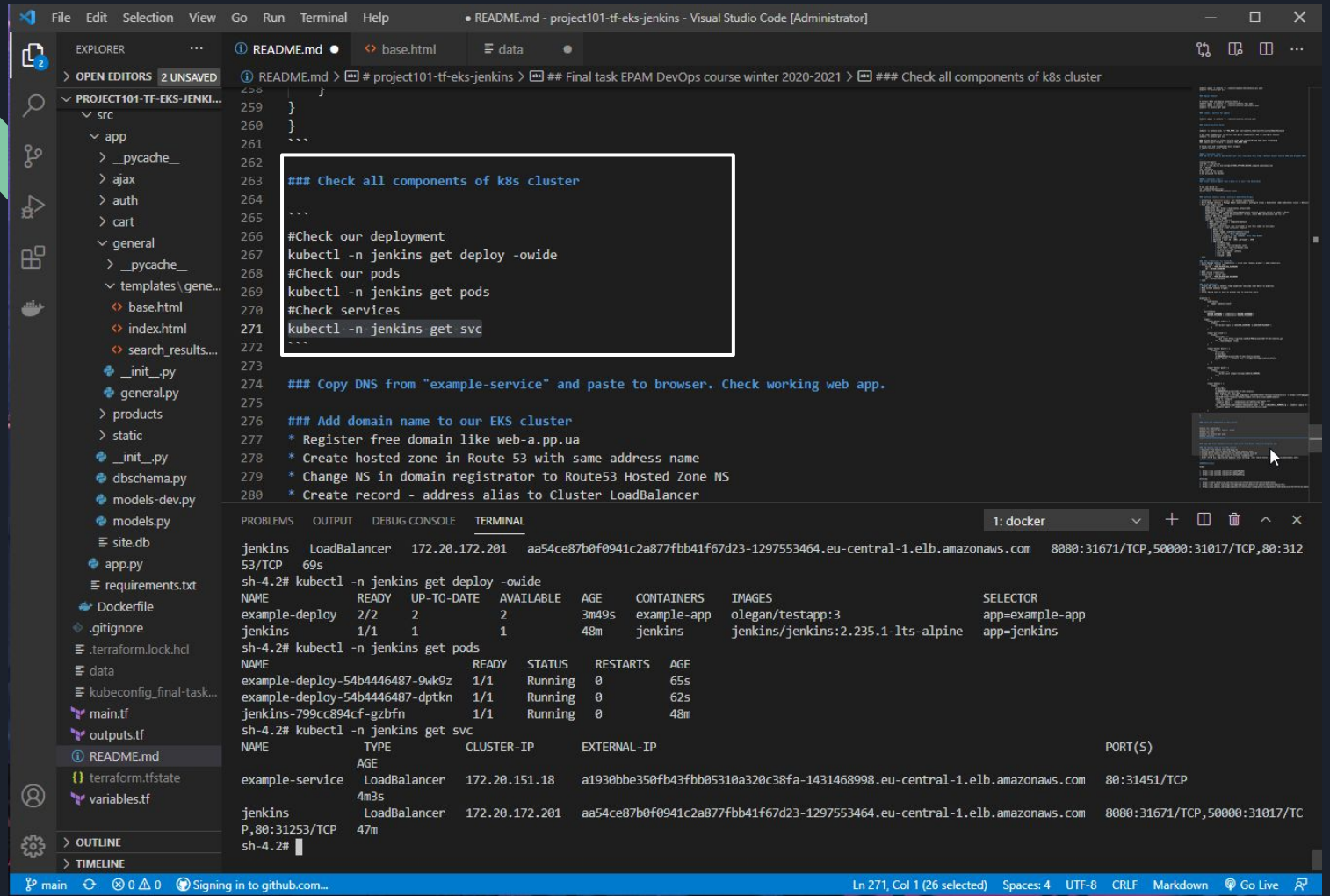
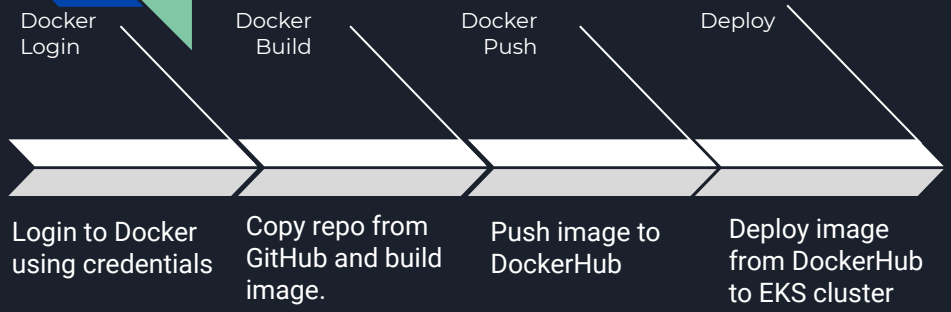



File Edit Selection View Go Run Terminal Help
• README.md - project101-tf-eks-jenkins - Visual Studio Code [Administrator]
EXPLORER
OPEN EDITORS 2 UNSAVED
PROJECT101-TF-EKS-JENKI...
src
app
__pycache__
ajax
auth
cart
general
__pycache__
templates\gene...
base.html
index.html
search_results....
__init__.py
general.py
products
static
__init__.py
dbschema.py
models-dev.py
models.py
site.db
app.py
requirements.txt
Dockerfile
.gitignore
.terraform.lock.hcl
data
kubeconfig_final-task...
main.tf
outputs.tf
README.md
terraform.tfstate
variables.tf
OUTLINE
TIMELINE
README.md
base.html
data
README.md > # project101-tf-eks-jenkins > ## Final task EPAM DevOps course winter 2020-2021 > ### Check all components of k8s cluster
}
}
```
### Check all components of k8s cluster
```
#Check our deployment
kubectl -n jenkins get deploy -owide
#Check our pods
kubectl -n jenkins get pods
#Check services
kubectl -n jenkins get svc
```
### Copy DNS from "example-service" and paste to browser. Check working web app.
### Add domain name to our EKS cluster
* Register free domain like web-a.pp.ua
* Create hosted zone in Route 53 with same address name
* Change NS in domain registrator to Route53 Hosted Zone NS
* Create record - address alias to Cluster LoadBalancer
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
1: docker
jenkins LoadBalancer 172.20.172.201 aa54ce87b0f0941c2a877fbb41f67d23-1297553464.eu-central-1.elb.amazonaws.com 8080:31671/TCP,50000:31017/TCP,80:31253/TCP 69s
sh-4.2# kubectl -n jenkins get deploy -owide
NAME READY UP-TO-DATE AVAILABLE AGE CONTAINERS IMAGES SELECTOR
example-deploy 2/2 2 2 3m49s example-app olegan/testapp:3 app=example-app
jenkins 1/1 1 1 48m jenkins jenkins/jenkins:2.235.1-lts-alpine app=jenkins
sh-4.2# kubectl -n jenkins get pods
NAME READY STATUS RESTARTS AGE
example-deploy-54b4446487-9wk9z 1/1 Running 0 65s
example-deploy-54b4446487-dptkn 1/1 Running 0 62s
jenkins-799cc894cf-gzbfn 1/1 Running 0 48m
sh-4.2# kubectl -n jenkins get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
example-service LoadBalancer 172.20.151.18 a1930bbe350fb43fbb05310a320c38fa-1431468998.eu-central-1.elb.amazonaws.com 80:31451/TCP 4m3s
jenkins LoadBalancer 172.20.172.201 aa54ce87b0f0941c2a877fbb41f67d23-1297553464.eu-central-1.elb.amazonaws.com 8080:31671/TCP,50000:31017/TCP,80:31253/TCP 47m
sh-4.2#
main
Signing in to github.com...
Ln 271, Col 1 (26 selected) Spaces: 4 UTF-8 CRLF Markdown Go Live
```

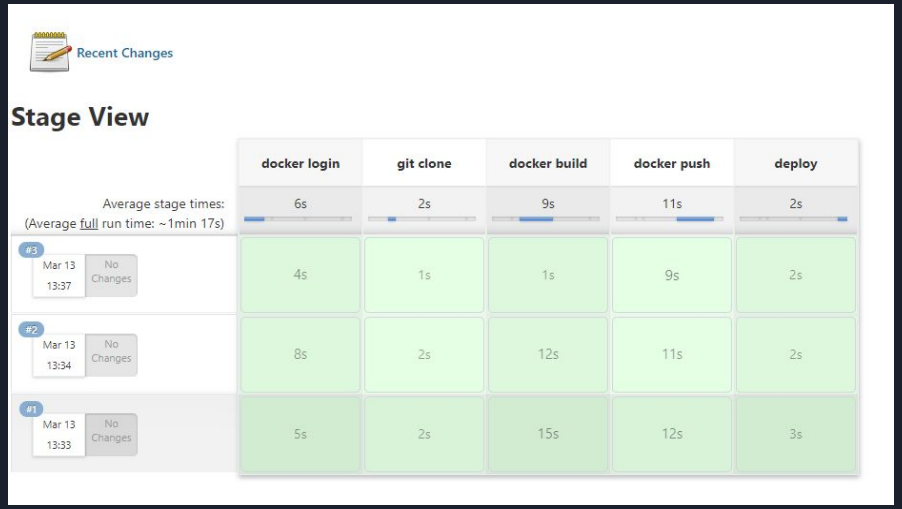
Pipeline CI/CD

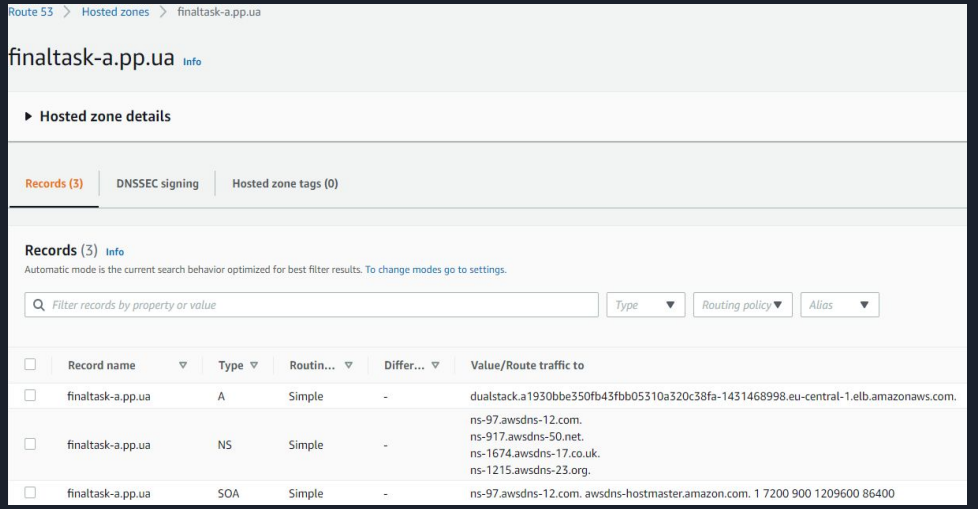


Add domain to Route53

Add domain name to our EKS cluster

- Register free domain like web-a.pp.ua
- Create hosted zone in Route 53 with same address name
- Change NS in domain registrator to Route53 Hosted Zone NS
- Create record - address alias to Cluster LoadBalancer
- After 15-20 min registerred address start working. (Can check status in https://www.whatsmydns.net/)



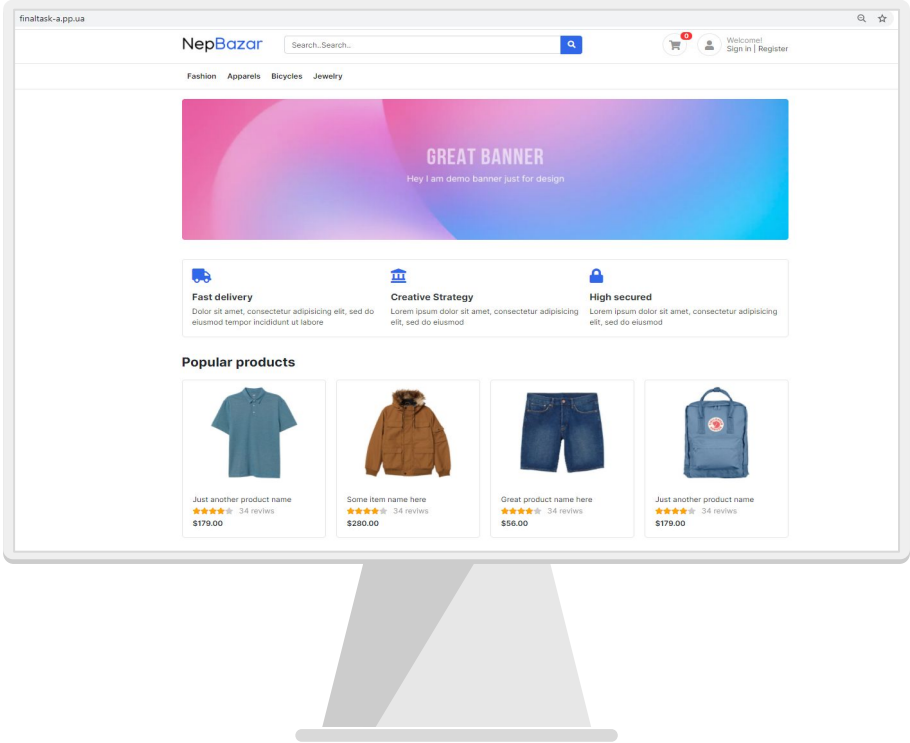


Final result.

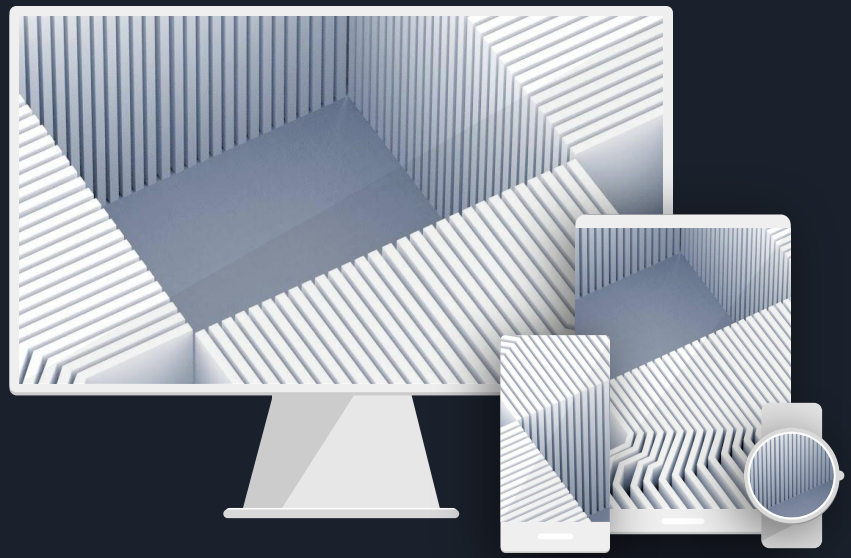
We can see our application by going to the address http://finaltask-a.pp.ua

Also we can go to GitHub repo with source code and detailed readme.

https://github.com/OLG-MAN/project101-tf-eks-jenkins



Thanks for watching.



email: mandrik89@gmail.com

cv: https://olg-man.github.io/cv2021/