

# Deploy a Web Application in Docker Container on AWS Using Terraform

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# Goal, tasks

- Goal – deploy a web application in Docker container by creating AWS infrastructure according to the given requirements
- Tasks:
  - Examine the specified AWS infrastructure and CI/CD pipeline requirements
  - Development of the Terraform project structure
  - Implementation of the application deployment procedure using Terraform

# Terraform Project Structure

- project

- app

- config

- modules

- provider.tf
    - terraform.tf
    - variables.tf
    - main.tf
    - outputs.tf

- app

- web

- index.html
    - Dockerfile
    - Makefile

- config

- dev.tfvars
  - prod.tfvars
  - secret.tfvars
  - buildspec.yml

- modules

- s3

- ecr

- init-build

- network

- codebuild

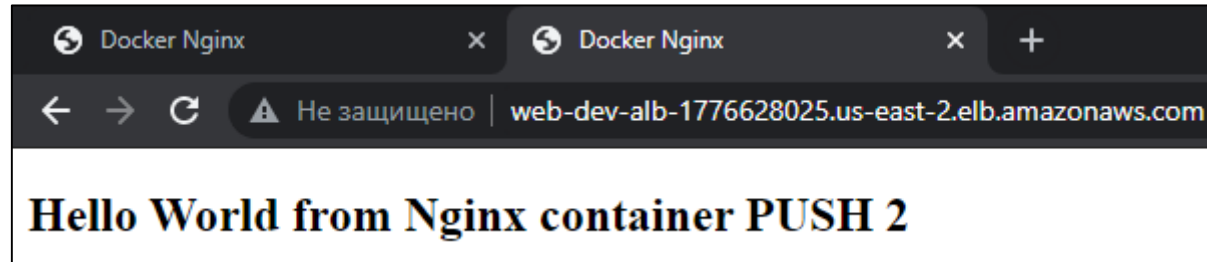
# Implementation – Main Steps

- Creating an account on AWS
- Creating an user with required permissions using AWS IAM (manually)
- Installing Terraform and Atom
- Creating Terraform modules
- Creating “main” Terraform files
- Creating configuration files (Makefile, Dockerfile, buildspec.yml , \*.tfvars,)
- Creating cloud infrastructure and CI/CD pipeline with the specified requirements on AWS
- Checking results

# Demo - Results

## Outputs:

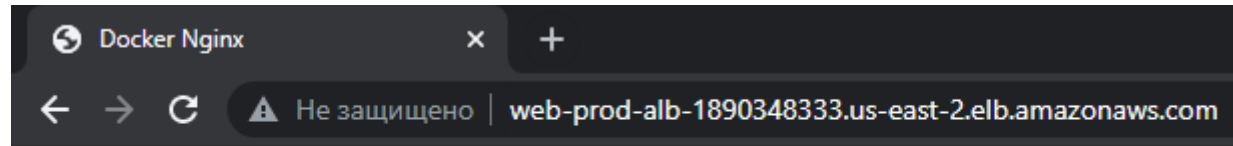
```
account_id = "480681066960"  
alb_hostname = "web-dev-alb-1776628025.us-east-2.elb.amazonaws.com"  
aws_ecr_repository_url = "480681066960.dkr.ecr.us-east-2.amazonaws.com/web-dev-nginx"  
aws_region_name = "us-east-2"  
codebuild_project_name = "web-dev-nginx"  
s3_bucket_arn = "arn:aws:s3:::bucket-web-dev-nginx-us-east-2"  
s3_bucket_name = "bucket-web-dev-nginx-us-east-2.s3.amazonaws.com"
```



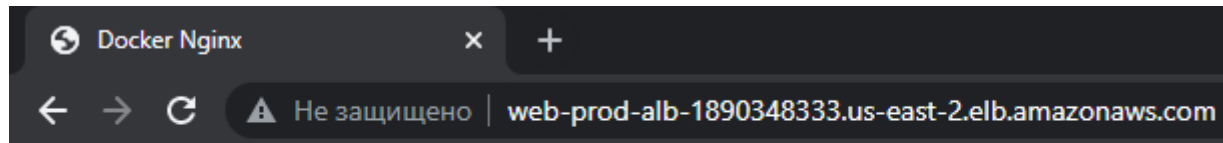
# Demo - Results

## Outputs:

```
account_id = "447854022972"  
alb_hostname = "web-prod-alb-1890348333.us-east-2.elb.amazonaws.com"  
aws_ecr_repository_url = "447854022972.dkr.ecr.us-east-2.amazonaws.com/web-prod-nginx"  
aws_region_name = "us-east-2"  
codebuild_project_name = "web-prod-nginx"  
s3_bucket_arn = "arn:aws:s3:::bucket-web-prod-nginx-us-east-2"  
s3_bucket_name = "bucket-web-prod-nginx-us-east-2.s3.amazonaws.com"
```



**Hello World from Nginx container PUSH**



**Hello World from Nginx container PUSH 2**

# Conclusions

- To deploy a web application in Docker container by creating a cloud infrastructure and CI/CD pipeline on AWS, it is advisable to use Terraform
- To implement different environments, you can use .tfvars files with specified variable values and store the .tfstate files in different S3 buckets

# Thank You

Github repository:

<https://github.com/mykshtompel/demo3>