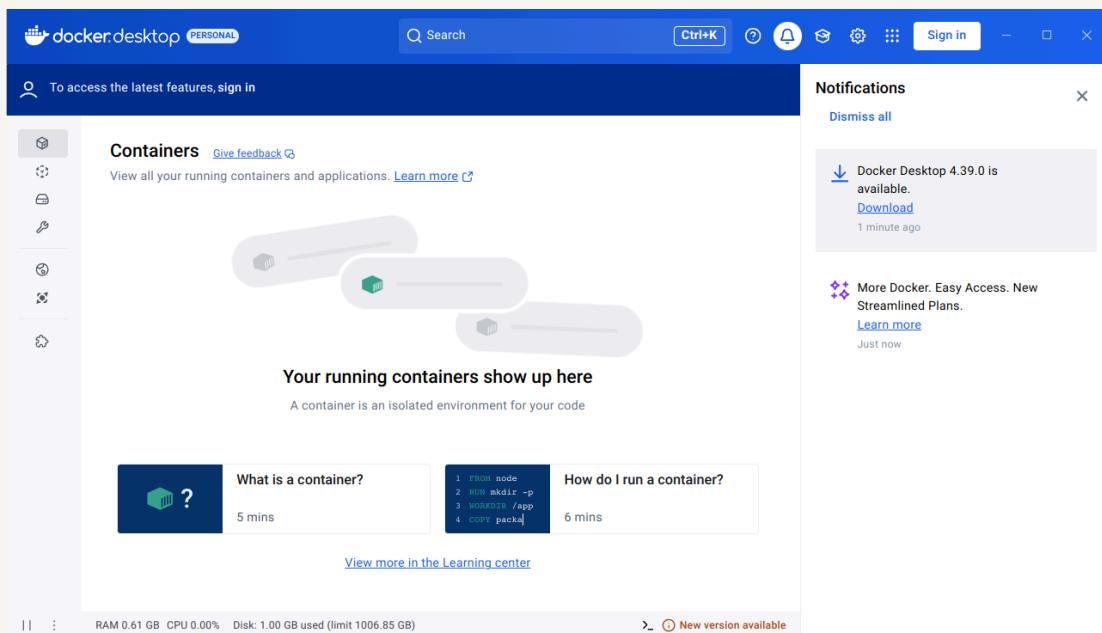


# Deploy an App with Docker

I

Ivaylo Stoyanov





# Introducing Today's Project!

## What is Docker?

Docker is a platform for containerizing apps. I built a custom image with a Dockerfile, tested it locally using docker run, and deployed it to AWS Elastic Beanstalk, making it live on the web.

## One thing I didn't expect...

One thing I didn't expect was encountering port conflicts when running the container locally. It taught me the importance of checking for occupied ports and managing running containers effectively.

## This project took me...

This project took me approximately 2-3 hours.



# Understanding Containers and Docker

## Containers

Docker containers are lightweight, portable units that package applications and their dependencies. They are useful because they ensure consistency across environments, simplify deployment, and improve scalability and resource efficiency.

A container image is a blueprint or template for containers. It gives Docker instructions on what to include in a container, such as application code, libraries, dependencies, and necessary files.

## Docker

Docker is a platform for developing, shipping, and running applications in lightweight, portable containers. Docker Desktop is a user-friendly application for Mac, Windows, and Linux that simplifies Docker setup and management.

The Docker daemon is a background service that manages Docker objects like images, containers, networks, and volumes. It handles building, running, and distributing containers, acting as the core engine for Docker operations



# Running an Nginx Image

Nginx is a high-performance web server, reverse proxy, and load balancer known for its speed, scalability, and efficiency in handling web traffic and serving static or dynamic content.

The command I used to launch a new container was `docker run -d -p 80:80 nginx`, which runs an Nginx web server in detached mode and maps port 80 for seamless browser access.



## Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to [nginx.org](http://nginx.org).  
Commercial support is available at [nginx.com](http://nginx.com).

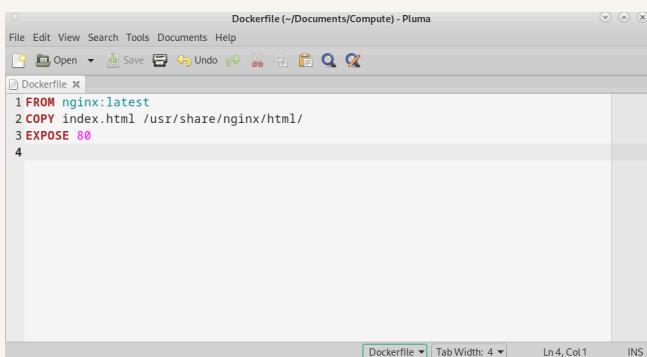
*Thank you for using nginx.*

# Creating a Custom Image

The Dockerfile is a blueprint containing step-by-step instructions for Docker to build a custom image, defining the environment, dependencies, and configuration needed for my application.

My Dockerfile tells Docker three things: FROM "nginx:latest" – starts with the latest Nginx image. COPY index.html /usr/share/nginx/html/ – replaces the default HTML. EXPOSE 80 – opens port 80 for web access.

The command I used to build a custom image with my Dockerfile was "docker build -t my-custom-image-name .". The '.' at the end specifies the build context, telling Docker to use the current directory.



```
1 FROM nginx:latest
2 COPY index.html /usr/share/nginx/html/
3 EXPOSE 80
4
```

# Running My Custom Image

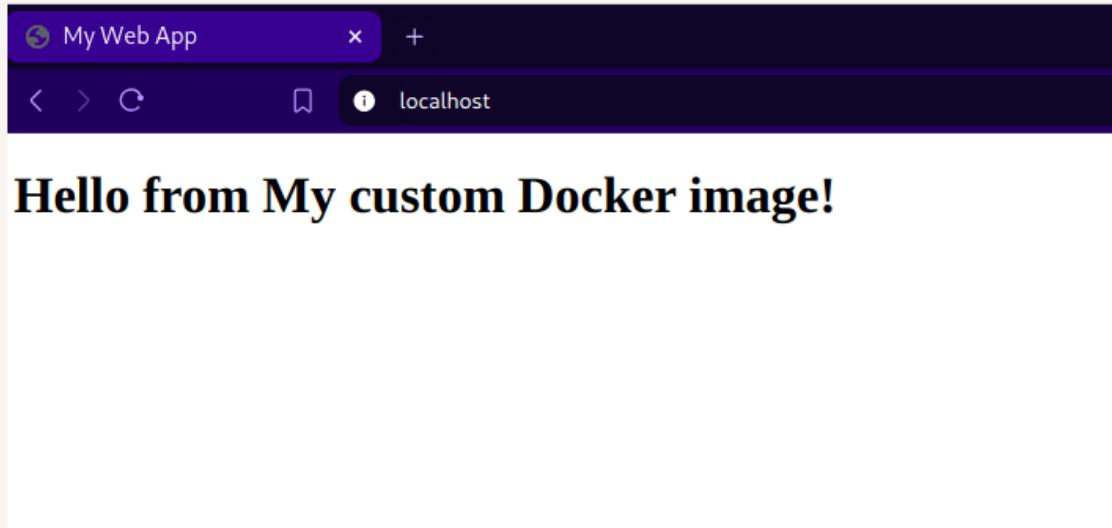
I encountered an error running my custom image because port 80 was already in use. I resolved it by identifying the conflicting container with "docker ps --filter "publish=80"" and stopping it using "docker stop + CONTAINER ID".

In this example, the container image is the blueprint that tells Docker the application code, dependencies, libraries etc that should go into a container. The container is the actual software that's created from this image and running the web server.



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**Hello from My custom Docker image!**



# Elastic Beanstalk

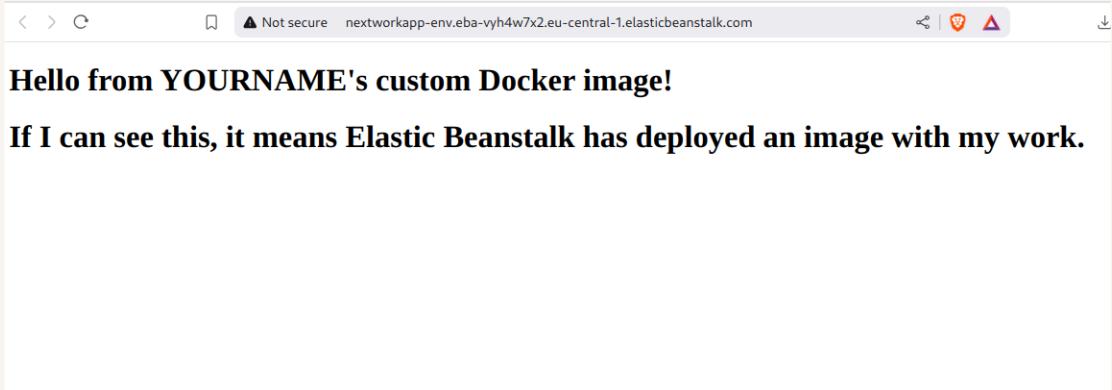
Elastic Beanstalk is an AWS service that simplifies deploying, managing, and scaling applications by automatically handling infrastructure, including load balancing, auto-scaling and application health monitoring.

Deploying my custom image with Elastic Beanstalk took some time, but the automated infrastructure and scalability it provides made the effort worthwhile.

I

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