

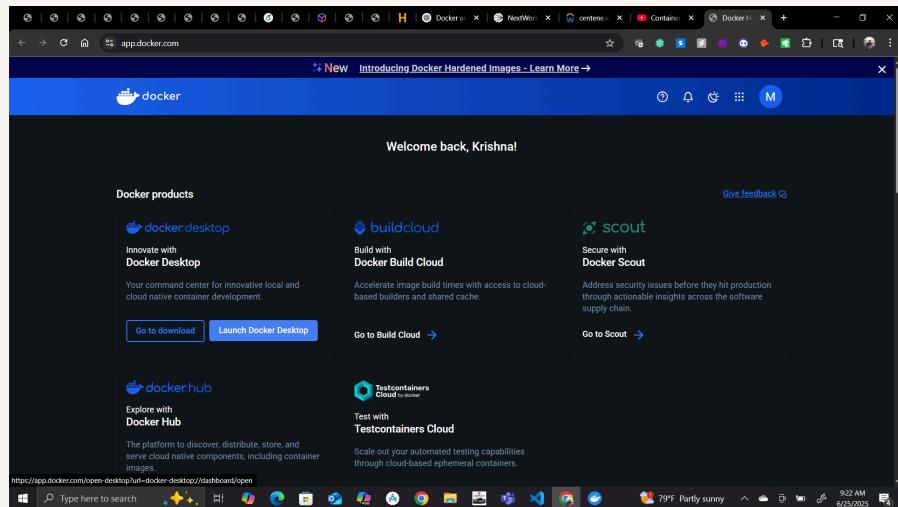


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Deploy an App with Docker



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Introducing Today's Project!

What is Docker?

Docker is a platform that lets you build and run containers—lightweight, portable environments for apps. In today's project, I used Docker to create a custom image, run it locally, and deploy it to AWS Elastic Beanstalk.

One thing I didn't expect...

One thing I didn't expect in this project was running into a port conflict because an Nginx container was already running in the background. It was a good learning moment about managing Docker containers.

This project took me...

This project took me approximately 1 hour to complete. It involved installing Docker, building a custom container image, running it locally, and deploying it to AWS Elastic Beanstalk to make it live online.

Understanding Containers and Docker

Containers

Containers are lightweight, portable units that package an application with everything it needs to run. They are useful because they ensure apps work consistently across different environments, making development and deployment much easier.

A container image is a lightweight, standalone package that includes everything needed to run an application—code, libraries, dependencies, and settings. It's used to create containers that run consistently across different environments.

Docker

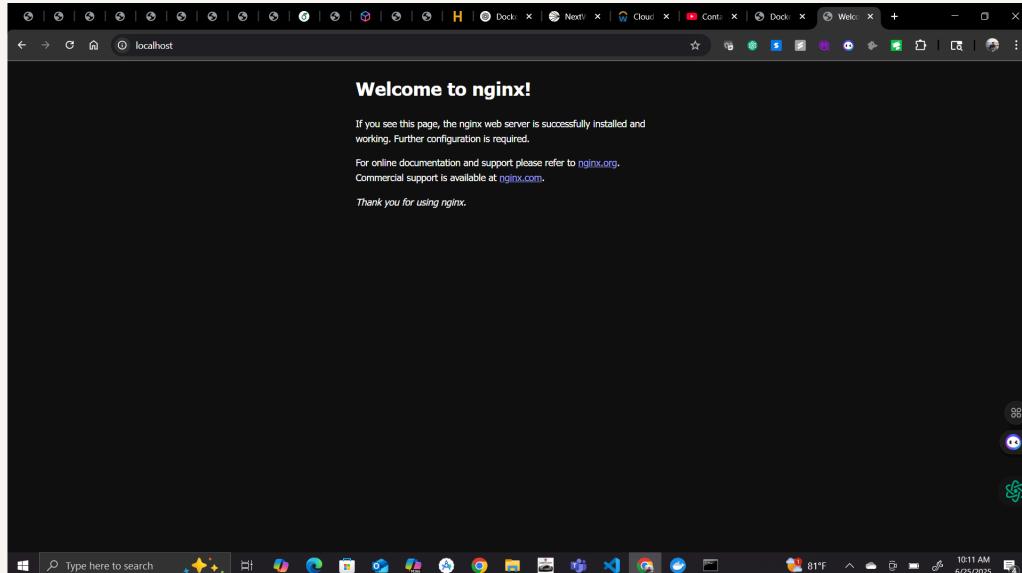
Docker is a platform that lets you build, run, and manage containers. Docker Desktop is a user-friendly application that provides a GUI and tools to work with Docker on your computer, making it easier to develop and test containerized apps.

The Docker daemon is a background service that runs on your computer and manages Docker containers. It handles building, running, and distributing containers by listening to Docker commands and coordinating with the Docker engine.

Running an Nginx Image

Nginx is a high-performance web server and reverse proxy server. It's commonly used to serve web pages, handle requests, manage load balancing, and improve application speed and reliability on the internet.

The command I ran to start a new container was docker run -d -p 80:80 nginx. This tells Docker to run the Nginx image in detached mode and map port 80 on my computer to port 80 in the container.

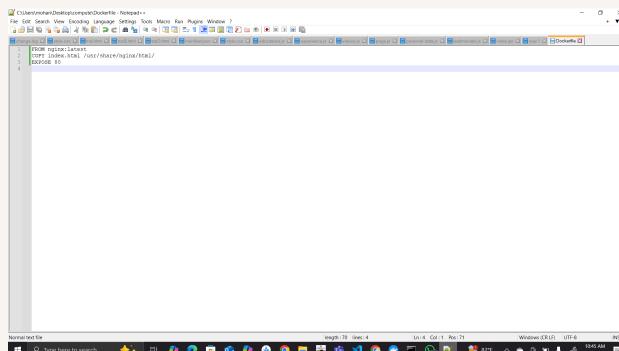


Creating a Custom Image

The Dockerfile is a text file that contains a set of instructions for Docker to build a container image. It defines everything needed—like base image, code, dependencies, and commands—to create and run a containerized application.

My Dockerfile tells Docker three things: use the latest Nginx image as a base, copy my custom index.html into Nginx's web folder, and expose port 80 so the container can serve the webpage to the outside world.

The command I used to build a custom image with my Dockerfile was docker build -t my-web-app .. The . at the end of the command means Docker should look for the Dockerfile and context in the current directory.

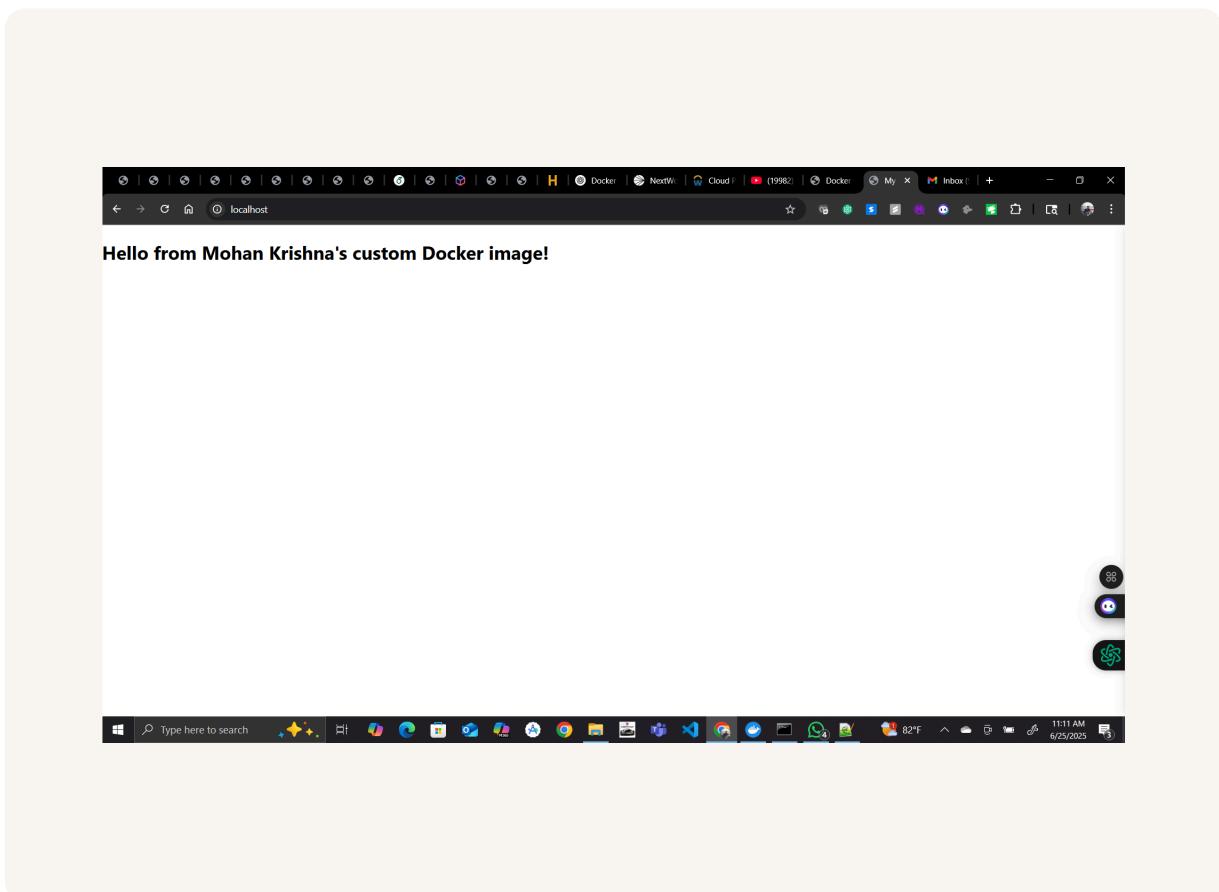


```
FROM nginx:latest
COPY index.html /usr/share/nginx/html/
EXPOSE 80
```

Running My Custom Image

There was an error when I ran my custom image because another Nginx container was already running in the background on port 80. I resolved this by stopping the existing container or using a different port for my new container.

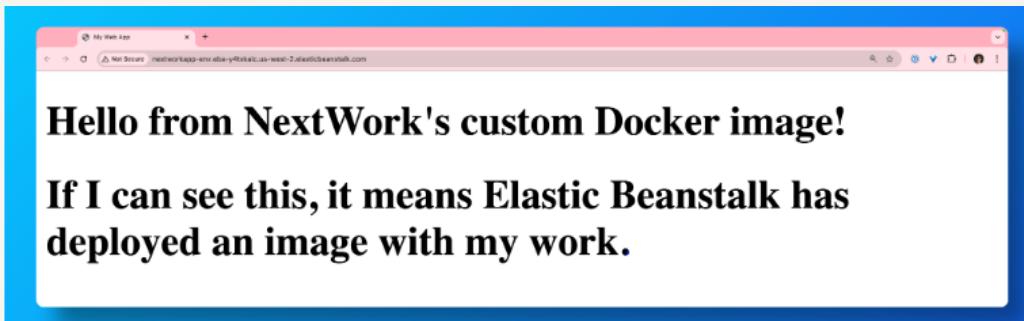
In this example, the container image is the blueprint (like my-web-app) that includes the app and setup instructions. The container is the running instance of that image, which serves the webpage and can be accessed in a browser.



Elastic Beanstalk

Elastic Beanstalk is an AWS service that helps developers quickly deploy and manage applications in the cloud. It automatically handles the infrastructure, like servers and load balancing, so you can focus on your code.

Deploying my custom image with Elastic Beanstalk took me around 10–15 minutes. It included setting up the environment, uploading the image, and letting AWS handle the rest to make my app live on the internet.





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