

# Lab 2: Building a Basic Docker Image & Pushing it to AWS ECR

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## Objective

Learn how to build a **Docker image** and push it to **AWS Elastic Container Registry (ECR)** for deployment.

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### Step 1: Install Docker

If Docker is not installed, download it from Docker's official website and install it on your machine.

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### Step 2: Install AWS CLI

To interact with AWS ECR, you need the AWS CLI. Install it from [AWS CLI installation guide](#).

After installation, configure it with your AWS credentials:

```
aws configure
```

Enter your **AWS Access Key**, **Secret Key**, **Region**, and **Output Format**.

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### Step 3: Create a Dockerfile

Inside your project folder, create a new file named Dockerfile (no extension).

Add the following content to it:

```
# Use an official Nginx base image
FROM nginx:latest

# Copy files into the container
COPY . /usr/share/nginx/html

# Expose port 8080
EXPOSE 8080

# Start Nginx
CMD ["nginx", "-g", "daemon off;"]
```

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### Step 4: Build the Docker Image

Open a terminal in the same directory as your Dockerfile and run:

```
docker build -t my-app .
```

This creates a Docker image named my-app.

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## Step 5: Create an IAM User for ECR

1. Go to **AWS IAM Console**.
  2. Create a new IAM User with **programmatic access**.
  3. Attach the **AmazonEC2ContainerRegistryFullAccess** policy.
  4. Save the **Access Key** and **Secret Key** for AWS CLI authentication.
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## Step 6: Authenticate Docker with AWS ECR

Run the following command (replace **your-region** and **account-id**):

```
aws ecr get-login-password --region your-region | docker login --username AWS  
--password-stdin your-account-id.dkr.ecr.your-region.amazonaws.com
```

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## Step 7: Create an ECR Repository

Run this command to create a repository in AWS ECR:

```
aws ecr create-repository --repository-name my-app
```

Copy the **repository URI** from the output.

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## Step 8: Tag the Docker Image

Replace **your-region**, **account-id**, and **repository-name**:

```
docker tag my-app:latest your-account-id.dkr.ecr.your-  
region.amazonaws.com/my-app:latest
```

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## Step 9: Push the Docker Image to AWS ECR

Now, push your image to AWS ECR:

```
docker push your-account-id.dkr.ecr.your-region.amazonaws.com/my-app:latest
```

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## Step 10: Verify the Image in AWS ECR

1. Go to the **AWS ECR Console**.
  2. Select your **repository**.
  3. You should see your image listed! 
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## Congratulations!

You have successfully **built**, **tagged**, and **pushed** a Docker image to AWS Elastic Container Registry (ECR). You can now use this image in AWS ECS, Fargate, or Kubernetes!