Hands-on tutorials

# Deploy a Web App on Nginx Server using AWS App Runner

# Deploy a Web App on Nginx Server using AWS App Runner: Hands-on tutorials

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# Deploy a Web App on Nginx Server using AWS App Runner

| | |
|---|---|
| **AWS experience** | Beginner |
| **Time to complete** | 20 minutes |
| **Cost to complete** | Less than $0.16 if completed within two hours and you delete your resources at the end of the tutorial. |
| **Get help** | Troubleshooting AWS CLI<br><br>Troubleshooting Docker commands and ECR |
| **Last updated** | June 1, 2022 |

## Overview

In this tutorial, you will learn how to deploy a sample containerized application on a Nginx server using AWS App Runner.

AWS App Runner is a fully managed service that makes it easy for developers to quickly deploy containerized web applications and APIs, at scale and with no prior infrastructure experience required. Start with your source code or a container image. App Runner automatically builds and deploys the web application and load balances traffic with encryption. App Runner also scales up or down automatically to meet your traffic needs.

## What you will accomplish

In this tutorial, you will:

- Create a container image for your web app
- Push the image to Amazon Elastic Container Registry
- Create an AWS App Runner service

- Clean up your resources

# Prerequisites

Before starting this tutorial, you will need:

- An AWS account: if you don't already have one follow the Setup Your Environment tutorial.
- AWS Command Line Interface **installed** and **configured**.
- Docker Engine **installed**, and the application **started**.
- Visual Studio Code **installed**.

# Implementation

Use the following step-by-step written tutorial or watch the video to learn how to Deploy a Web Applicaton on Nginx Server using AWS App Runner.

## Step 1: Push container image to Amazon ECR

In this step, you will create a private repository in Amazon ECR and push the container image you built in previous module to the newly created repository.

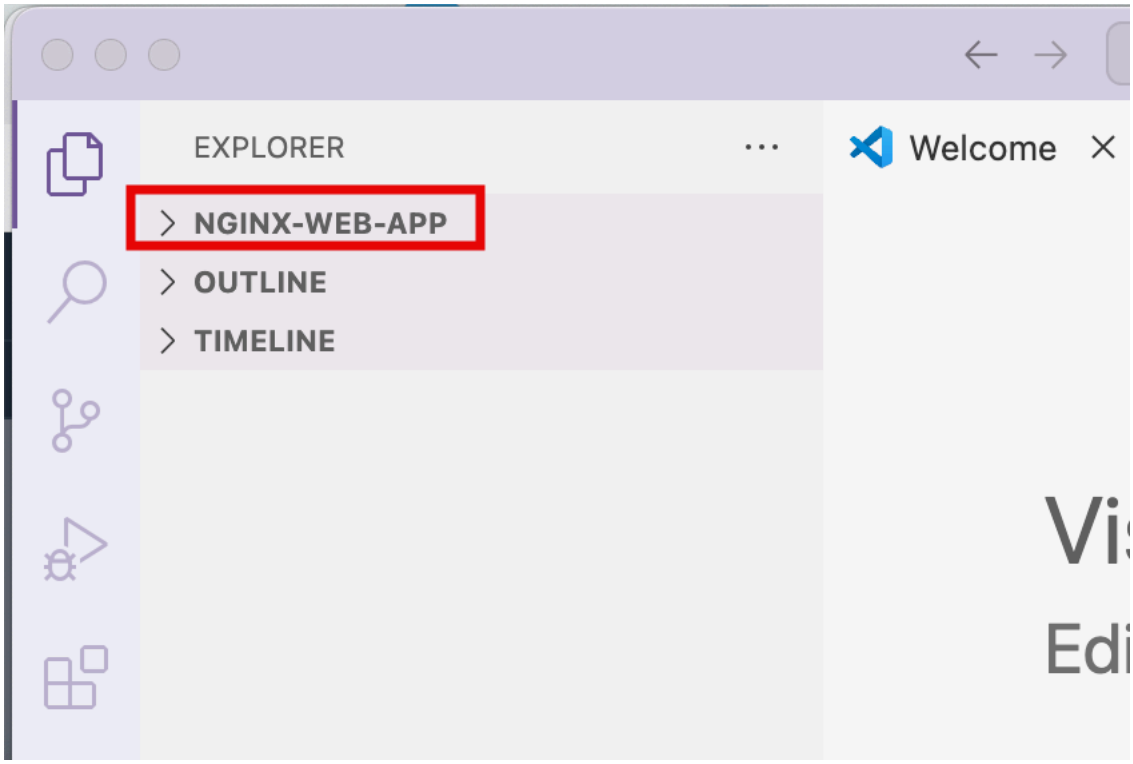
1. Create a project directory

   In a new terminal window, **run** the following commands to **create** a new folder called **nginx-web-app**, and **navigate** to the folder.

   ```
   mkdir nginx-web-appcd nginx-web-app
   ```

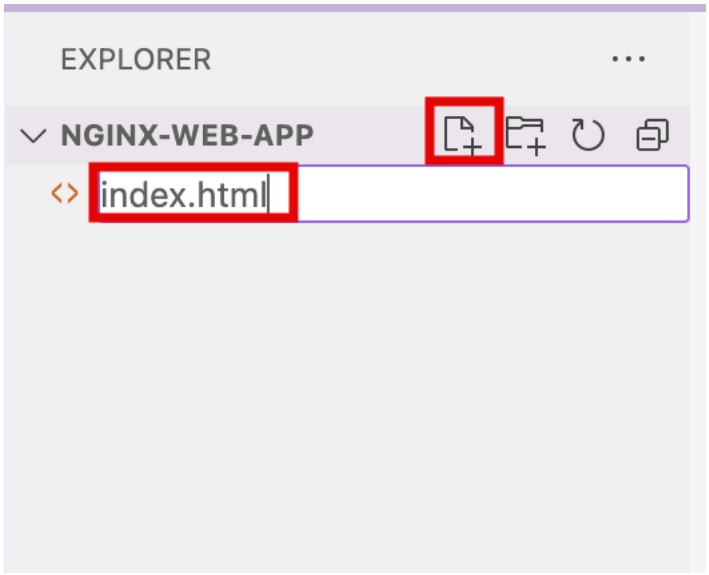
2. Open Visual Studio Code

   On your local machine, **navigate** to the Visual Studio Code application, and open the **nginx-web-app** folder.




3. Create an HTML file

   In the **Explorer** section, select the **+New file** icon, and enter **index.html** for the file name.

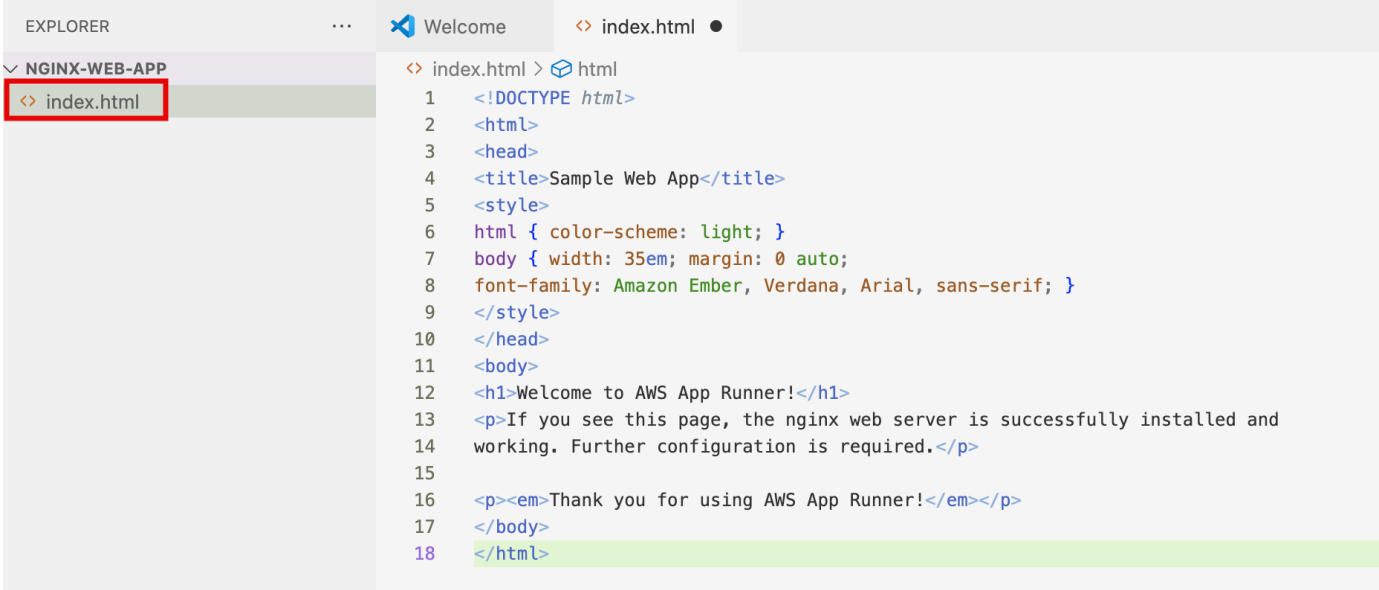



4. Add HTML content

   Select the **index.html** file, and **update** it with the following code. Then, **save** the file.

```
<!DOCTYPE html>
```

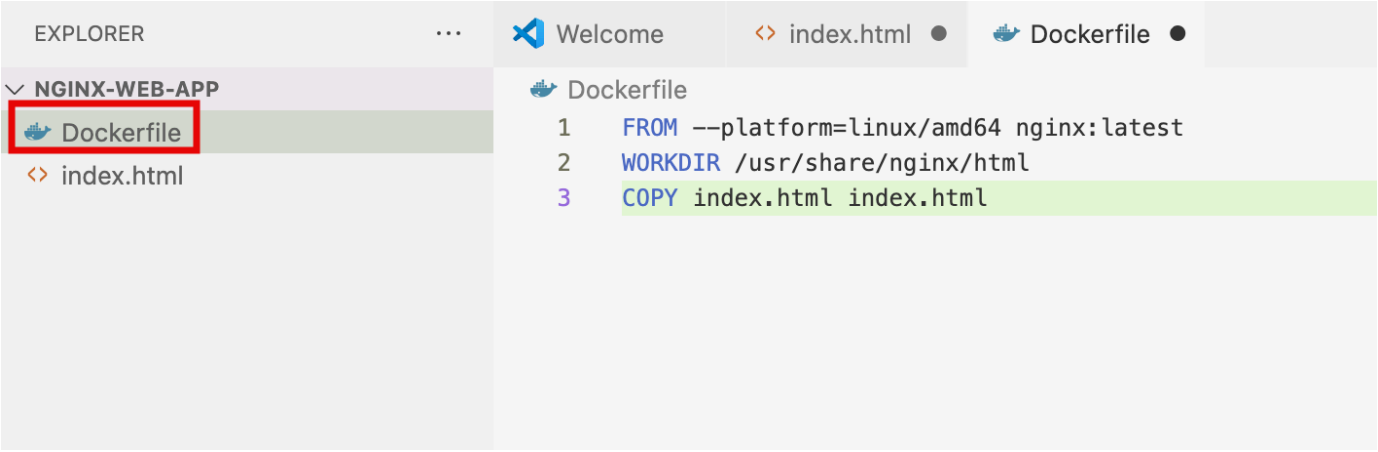
```
<html>
<head>
    <title>Sample Web App</title>
    <style>
        html {
            color-scheme: light;
        }
        body {
            width: 35em;
            margin: 0 auto;
            font-family: Amazon Ember, Verdana, Arial, sans-serif;
        }
    </style>
</head>
<body>
    <h1>Welcome to AWS App Runner!</h1>
    <p>If you see this page, the nginx web server is successfully installed and
    working. Further configuration is required.</p>
    <p><em>Thank you for using AWS App Runner!</em></p>
</body>
</html>
```




## 5. Create Dockerfile

Create another file named **Dockerfile**, and **update** it with the following code. Then, **save** the file.

```
FROM --platform=linux/amd64 nginx:latest
WORKDIR /usr/share/nginx/html
COPY index.html index.html
```




6. Build a container

   In the open terminal window, **run** the following command to create container image.

```
docker build -t nginx-web-app .
```


## Step 2: Create an AWS App Runner Service

In this module, you will create an AWS App Runner service using the container image you built in previous module.

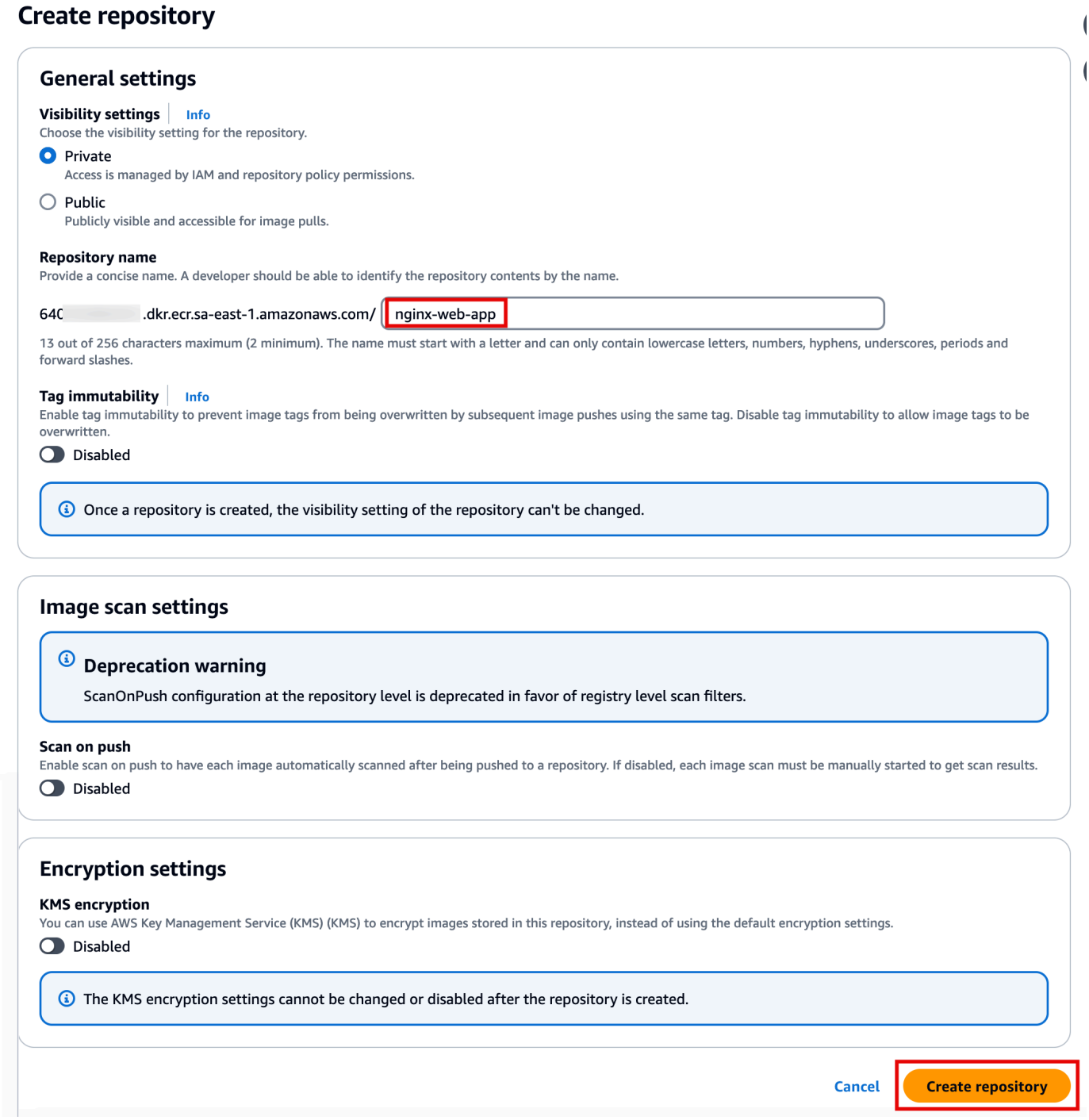
1. Create an Amazon ECR repository

   **Sign in** to the AWS Management console in a new browser window, and **open** the Amazon Elastic Container Registry at https://console.aws.amazon.com/ecr/home.

   For **Create a repository**, choose **Create**.

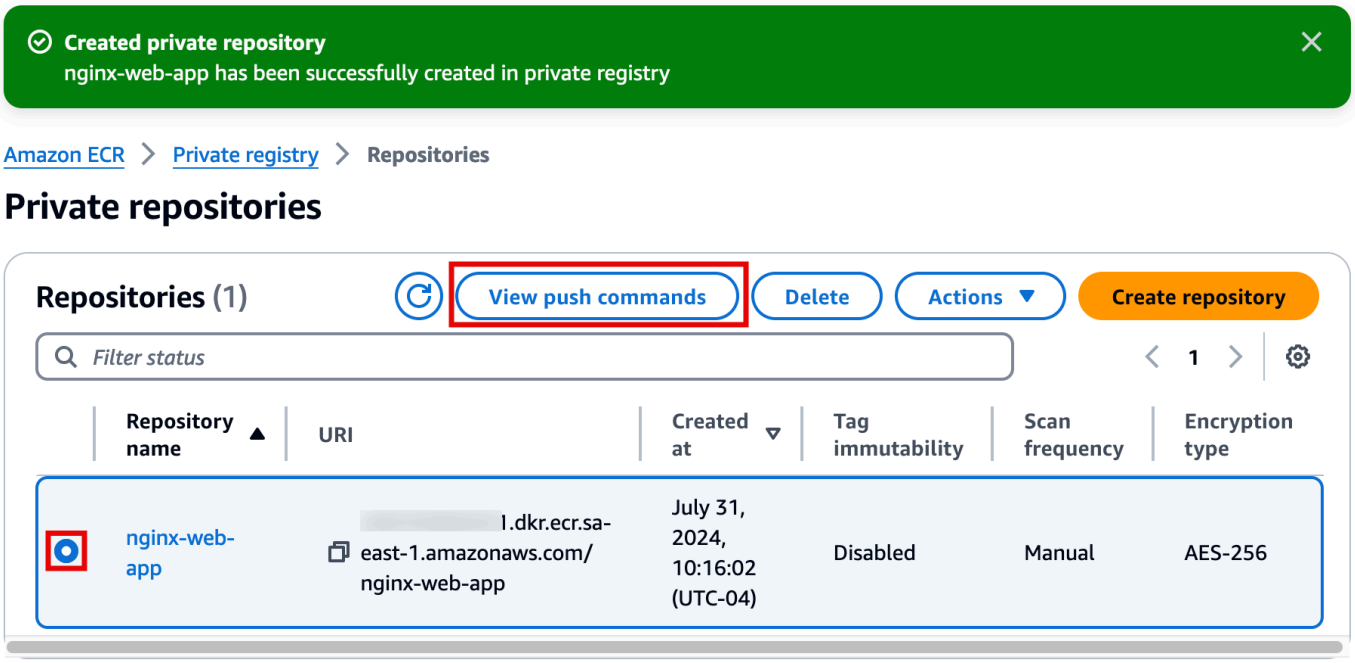

2. Configure repository settings

   On the **Create repository** page, for **Repository name** enter **nginx-web-app**, leave the default selections, and select **Create repository**.



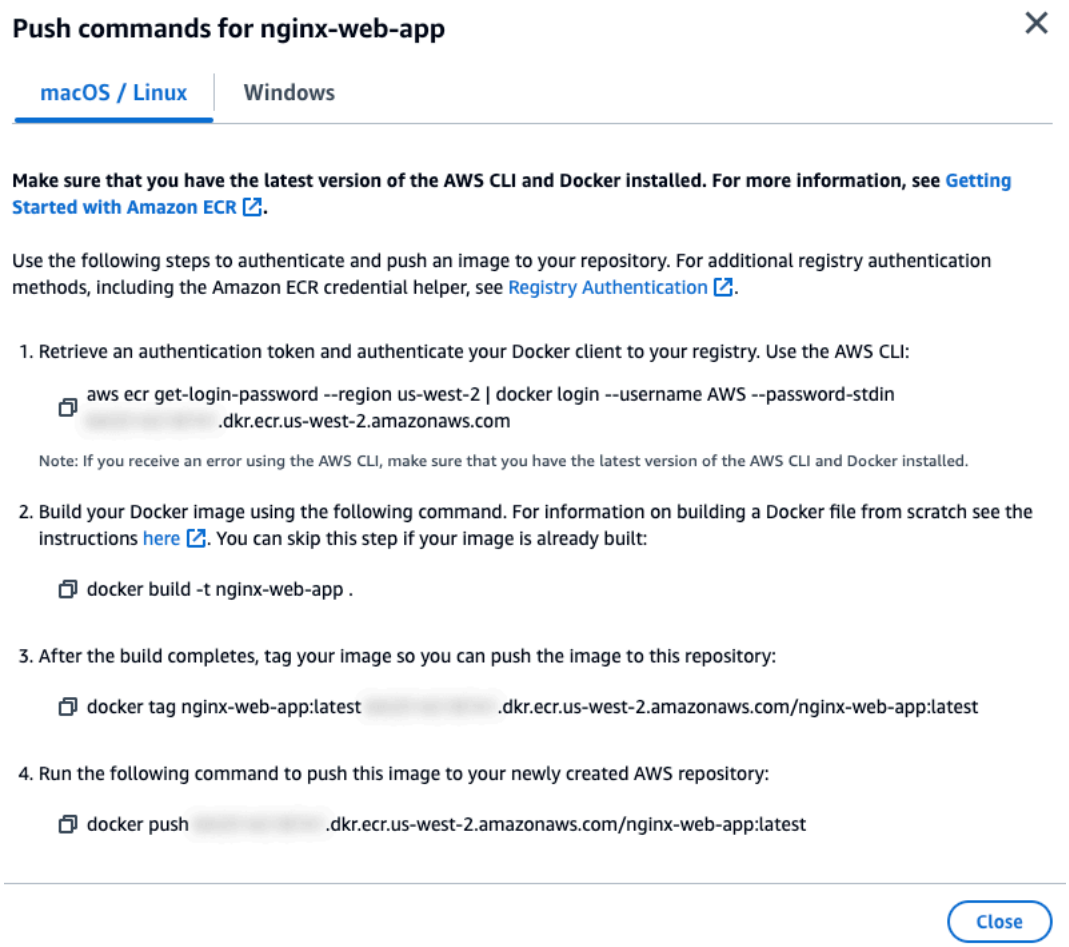

3. View push commands

   Once the repository has been created, select the **radio button** for the repository, and then select **View push commands**.




4. Push your image

   **Follow** all the steps in the pop-up window, to **authenticate** and **push** the image to the repository.

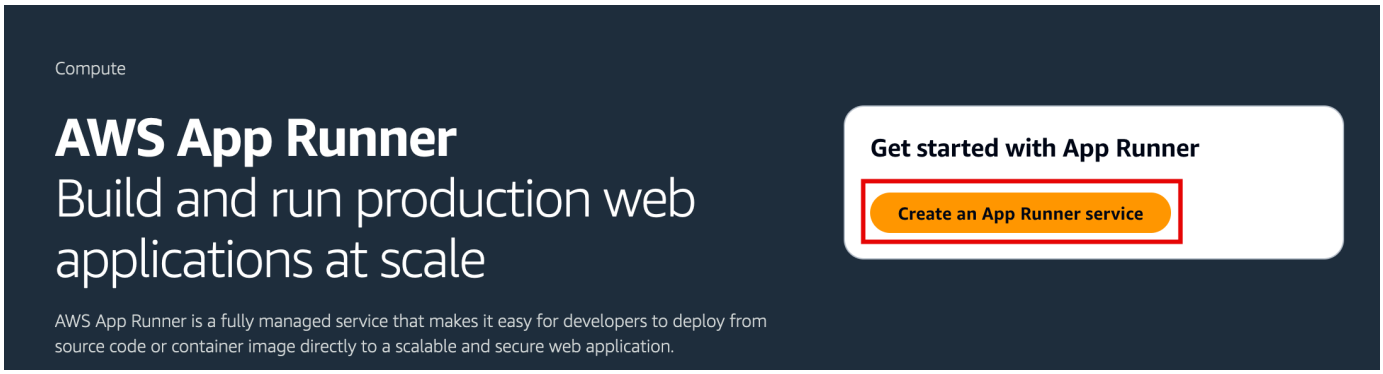



## Step 3: Create a container image

In this step, you will create a container image of a sample web app.

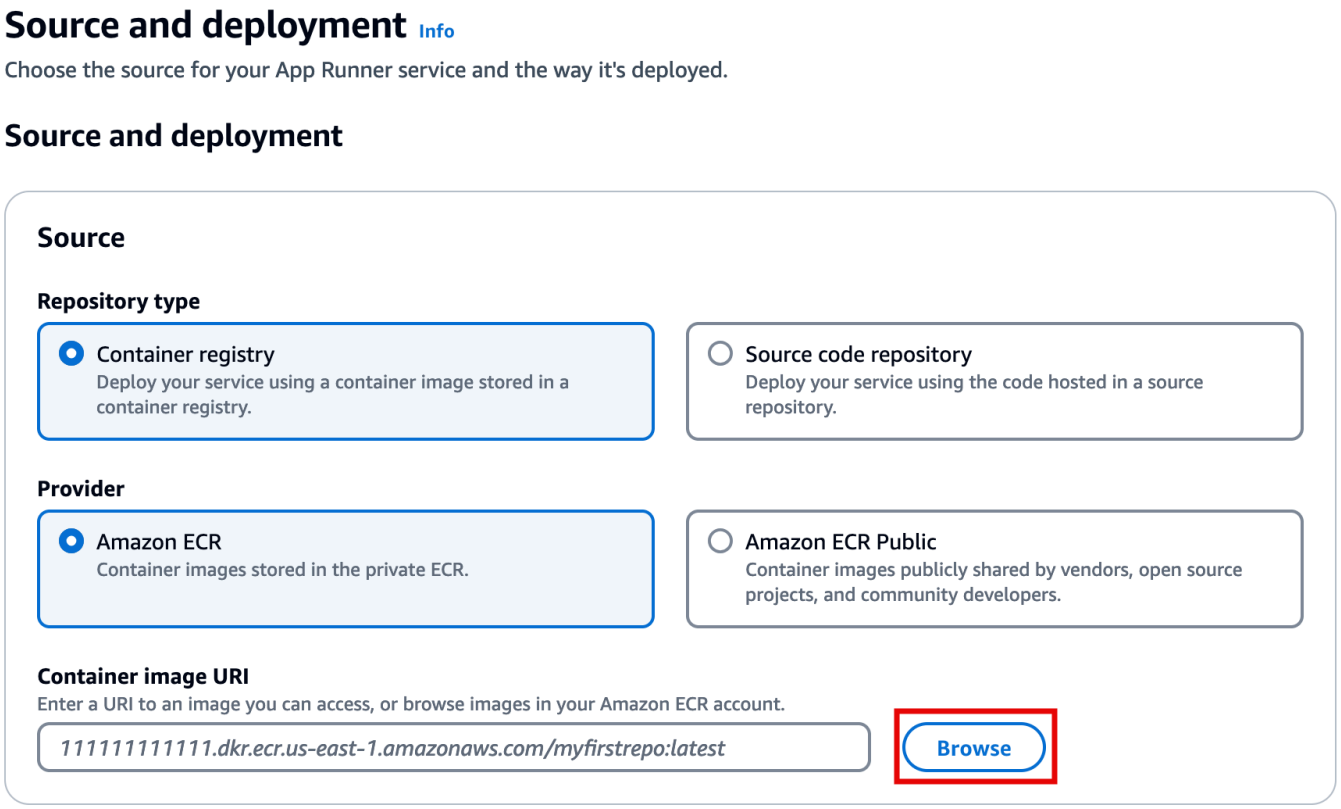
1. Create an App Runner service

   In the Source and deployment section, leave the default selections for Repository type and Provider. For Container image URI, select Browse.



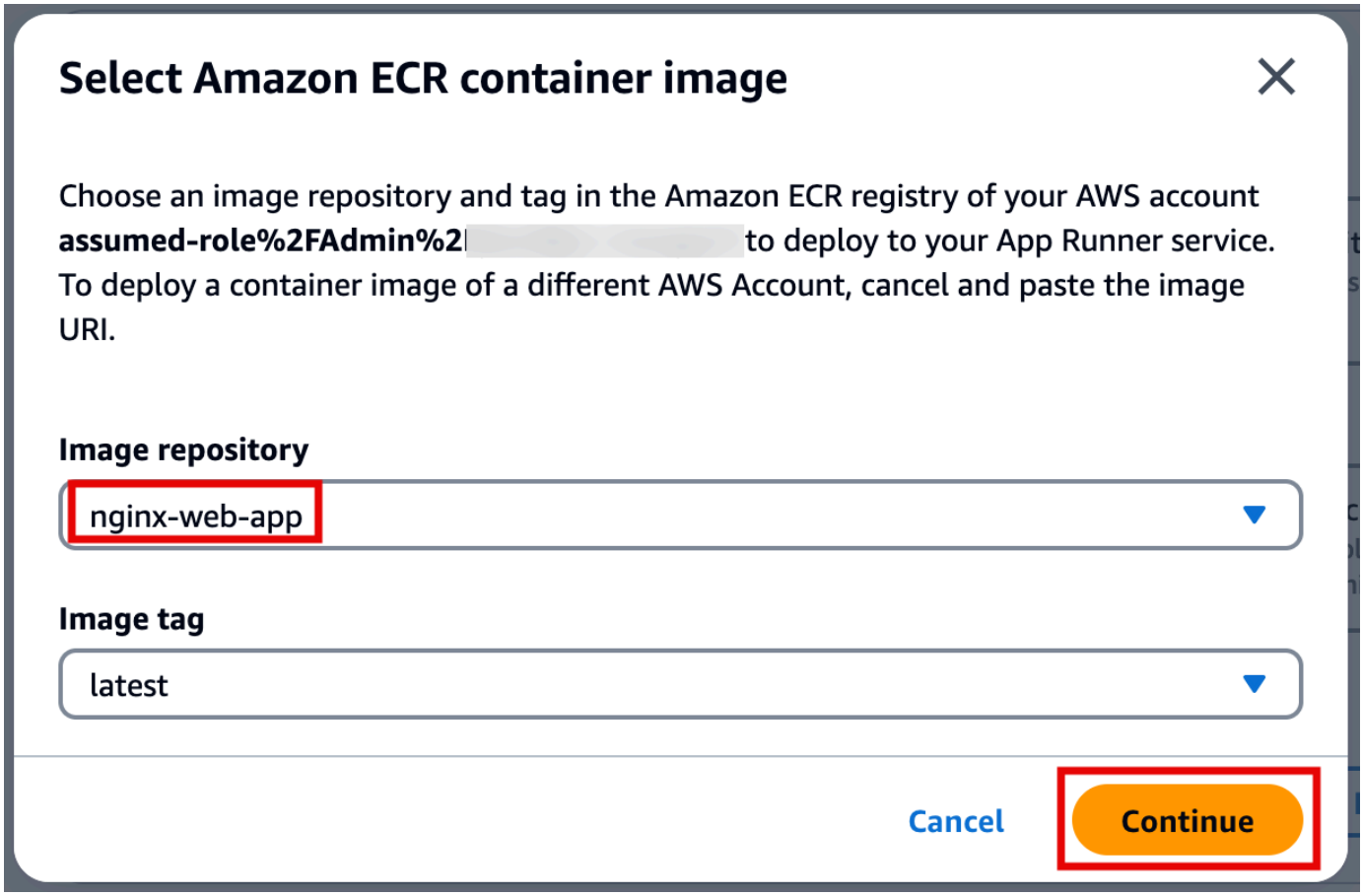
2. Configure the source

In the **Source and deployment** section, leave the default selections for **Repository type** and **Provider**. For **Container image URI**, select **Browse**.



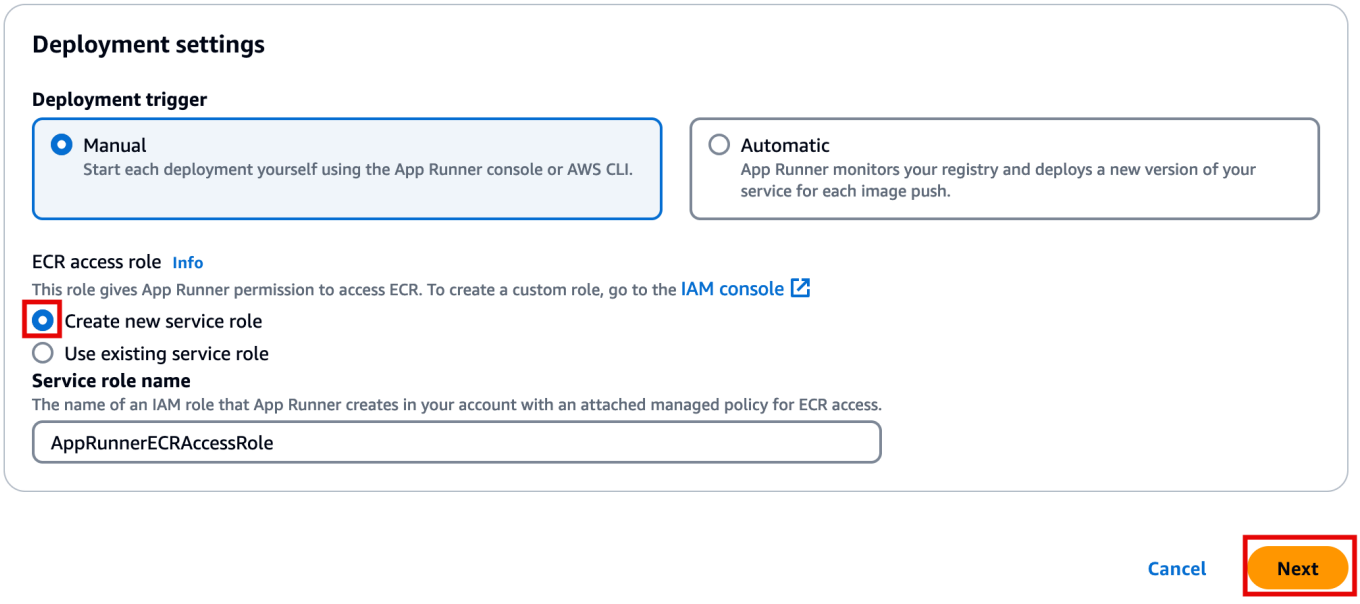

3. Select the container image

In the pop-up window, for **Image repository**, select **nginx-web-app**, and choose **Continue**.




4. Set up ECR access

   In the **Deployment settings** section, for **ECR access role**, select **Create new service role**, and choose **Next**.



5. Configure service settings

   On the **Configure service** page, for **Service name** enter **nginx-web-app-service**, and change the **Port** to **80**. Leave the rest as default, and select **Next**.

# Configure service Info

## Configure service

### Service settings

**Service name**

nginx-web-app-service

**Virtual CPU**

1 vCPU

**Virtual memory**

2 GB

### Runtime environment variables - *optional* Info

Add environment variables in plain text or reference them from Secrets Manager and SSM Parameter Store. Update IAM Policies using the IAM Policy template given below to securely reference secrets and configurations as environment variables.

No environment variables have been configured.

Add environment variable

You can add up to 50 more items.

▶ **IAM policy templates for secrets**

**Port**

Your service uses this TCP port.

80

▶ **Additional configuration**

▶ **Auto scaling** Info

Configure automatic scaling behavior.

▶ **Health check** Info

Configure load balancer health checks.

▶ **Security** Info

Specify an Instance role and an AWS KMS encryption key

▶ **Networking** Info

Configure the way your service communicates with other applications, services, and resources.

▶ **Observability**

Configure observability tooling.

▶ **Tags** Info

6. Review and deploy

   On the **Review and create** page, review all inputs, and choose **Create & deploy**.

# Review and create Info

## Step 1: Source and deployment

Edit

### Source

Container registry
Amazon ECR

Container image URI
[redacted].dkr.ecr.us-east-1.amazonaws.com/nginx-web-app:latest

Provider
ECR

### Deployment settings

Deployment method
Manual deployments

ECR access role
arn:aws:iam::[redacted]:role/service-role/AppRunnerECRAccessRole

## Step 2: Configure service

Edit

### Service settings

Service name
nginx-web-app-service

Port
80

Virtual CPU & memory
1 vCPU & 2 GB

Runtime environment variables

| Name | Value |
|---|---|

No environment variables have been configured.

▶ Additional configuration

▶ Auto scaling

▶ Health check

▶ Security

▶ Networking

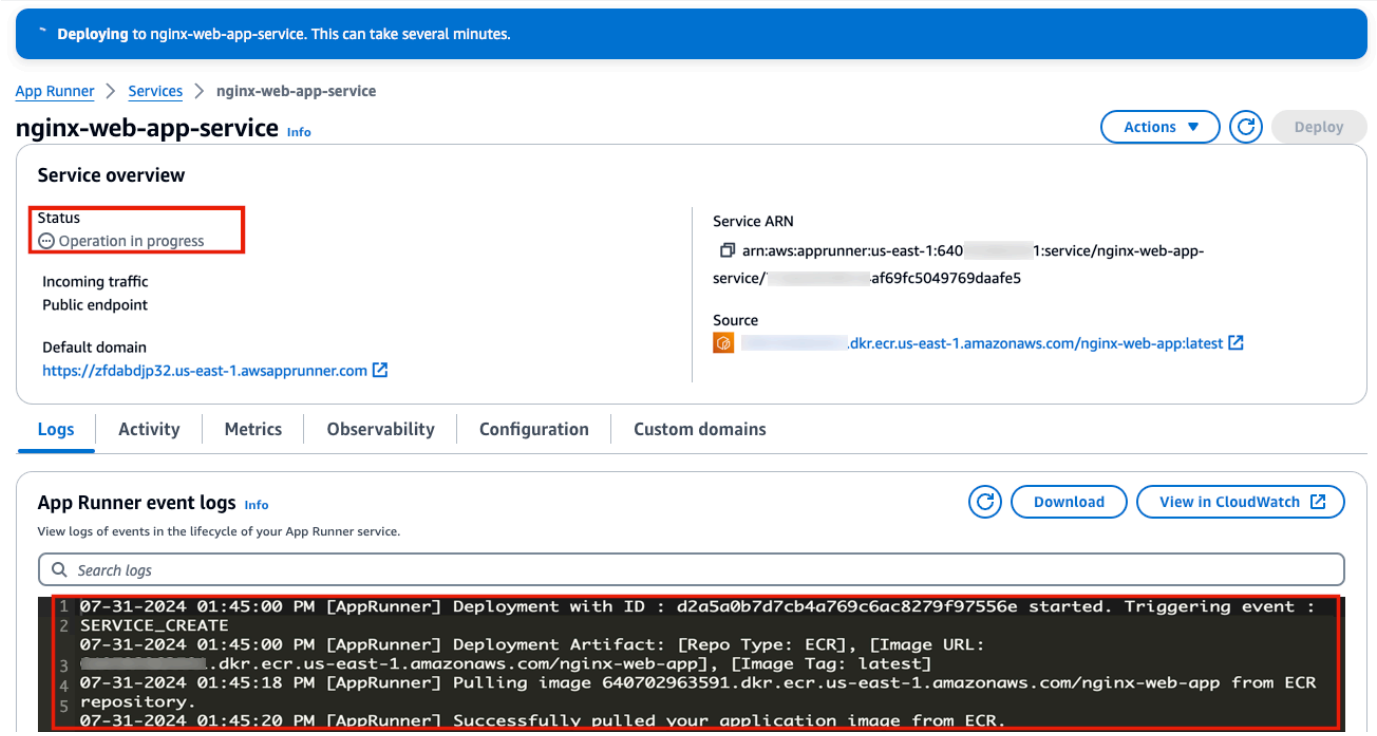
▶ Observability

▶ Tags

Cancel Previous Create & deploy

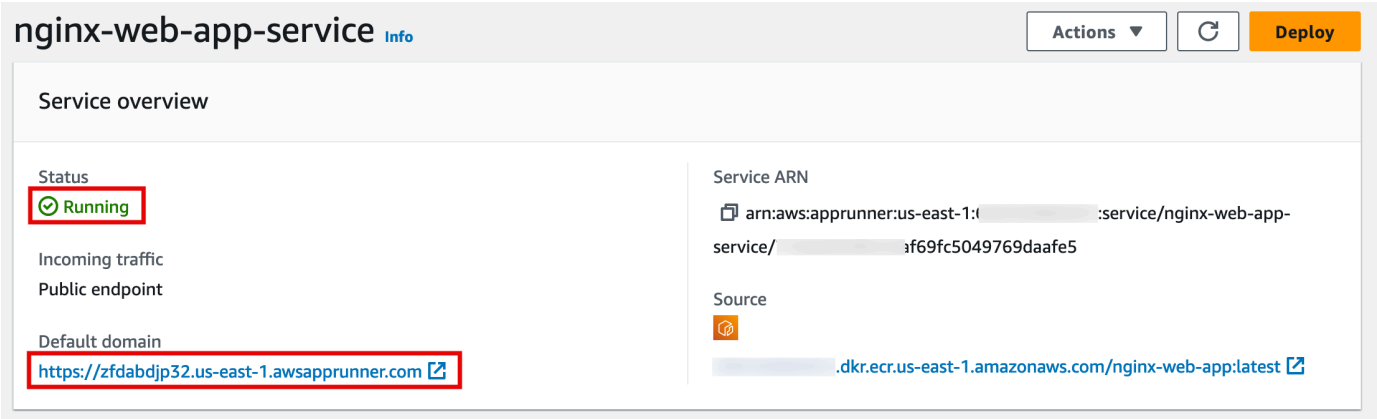
7. Monitor deployment

It will take several minutes for the service to be deployed. You can **view** the event logs for progress.



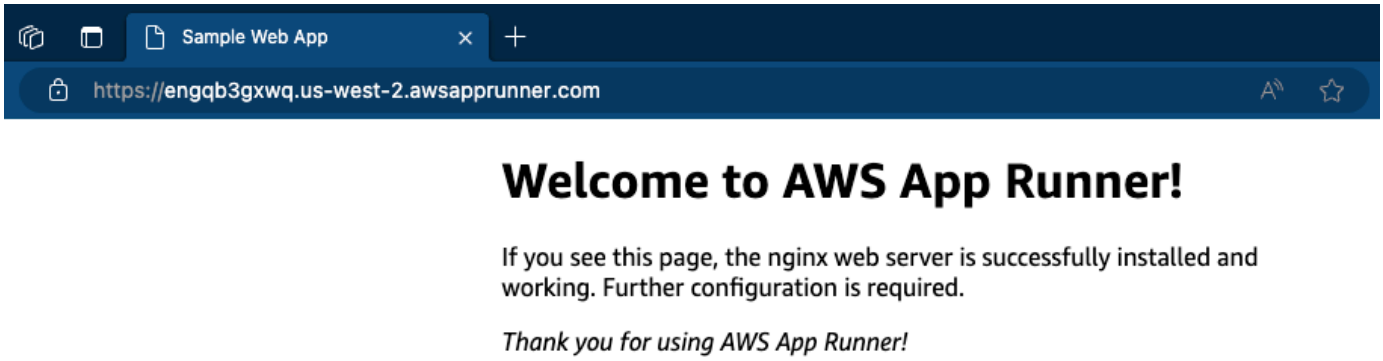

8. Access the application

Once the status updates to **Running**, choose the default domain name URL to view the web app.




9. Verify the deployment

The Welcome page and confirmation message should look like the image on the right.

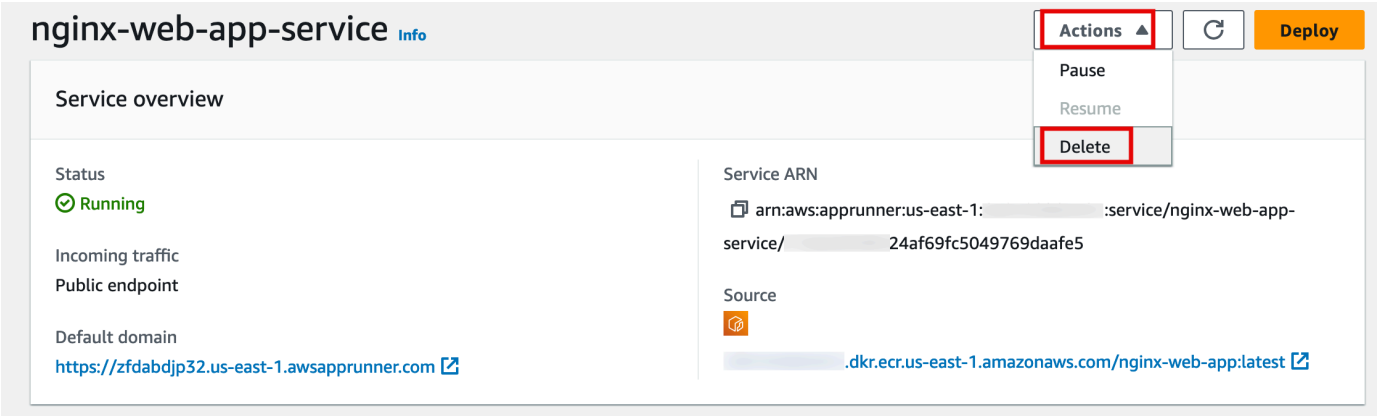



## Clean up resources

In this step, you will go through the steps to delete all the resources you created throughout this tutorial. It is a best practice to delete resources you are no longer using to avoid unwanted charges.

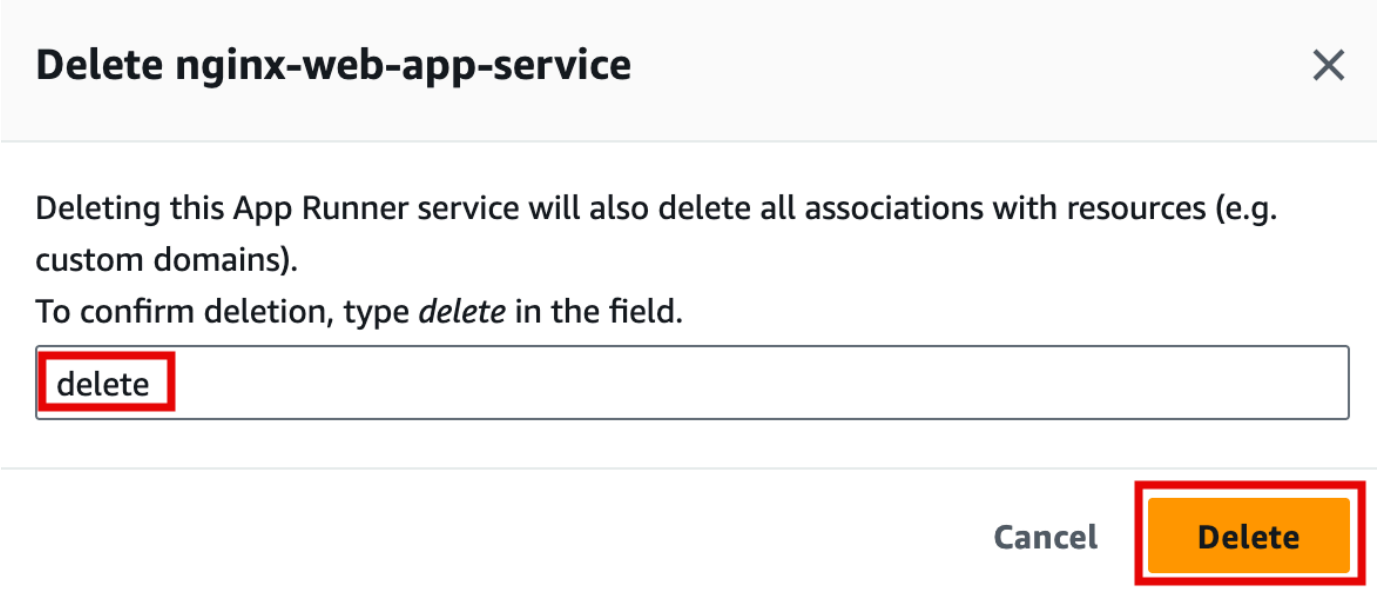
1. Delete the App Runner service

   In the AWS App Runner console, navigate to the **nginx-web-app-service**, choose **Actions**, and select **Delete**.



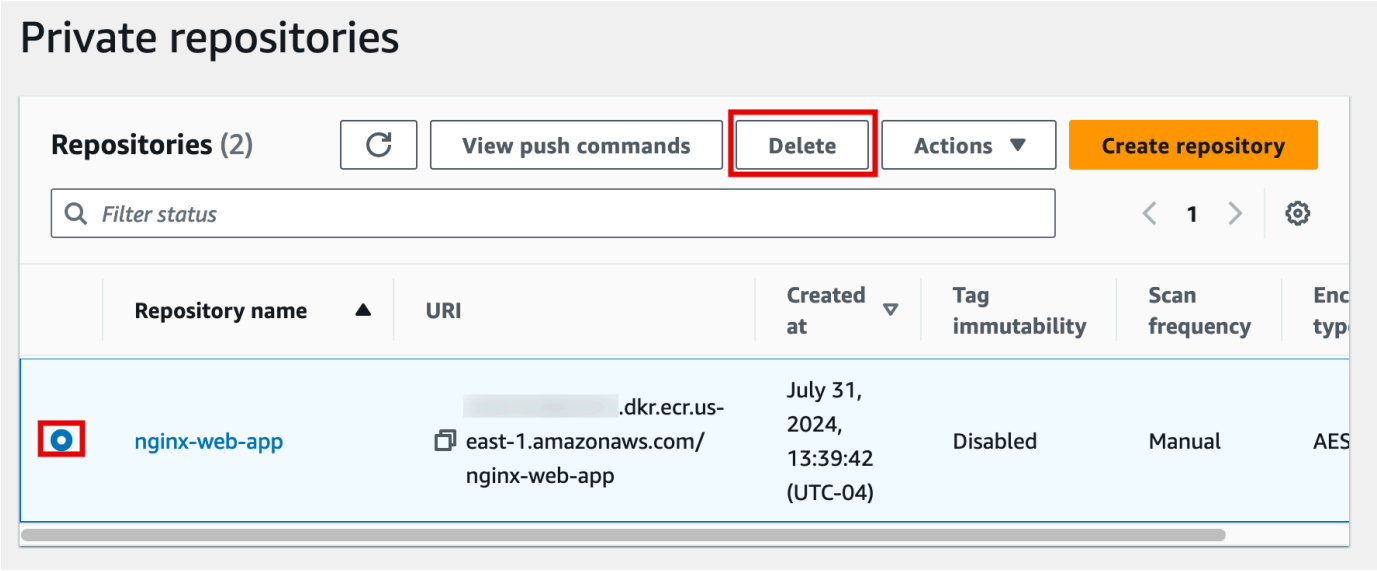

2. Confirm the deletion

   Follow the prompts in the pop-up window to **confirm** deletion of the service.




3. Delete the ECR repository

   In the Amazon ECR console, select the radio button next to the **nginx-web-app repository**, and choose **Delete**.




# Congratulations

You have containerized a sample web app running on a Nginx server and pushed the image to Amazon Elastic Container Registry. Then, you created an AWS App Runner service using the image.