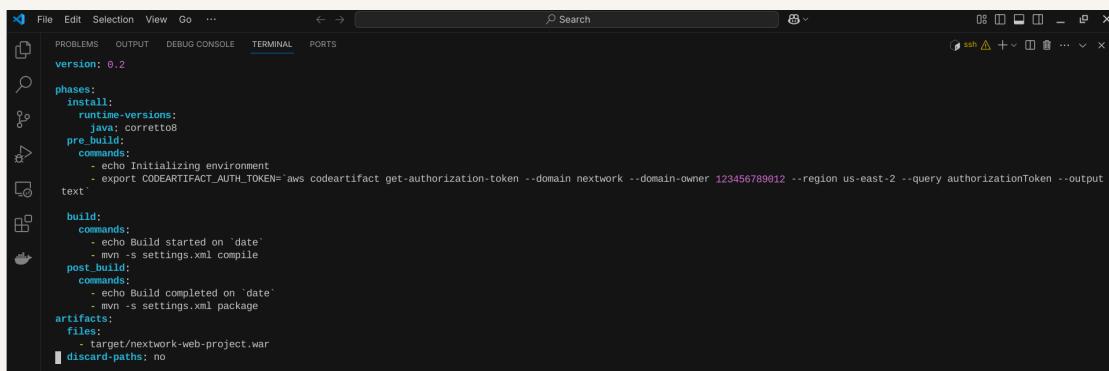


Continuous Integration with CodeBuild

S

Shadrack Kalukwo



```
version: 0.2

phases:
  install:
    runtime-versions:
      java: corretto8
  pre_build:
    commands:
      - echo Initializing environment
      - export CODEARTIFACT_AUTH_TOKEN=$(aws codeartifact get-authorization-token --domain nextwork --domain-owner 123456789012 --region us-east-2 --query authorizationToken --output text)
  build:
    commands:
      - echo Build started on `date`
      - mvn -s settings.xml compile
  post_build:
    commands:
      - echo Build completed on `date`
      - mvn -s settings.xml package
artifacts:
  files:
    - target/nextwork-web-project.war
discard-paths: no
```

Introducing Today's Project!

In this project I will demonstrate:

- ☐ Create and configure a CodeBuild project from scratch.
- ☐ Connect CodeBuild project to my GitHub repository.
- ⊗ Define your build process using a buildspec.yml file.
- ☐ Automate testing using CodeBuild

Key tools and concepts

Services I used were CodeBuild, CodeArtifact, GitHub, VSCode, EC2, IAM . Key concepts I learnt include, ssh, using codebuild, debugging errors, using github and git.

Project reflection

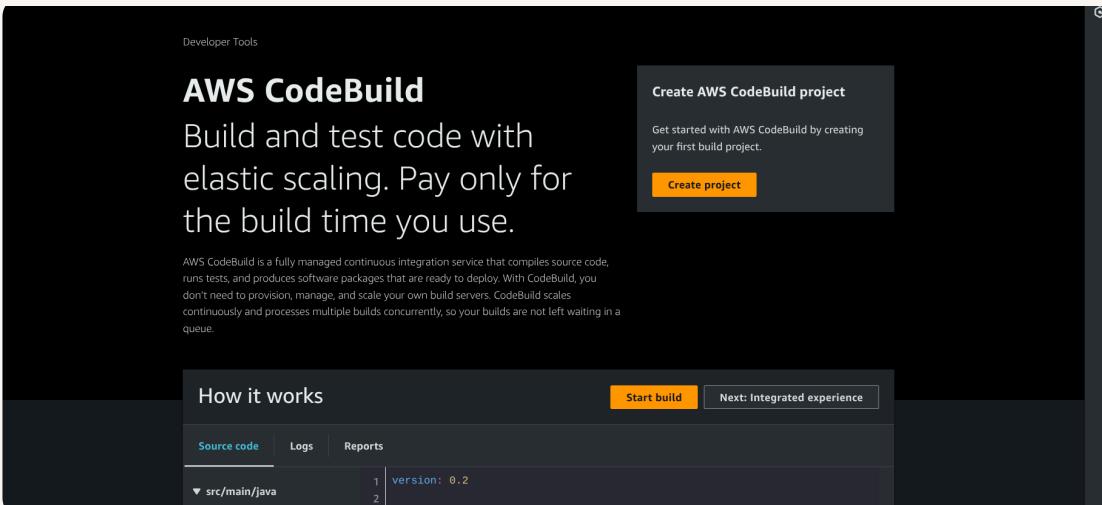
This project took me approximately four hours. The most challenging part was dealing with the errors in my CodeBuild. It was most rewarding to go past an error and learn something new.

This project is part four of a series of DevOps projects where I'm building a CI/CD pipeline! I'll be working on the next project on April 18th, 2025.

Setting up a CodeBuild Project

CodeBuild is a continuous integration service, which means it's a CI service thus it helps you compile and package code. Engineering teams use it because CI services automates this process for us otherwise engineers would have to package code manually.

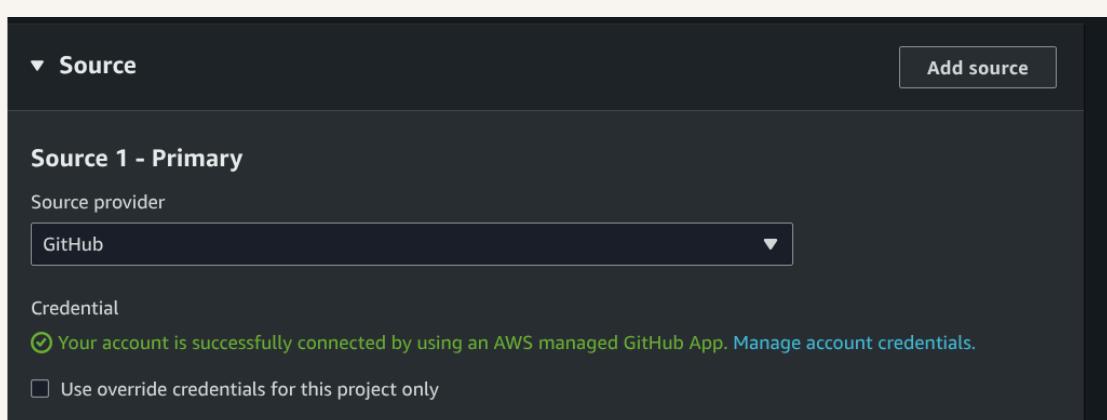
My CodeBuild project's source configuration means the place where my code is stored for CodeBuild to access it for CI/CD.



Connecting CodeBuild with GitHub

There are multiple credential types for GitHub, like Github App, Personal access tokens and OAuth app. I used Github app because it's most simple and yet the most secure way between GitHub and AWS. AWS handles all the credential for us.

The service that helped connect my AWS environment with GitHub is AWS CodeConnections. CodeConnections also helps connect our environment with other third party platforms. In this case, it made sure we had a secure connection to GitHub.



CodeBuild Configurations

Environment

My CodeBuild project's Environment configuration means the environment set up for the compute power (ec2) that will be compiling and compressing the files when we run our code build project. It includes settings like provisioning model, compute os etc

Artifacts

Build artifacts are files that get created as part of the codebuild process. They're important because they are artifacts that will be used later on in the cicd pipeline. My build process will create an artifact. To store them I created an S3 bucket.

Packaging

When setting up CodeBuild, I also chose to package artifacts in a zip file because this helps with package management as files are organized neatly in a single executable file.

S

Shadrack Kalukwo
NextWork Student

NextWork.org

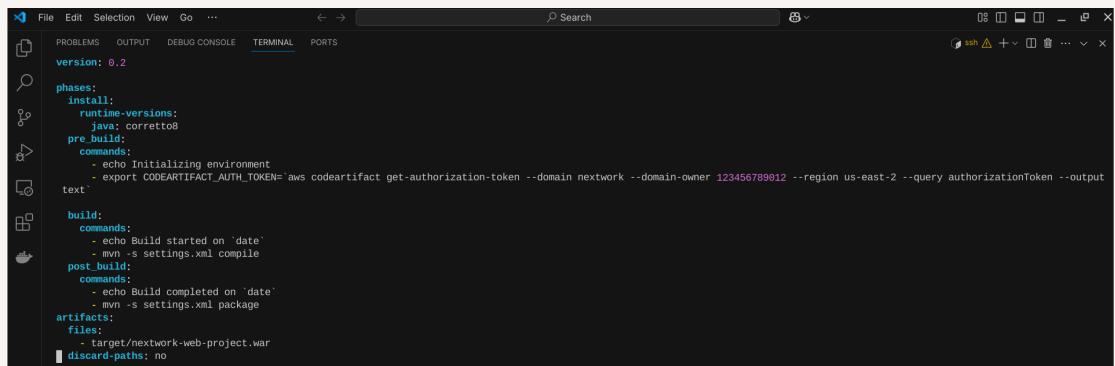
Monitoring

For monitoring, I enabled CloudWatch Logs, which is a service that will note down commands that are run and any errors that happen. This is so helpful for troubleshooting.

buildspec.yml

My first build failed because codebuild could not find buildspec.yaml file in our source code root directory. A buildspec yaml file is needed because it tells codebuild how to run the build process.

The first two phases in my buildspec.yaml file installs java and give's us access to CodeArtifact. The third phase in my buildspec.yaml file compiles the web app. The fourth phase in my buildspec.yaml file packages the webapp to as single artifact.



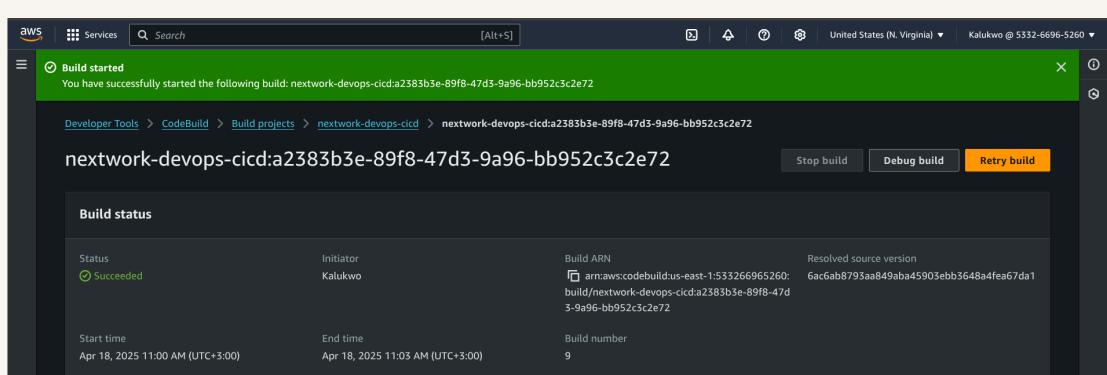
```
version: 0.2
phases:
  install:
    runtime-versions:
      java: corretto8
  pre_build:
    commands:
      - echo Initializing environment
      - export CODEARTIFACT_AUTH_TOKEN=`aws codeartifact get-authorization-token --domain nextwork --domain-owner 123456789012 --region us-east-2 --query authorizationToken --output text`
  build:
    commands:
      - echo Build started on `date`
      - mvn -s settings.xml compile
  post_build:
    commands:
      - echo Build completed on `date`
      - mvn -s settings.xml package
artifacts:
  files:
    - target/nextwork-web-project.war
  discard-paths: no
```

Success!

My second build also failed, but with a different error that said we failed to run, Error while executing command to compile our webapp: mvn -s settings.xml compile.

To resolve the second error. I attached a policy for aceessing CodeArtifact to our CodeBuild role. When I built my project again, I saw a success with the privileges to CodeArtifact granted by the role CodeBuild now as access to the repository.

To verify the build, I checked our artifact bucket in S3, seeing the build artifact tells me that CodeBuild was a success. The build processes compiled the code from the source repository, compressed it into a file and stored the file in an S3 bucket





NextWork.org

Everyone should be in a job they love.

Check out nextwork.org for
more projects

