



# Continuous Integration with CodeBuild



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A screenshot of a code editor window showing a buildspec.yml file. The file contains YAML configuration for a CodeBuild build. It specifies a version of 0.2, defines phases (install, runtime-versions, pre-build, build, post-build), and artifacts (files). It also includes commands for setting environment variables and running Maven commands.

```
! buildspec.yml
1  version: 0.2
2
3  phases:
4    install:
5      runtime-versions:
6        java: corretto8
7    pre_build:
8      commands:
9        - echo Initializing environment
10       - export CODEARTIFACT_AUTH_TOKEN=`aws codeartifact get-authorization-token --domain nextwork --domain-owner 123456789012 --region us-east-2
11
12    build:
13      commands:
14        - echo Build started on `date`
15        - mvn -s settings.xml compile
16    post_build:
17      commands:
18        - echo Build completed on `date`
19        - mvn -s settings.xml package
20  artifacts:
21    files:
22      - target/nextwork-web-project.war
23  discard-paths: no
24
```



# Introducing Today's Project!

In this project, I will demonstrate about aws codebuild and how to set codebuild I'm doing this project to learn the continuous integration process using aws codebuild. It is an important step as it is the prior step for deployment of web app.

## Key tools and concepts

Services I used were github,vscode,ec2 instance Key concepts I learnt include codeartifact and codebuild.

## Project reflection

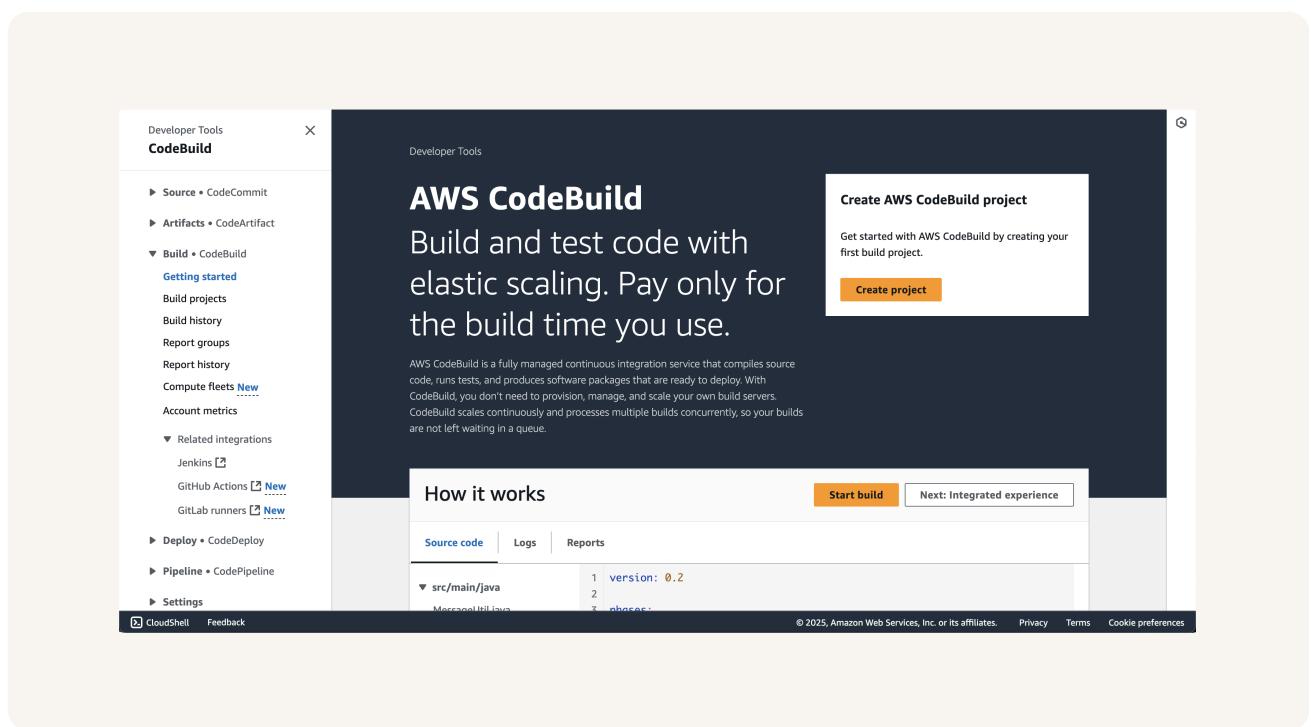
This project took me approximately 2 hrs which include deletion of resources The most challenging part was build process where it roles has to be assign to codebuild It was most rewarding to see the build complete

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 hopefully tomorrow!

# Setting up a CodeBuild Project

CodeBuild is a continuous integration service, which means it automate the process of building the web apps like compiling, run tests and packaging. Engineering teams use it because it reduces efforts and automation reduces manual work of building.

My CodeBuild project's source configuration means from where it will fetch code for further building of the project and I selected github because my code is stored in github repository.





# 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 is simple yet it provide high security and we dont have to manually manage the keys.

The service that helped connect codebuild with github is CodeConnection and it is important as it connect with using and storing any token. It uses github app to make a connection.

The screenshot shows the AWS Developer Tools Connections page. At the top, there are tabs for 'Connections' and 'Hosts', with 'Connections' being active. A message at the top states: 'Beginning July 1, 2024, the console will create connections with codeconnections in the resource ARN. Resources with both service prefixes will continue to display in the console. Learn more [?]' with a close button 'X'. Below this, there is a search bar and a table with the following data:

Connection name	Provider	Status	ARN
nextwork-devops-cicd	GitHub	Available	arn:aws:codeconnections:ap-south-1:590183705172:connection/66b0f290-9954-4d04-9e69-f30be81d4ce2

# CodeBuild Configurations

## Environment

My CodeBuild project's Environment configuration means configuring operating system, runtime, images and set the environment in which our build will occur. It includes settings like provisioning model, Environment image, compute and image version.

## Artifacts

Build artifacts are like a zip file for our web app. They're important because they are the actual thing that we deploy. My build process will create a zip file with .war extension. To store them, I created a S3 bucket in the same location.

## Packaging

When setting up CodeBuild, I also chose to package artifacts in a zip because it compresses everything in a small zip file which will help in sharing or uploading. Also it will be easy to organize and will have a small size.



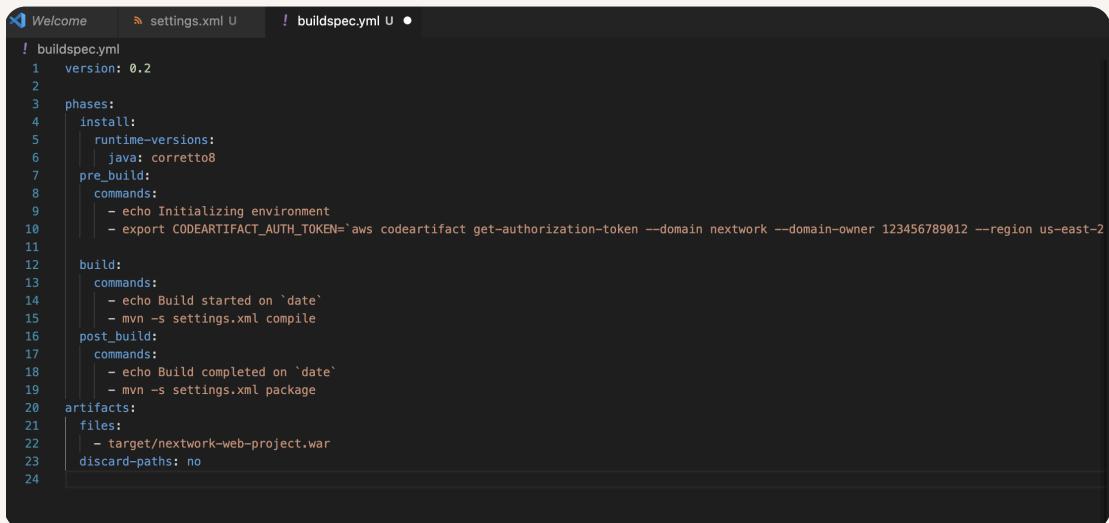
## Monitoring

For monitoring, I enabled CloudWatch Logs, which contains entire information about the build like commands, outputs and errors. It is super useful for debugging the build as it gives guide for the errors.

# buildspec.yml

My first build failed because... A buildspec.yml file is needed because contain guide for installing necessary tools,pre-build ,build and post build. It is very important as it automate the process of manual building. It gives step by step manual.

The first two phases in my buildspec.yml file install and pre-build The third phase in my buildspec.yml file is build The fourth phase in my buildspec.yml file is post-build



A screenshot of a code editor window showing a buildspec.yml file. The file contains YAML configuration for a build process. The code is as follows:

```
! buildspec.yml
 1 version: 0.2
 2
 3 phases:
 4   install:
 5     runtime-versions:
 6       java: corretto8
 7   pre_build:
 8     commands:
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17     commands:
18       - echo Build completed on `date`
19       - mvn -s settings.xml package
20   artifacts:
21     files:
22       - target/nextwork-web-project.war
23   discard-paths: no
24
```



# Success!

My second build also failed, but with a different error that said COMMAND\_EXECUTION\_ERROR To fix this issue we need codebuild to have permission to access the codeartifact for the packages.

To resolve the second error, I added the policy to the role which was created when codebuild is done When I built my project again, I saw it took me less time.

To verify the build, I checked S3 bucket Seeing the artifact tells me that the build is completed and we have get the package of web app.

The screenshot shows the AWS CodeBuild build status page for a build named "nextwork-devops-cicd:611fee0d-d2ad-4c24-b5c0-ea22e840b30a". The build status is "Succeeded". The page includes details such as the build ARN, resolved source version, start and end times, and build number.

Build status			
Status Succeeded	Initiator dray-devops-admin	Build ARN arn:aws:codebuild:ap-south-1:590183705172:build/nextwork-devops-cicd:611fee0d-d2ad-4c24-b5c0-ea22e840b30a	Resolved source version 2e29b374aea77c70a9bb46a72735d1ceeee05aa
Start time Apr 18, 2025 9:40 PM (UTC+5:30)	End time Apr 18, 2025 9:41 PM (UTC+5:30)	Build number 7	



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