



Package an App with CodeBuild



Emmanuel Enalpe III

The screenshot shows the AWS CodeBuild console with a green header bar indicating 'Project created' and a message: 'You have successfully created the following project: nextwork-web-build'. Below the header, the navigation path is 'Developer Tools > CodeBuild > Build projects > nextwork-web-build'. The main area displays the configuration for the 'nextwork-web-build' project. It includes tabs for 'Actions' (selected), 'Create trigger', 'Edit', 'Clone', 'Debug build', and 'Start build with overrides'. A prominent orange button labeled 'Start build' is visible. The 'Configuration' section details the setup: Source provider is 'AWS CodeCommit', Primary repository is 'nextwork-web-project', Artifacts upload location is 'nextwork-build-artifacts-emmanuel', and Service role is 'arn:aws:iam::730335666744:role/service-role/codebuild-nextwork-web-build-service-role'. Under 'Public builds', it is set to 'Disabled'.



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Introducing today's project!

What is AWS CodeBuild?

AWS CodeBuild is a fully managed build service that compiles source code, runs tests, and produces software packages. It's useful for automating build processes and enhancing CI/CD workflows.

How I used CodeBuild in this project

I used AWS CodeBuild in today's project by configuring and building the web app into a zip file.

One thing I didn't expect in this project was...

One thing that I didn't expect in this project is how simple it is to build a project, but it requires a lot of configuration to complete.

This project took me...

It took me more than an hour to complete this project.



Set up an S3 bucket

I started my project by creating an S3 bucket because later I will store all the files created in the build process once CodeBuild is set up properly.

The key artifact that this S3 bucket will capture is called the customer data backup. It will securely store periodic snapshots of user data, ensuring easy retrieval and disaster recovery while maintaining data integrity and accessibility.

This artifact is important because it serves as a secure repository for managing software dependencies, ensuring efficient version control, reducing integration issues, and streamlining development processes, ultimately enhancing project reliability.

The screenshot shows the AWS S3 console interface. At the top, there's a header for "General purpose buckets (2)" with links for "Info" and "All AWS Regions". Below the header are buttons for "Create bucket", "Copy ARN", "Empty", and "Delete". A note says "Buckets are containers for data stored in S3." There's a search bar with placeholder text "Find buckets by name". The main area displays a table of two buckets:

| | Name | AWS Region | IAM Access Analyzer | Creation date |
|-----------------------|--|--|--|--|
| <input type="radio"/> | cf-templates-c7fvwsf2l8py-ap-southeast-1 | Asia Pacific (Singapore) ap-southeast-1 | View analyzer for ap-southeast-1 | September 1, 2024, 13:29:28 (UTC+08:00) |
| <input type="radio"/> | nextwork-build-artifacts-emmanuel | Asia Pacific (Singapore) ap-southeast-1 | View analyzer for ap-southeast-1 | October 20, 2024, 14:28:42 (UTC+08:00) |



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Set up a CodeBuild project

Source

My CodeBuild project's Source configuration means I specify where the source code is located for my build, such as a CodeCommit repository, GitHub, or S3 bucket. I selected a CodeCommit repository to automatically build my application from there.

Environment

My CodeBuild project's Environment configuration means defining the runtime environment for the build, including the operating system, programming language, and build image. I selected a managed image for easier setup and maintenance.

Artifacts

My CodeBuild project's Artifacts configuration means that it defines the output files generated by the build process. I selected this to ensure the build results are easily accessible for deployment.

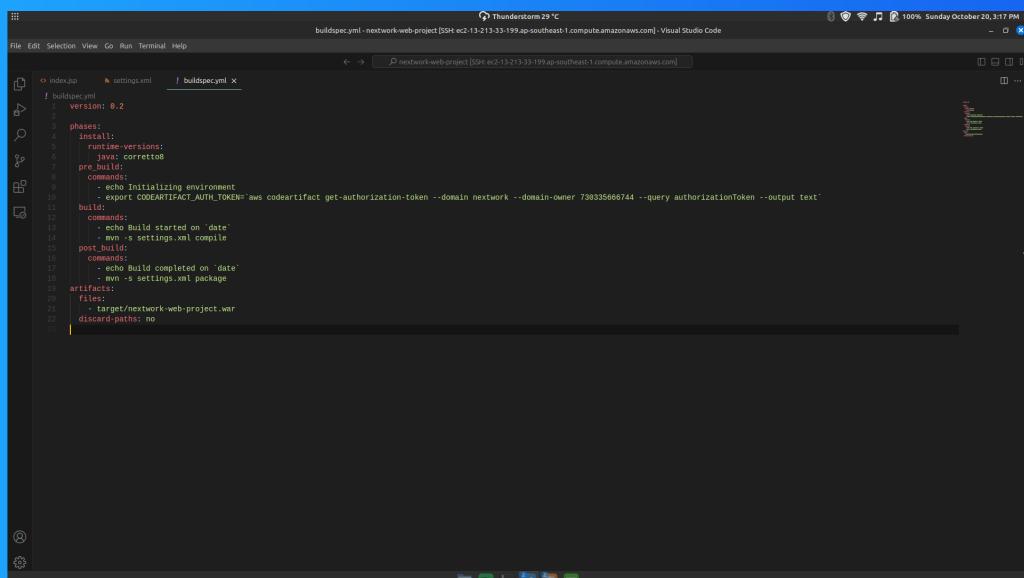
Logs

My CodeBuild project's Logs configuration means I can track the build process and its output. I selected Amazon CloudWatch Logs to store logs for real-time monitoring and AWS S3 to keep a record of logs for future reference and analysis.



Create a buildspec.yml file

I created a buildspec.yml file in my project because it defines the build instructions for AWS CodeBuild. It specifies phases like install, pre_build, build, and post_build, along with environment variables, artifacts, and cache settings.



```
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 738335666744 --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
```



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Create a CodeBuild build project

My buildspec.yml file has four stages

The first two phases in my buildspec.yml file are **install** and **pre_build**. In the install phase, I set up dependencies, and in the pre_build phase, I configure the environment and prepare for the build process.

The third phase in my buildspec.yml file was the `post_build` phase. In this phase, I executed commands to run tests and deploy the application, ensuring everything functioned correctly after the build process.

The fourth phase in my buildspec.yml file was the `post_build` phase. In this phase, I defined commands to run after the build completes, such as running tests or deploying the application, ensuring everything is correctly set up before finalization.

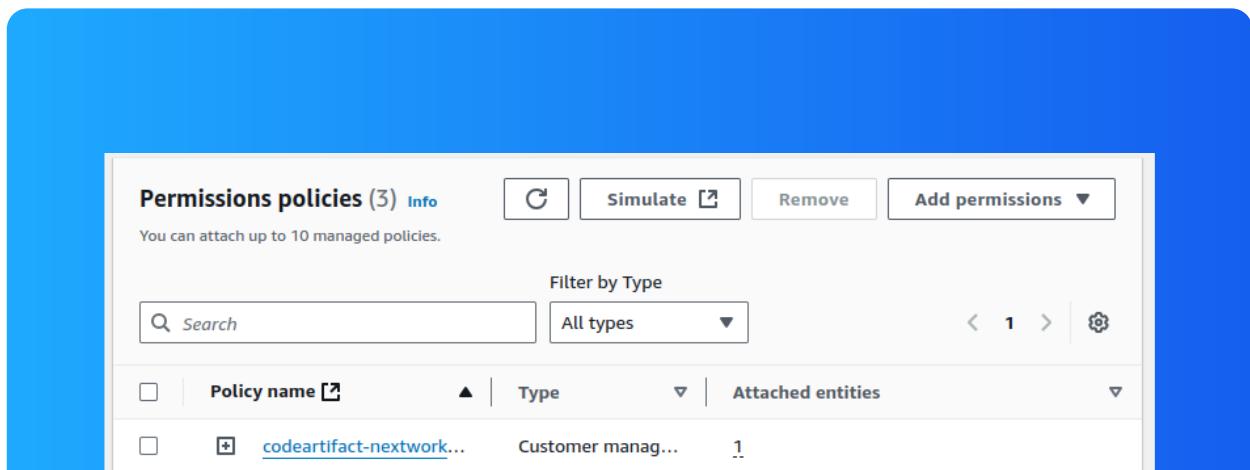
Modify CodeBuild's IAM role

Before building my CodeBuild project, I modified its service role first.

My CodeBuild project's service role was first created when I set up the CodeBuild project for the first time to automate the build and test phases of my application development, ensuring efficient integration and delivery processes.

I attached a new policy called AWSCodeBuildAdminAccess to my CodeBuild role, which was first created on the same day I set up my build project. This policy grants full access to CodeBuild and necessary permissions for related services.

Attaching this policy means enhancing security protocols, streamlining access controls, and ensuring compliance with regulatory standards. It may also improve efficiency in operations while mitigating risks associated with unauthorized access.





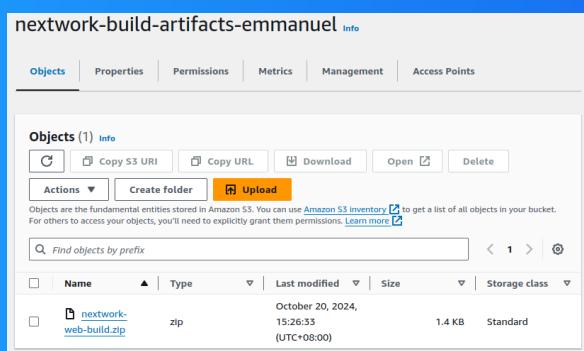
My first project build □

To build my project, all I had to do was configure some settings on my CodeBuild and start building it.

The build process in CodeBuild took less than 5 minutes.

Once the build is complete, I checked my S3 bucket to verify if there is a zip file of the WebApp.

I saw the zip file, which verified that the build was completely successful.





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