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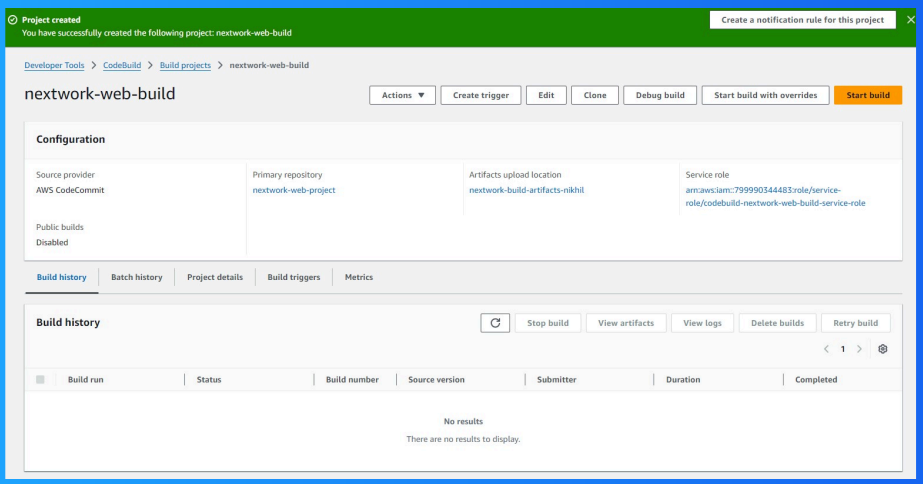
Package an App with CodeBuild

Nikhil Bhan



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Introducing today's project!

What is AWS CodeBuild?

AWS CodeBuild is a fully managed build service in the cloud. Developers can use this service because it can compile their source code, run tests and produce artifact files that will be ready for deployment.

How I used CodeBuild in this project

Today I used AWS CodeBuild to find, build, compile and package my web app project into a WAR file, which would be ready for deployment.

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

I wasn't expecting to learn so much about the technical aspects of the build process and what goes on behind the scenes when specific commands are run.

This project took me...

This project took me almost 2 hours to complete, which includes about 20 minutes to write my documentation.

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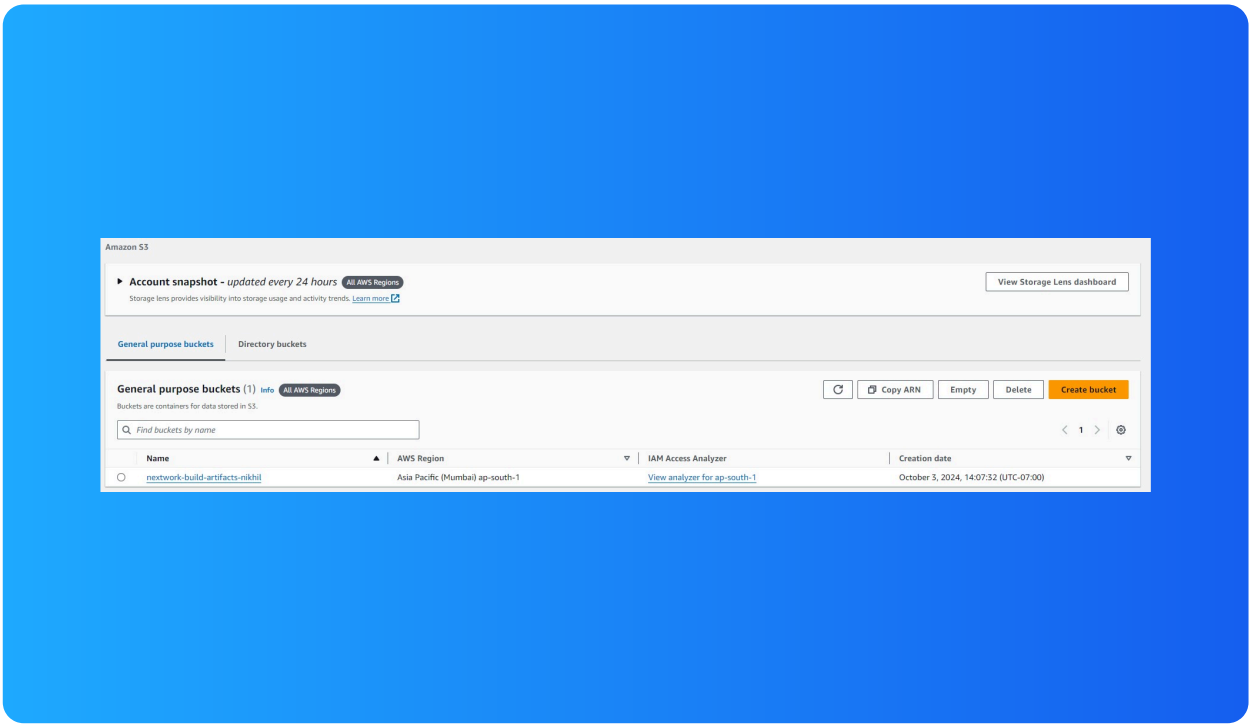
Set up an S3 bucket

I started my project by creating an S3 bucket because it's going to store a file that'll be generated by the build process when I set up and configure AWS CodeBuild.

The key artifact that this S3 bucket will capture is called the Web Application Resource, or WAR file. It's also called Web Application Archive as well.

This artifact is important because any server can unzip this file. The server will find the files and resources it needs to build the web app and host it.



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Set up a CodeBuild project

Source

My CodeBuild project's Source configuration means the location of the files and resources that will be used to build the web app and I selected CodeCommit, since all my project files are there.

Environment

My CodeBuild project's Environment configuration means the software, tools and settings used to have my web app function properly and I selected an On-Demand EC2 instance with Amazon Linux OS with a Standard runtime and an IAM role for permissions.

Artifacts

My CodeBuild project's Artifacts configuration means the files that will be produced by CodeBuild when the project is being built and I selected my S3 bucket. These files will get generated and put into a WAR file before being sent to the bucket.

Logs

My CodeBuild project's Logs configuration means the log files that are collected and stored. These log files collect the details of what happens in CodeBuild's building process and I selected to turn CloudWatch logs on and created a log group name.

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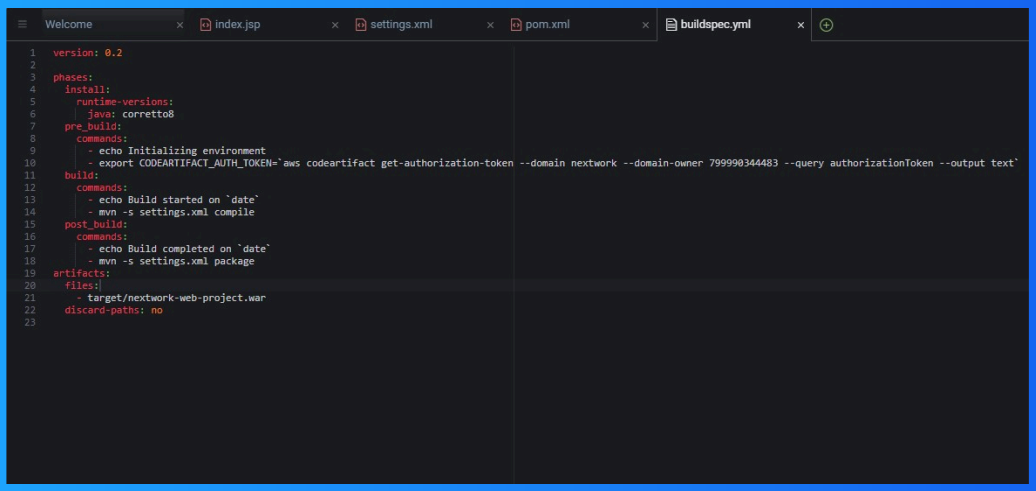
Create a buildspec.yml file

I created a buildspec.yml file in my project because it will configure commands that will be run by CodeBuild to build my web app. The buildspec.yml file ensures that every build goes through the same steps and outputs consistent results.



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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 the install and pre_build. The install phase tells CodeBuild what Java runtime needs to be installed when building the project. The pre_build phase has commands required to run to build the web app.

The third phase in my buildspec.yml file is the build. The 'echo' command shows the date and time when the build process starts. The 'mvn -s settings.xml compile' command tells Maven to compile the project using the settings in settings.xml file.

The fourth phase in my buildspec.yml file is post-build. The build process completion time is shown in the terminal. The 'mvn -s settings.xml package' tells Maven to package the compiled code into a WAR file using settings in the settings.xml file.

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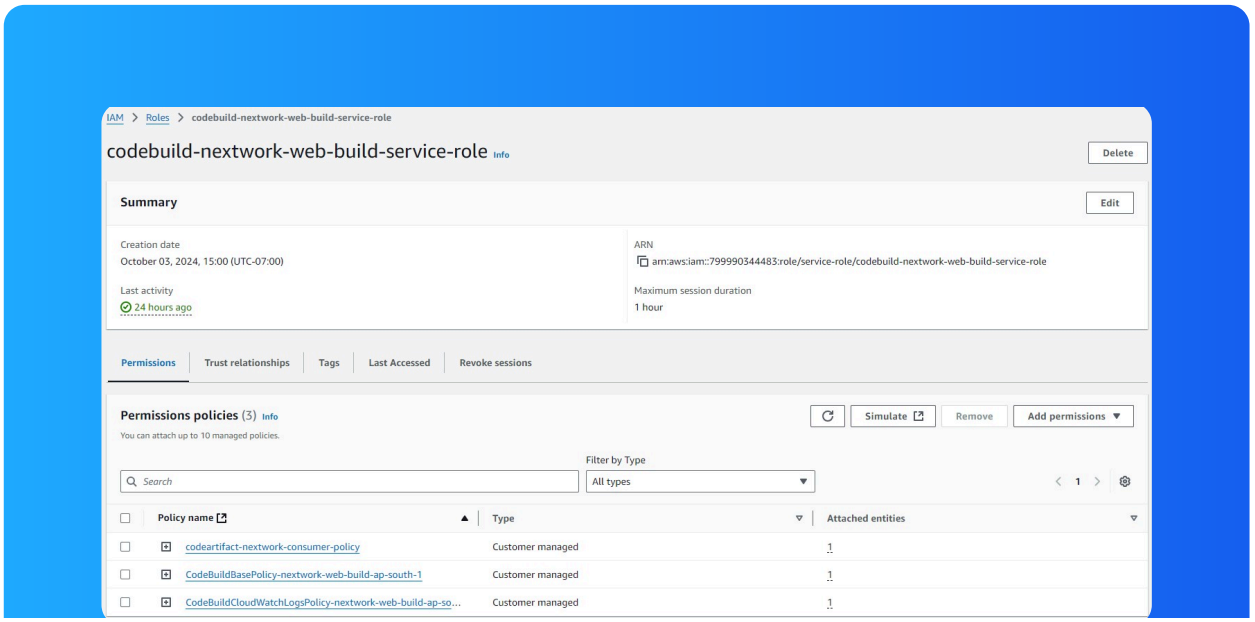
Modify CodeBuild's IAM role

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

My CodeBuild project's service role was first created when I was setting up my CodeBuild project. There was a setting where I was able to choose between using an existing service role or creating a new one. For this project I chose to create one.

I attached a new policy called 'codeartifact-nextwork-consumer-policy' to the list of permissions in my CodeBuild project's IAM role.

Attaching this policy means that my CodeBuild project can use the IAM role to have access to the packages and dependencies in CodeArtifact.



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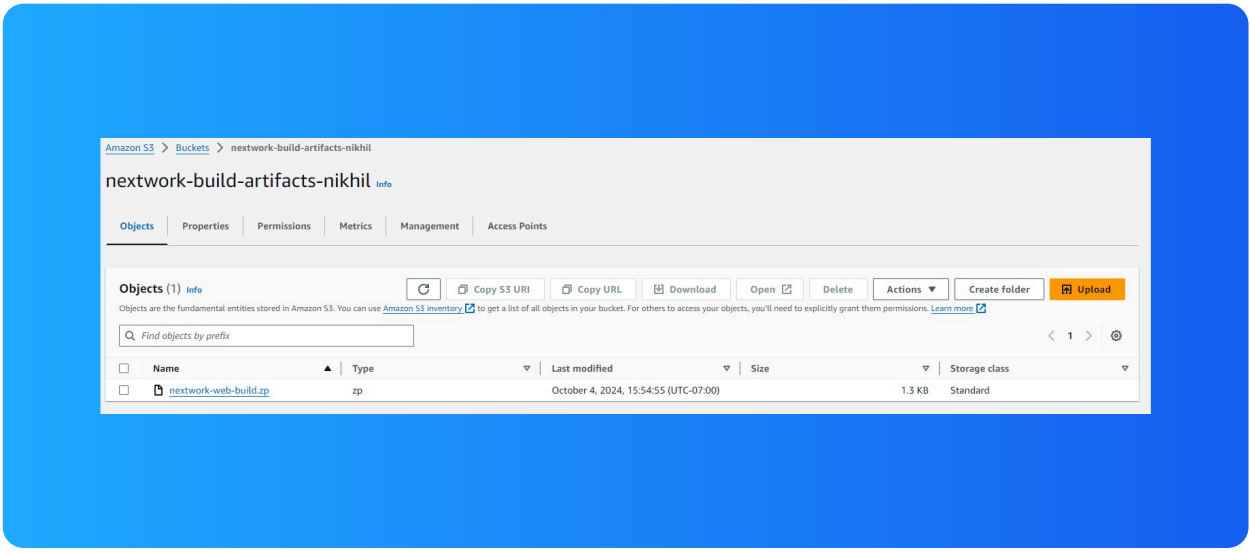
My first project build

To build my project, all I had to do was go to CodeBuild and select it. I clicked on the 'Start Build' button and used the 'Start Now' option.

The build process in CodeBuild took less than 5 minutes to complete. I was able to monitor the status of the building process and it showed 'Succeeded' once it completed.

Once the build was complete, I checked my bucket in S3 because that's where I configured my CodeBuild project to send the WAR file to once they were built and compiled.

I saw a file called 'nextwork-web-build-zp' in my 'nextwork-build-artifacts-nikhil' bucket in S3, which verified that the build was completed successfully.



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