

CI/CD flow for Frontend Application

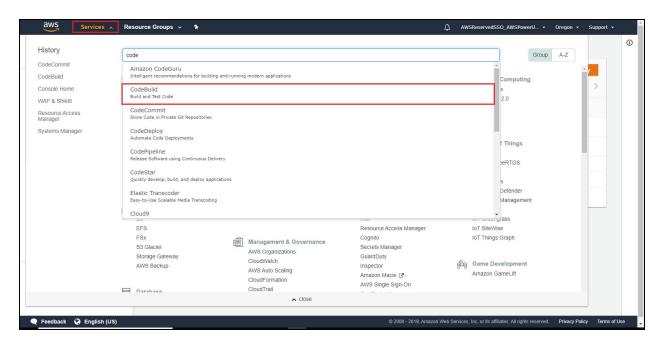
Agenda:

CodeBuild: AWS code build is a fully managed continuous integration service that compiles source code, runs tests, and produces software packages that are ready to deploy. With code build, you don't need to provision, manage, and scale your own build servers. code build scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue. You can get started quickly by using prepackaged build environments, or you can create custom build environments that use your own build tools.

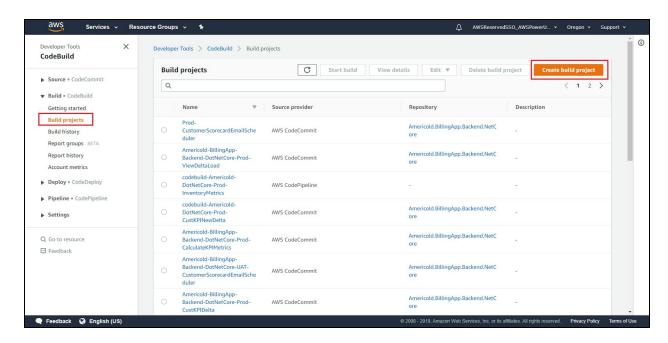
CodePipeline: AWS CodePipeline is a fully managed continuous delivery service that helps you automate your release pipelines for fast and reliable application and infrastructure updates. CodePipeline automates the build, test, and deploy phases of your release process every time there is a code change, based on the release model you define. This enables you to rapidly and reliably deliver features and updates. You can easily integrate the AWS code pipeline with third-party services such as git hub or with your own custom plugin.

By the end of the document, we learn how to create a CI-CD pipeline for angular applications.

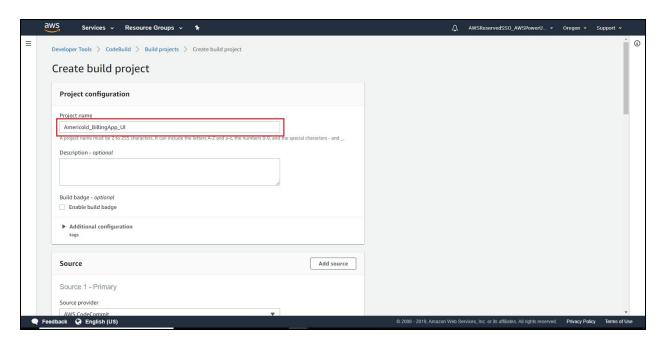
First, we need to login to the AWS console and search for **CodeBuild** service.



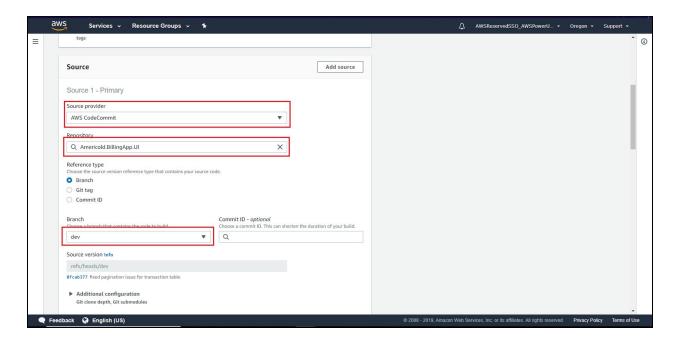
Go to build projects and click on **create build project** to create a new build project for integration.



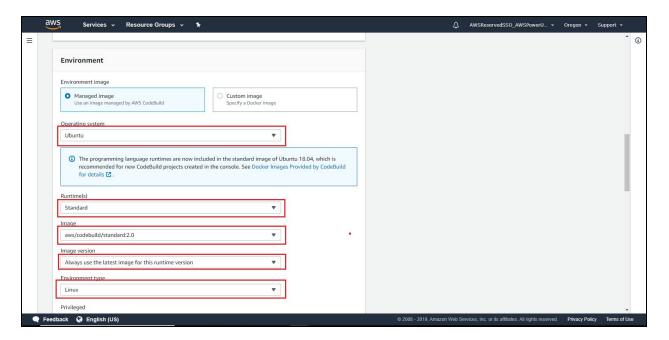
Enter the name of the project.

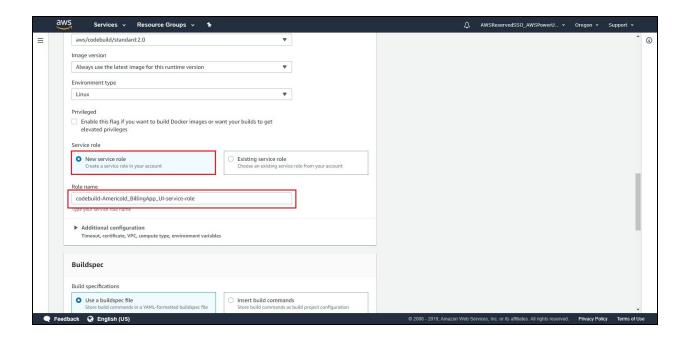


Under the source section, select the source provider as **AWS CodeCommit**, select the repository and branch as shown below.

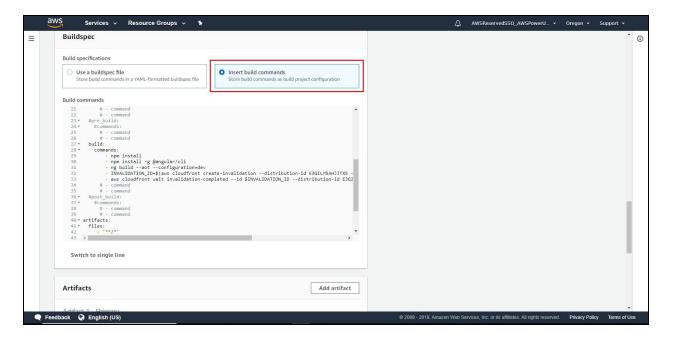


Under the environment section, we took the managed image that is provided by AWS, Operating system as Ubuntu, runtime as standard, Image as standard 2.0 version, image version as always latest, environment type as Linux and created new service role for the code build.

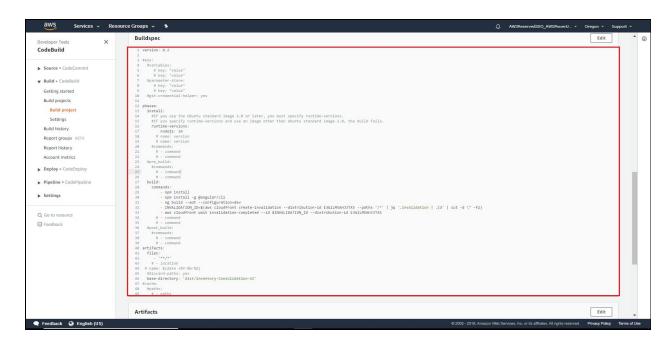




Under the build spec section, choose an option as **insert build commands** to edit the **buildspec.yml** file from console. buildspec.yml file has a set of commands for integration and deployment.



Configure the respective stages as per requirement in the **buildspec.yml file** as shown below.



Below is the step by step explanation for the above script:

Install stage:

• runtime-versions:

nodejs: 10: It defines the runtime environment and version for the application

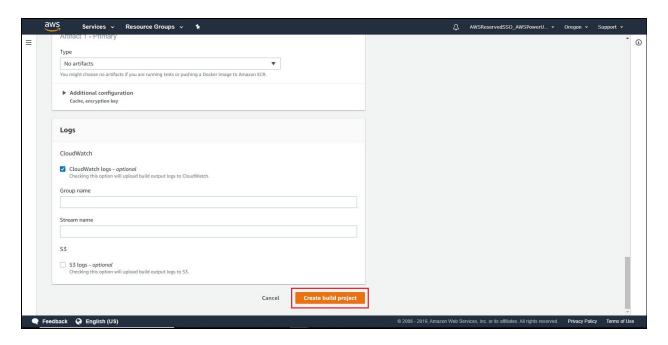
Build Stage:

- **npm install:** Install node modules using the following command
- npm install -g @angular/cli: Install angular cli using the following command
- ng build --aot --configuration=dev: Generate build artifact using the following command
- INVALIDATION_ID=\$(aws cloudfront create-invalidation --distribution-id E3GILM5AHJJTX5 --paths '/*' | jq '.Invalidation | .Id' | cut -d \" -f2) : Create invalidation for cloudfront distribution to clear cache
- aws cloudfront wait invalidation-completed --id \$INVALIDATION_ID --distribution-id E3GILM5AHJJTX5: Wait for invalidation to be completed

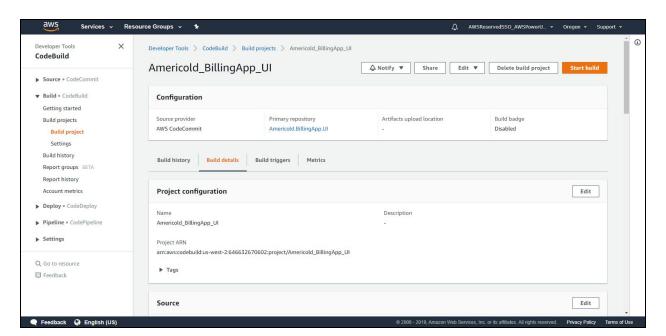
Artifacts:

- '**/*': To make all files into an Artifact use this regular expression
- base-directory: 'dist/Inventory-Consolidation-UI': Mention the artifact path as base-directory

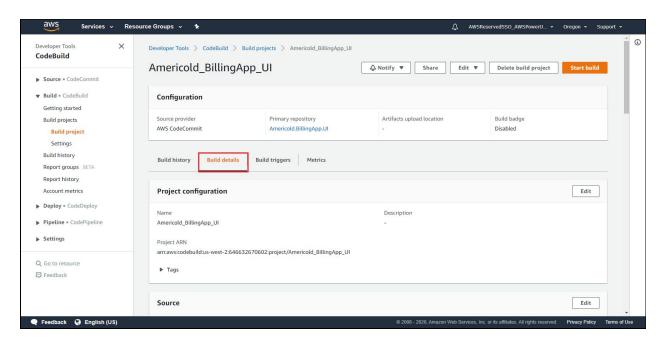
We are enabling cloud watch logs to check the build logs. Once all the configurations were done, click on **create build project.**



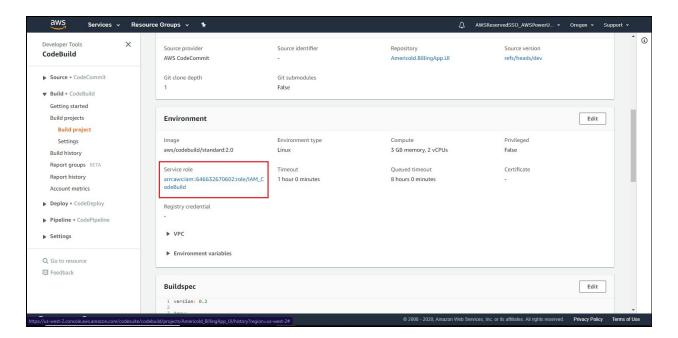
The new build project has been created and the dashboard is shown below.



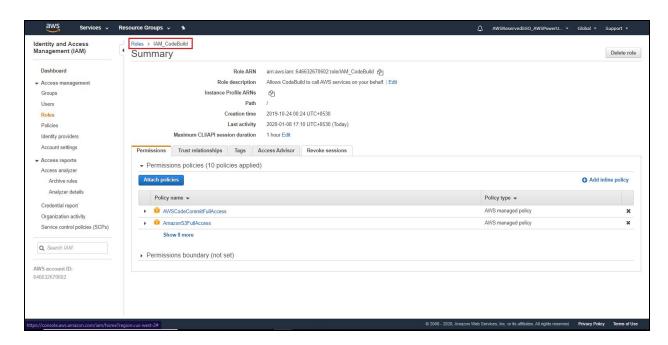
Goto details and goto the **environment section** in build details.



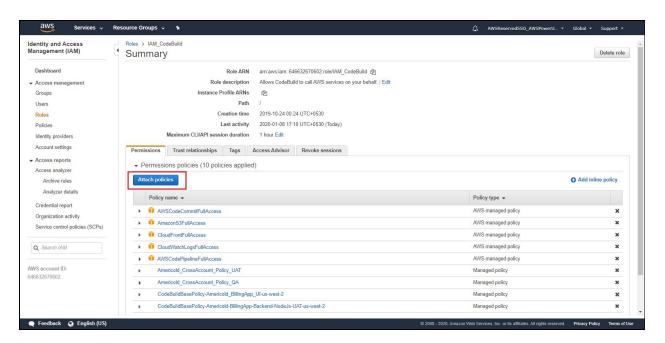
Click on service role which is a new service role created while configuring code build. It will redirect us to the **IAM console**.



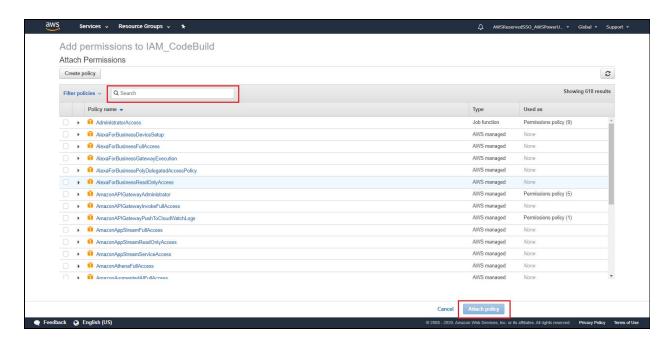
The IAM role dashboard will be as shown below and we need to add the required policies to access the AWS services for application deployment through code build.



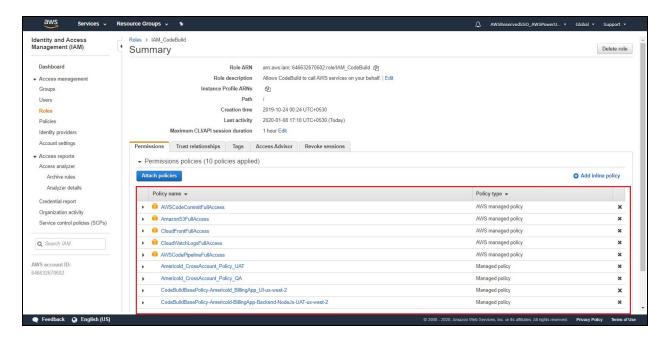
Click on attach policies to add the policies for the IAM role.



Search for the required policy and select the checkboxes and click on attach policies.

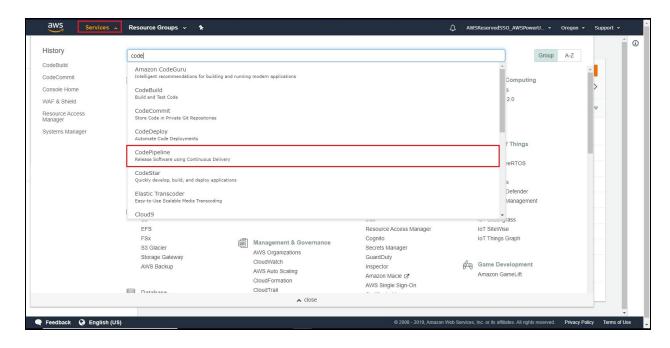


Here we have attached the policies for code commit, S3, cloud front, cloud watch logs, code pipeline, and cross-account policy.

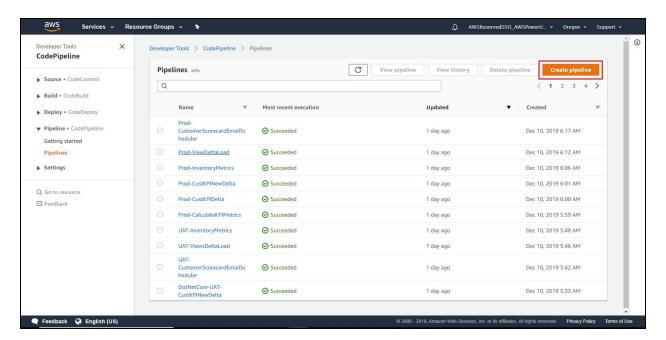


We are going to automate the process for integration and deployment using CodePipeline.

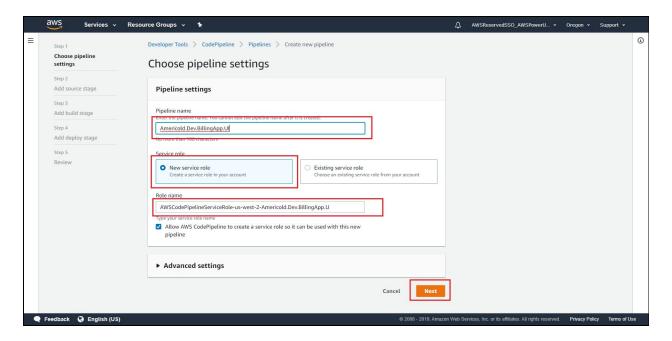
Goto CodePipeline service in AWS console.



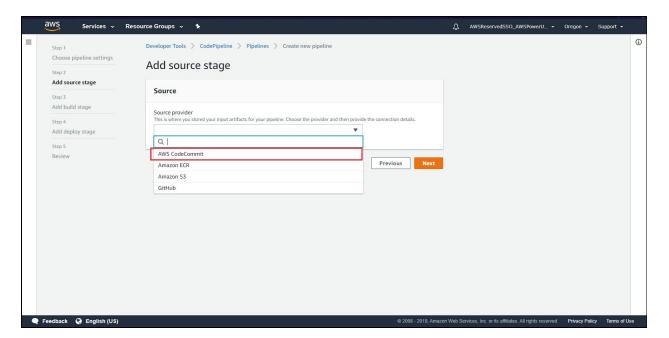
Click on **create pipelines** to create a new pipeline for automated CI/CD.



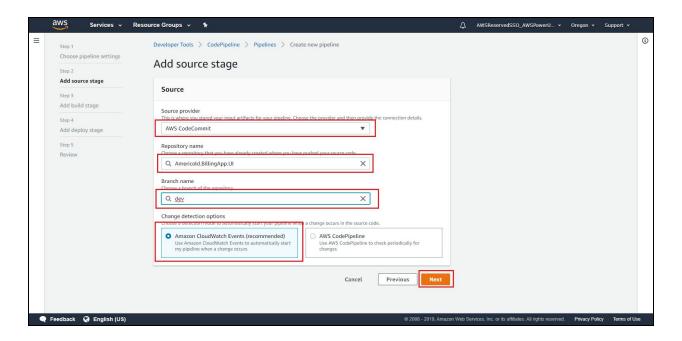
Enter the name of the pipeline and choose the service role as a new service role and click on **Next** as shown below. Here a new IAM service role will be created for code pipeline.



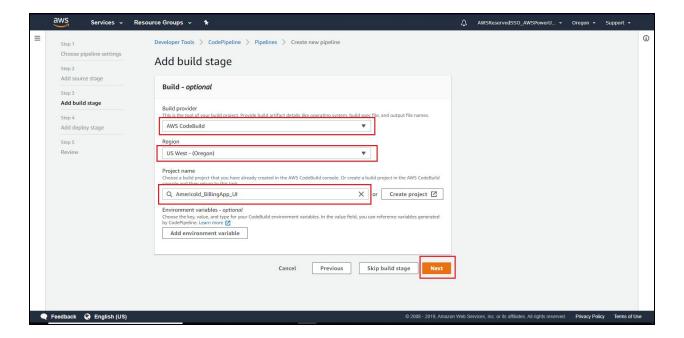
Under the add source stage, select the source provider as **AWS code commit**.



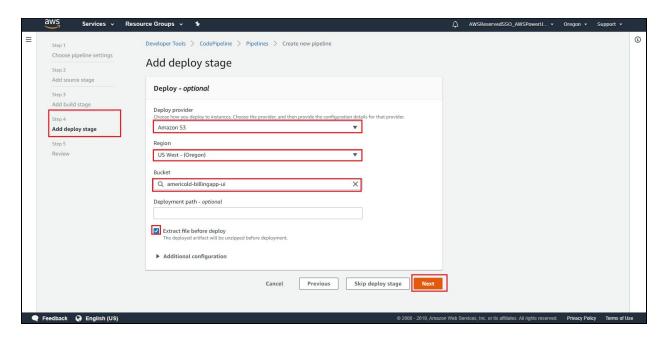
Select the name of the repository and branch name. Choose the change detection options as amazon cloudwatch events to enable cloudwatch logs for the pipeline and click on **Next** to go to build configuration.



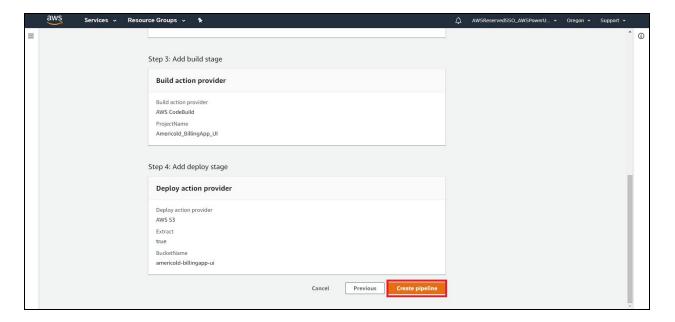
Under add build stage, select the build provider as **AWS code build**, the region as **US West – (Oregon)**, select the build project name that we created in the above steps and click on **Next** as shown below.



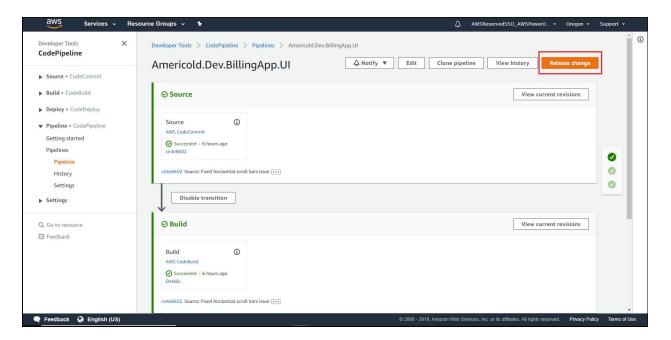
In deploy stage select S3 as deploy provider, a region of the bucket, name of the bucket and select extract before deploying and click on next.



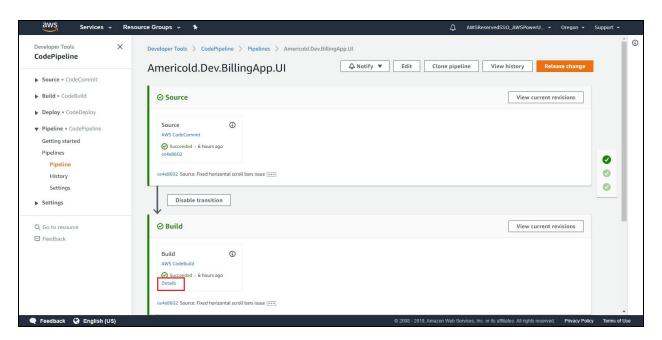
Review the pipeline and click on create a pipeline.



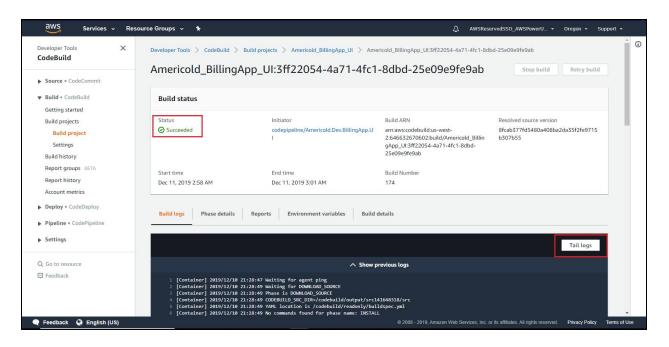
After Click on release change to start the CI/CD pipeline.



We can see the process is automated for CI/CD. We can check the stage logs by clicking on the details. The pipeline will trigger automatically for the first time to release changes and later it will be triggered when the new changes are committed to the repository.



We can check the build logs here.





After completing the CI/CD we can check the updated data in the S3 bucket.

