



AWS CodeBuild
By EJ and Kyrstn

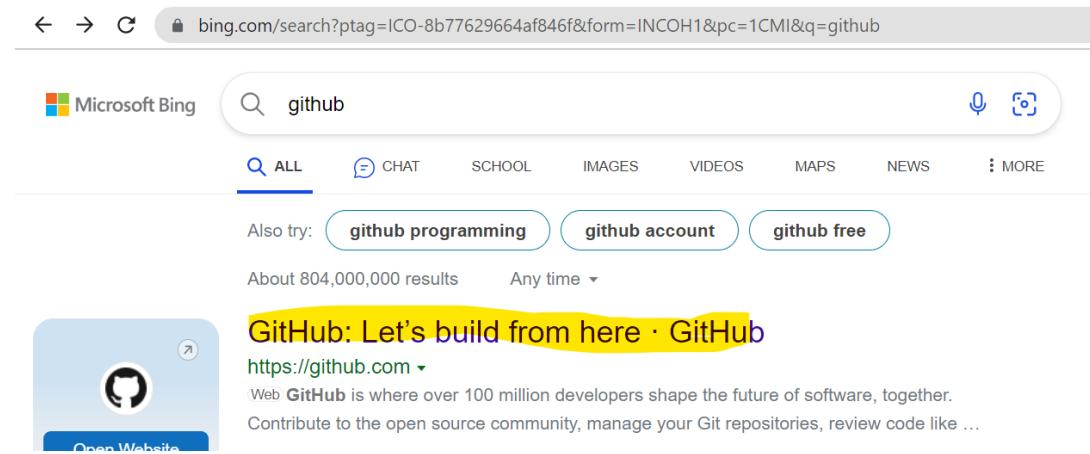
Instructions to set up for GitHub:

Disclaimer: Before starting the demo, make sure you have a GitHub account. This will be important as it will be used for this demo to import onto the CodeBuild demo since we will not have to create a repository on CodeCommit.

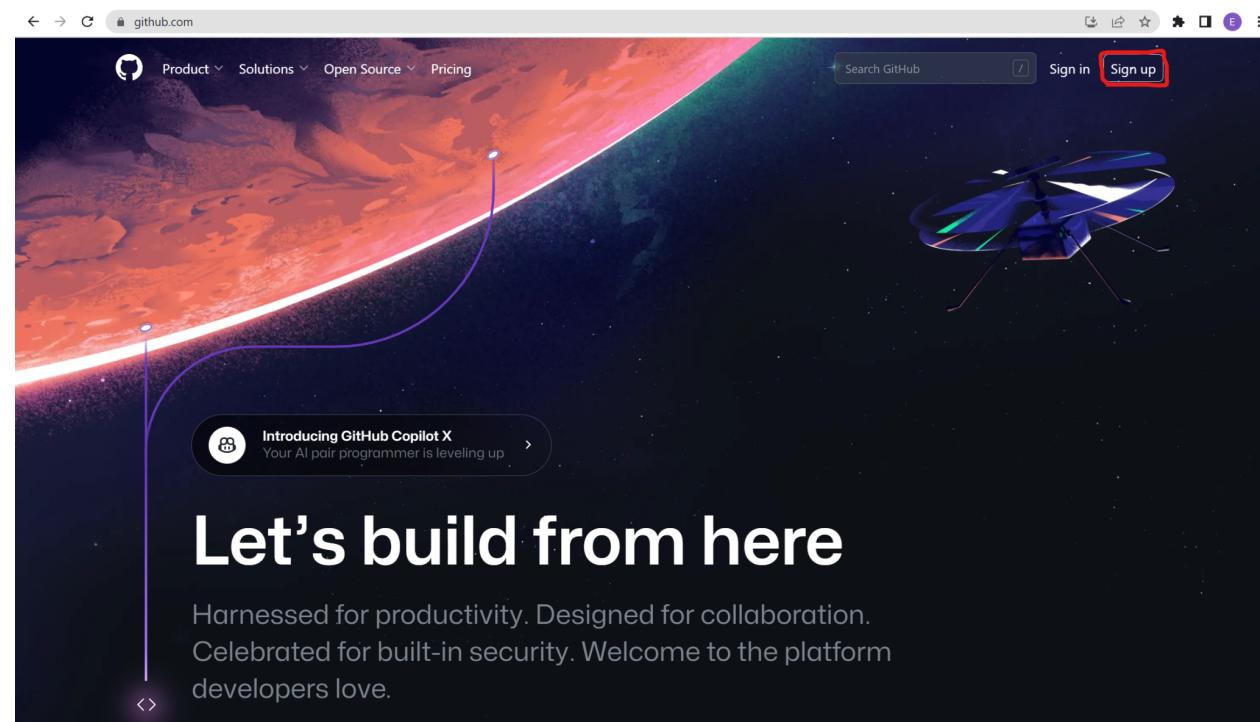
If you do not have a GitHub account feel free to follow these steps. Feel free to skip this step if you currently have a GitHub account by clicking [here](#).

Prologue of demo:

Step 1: Search up “github” on the search bar.



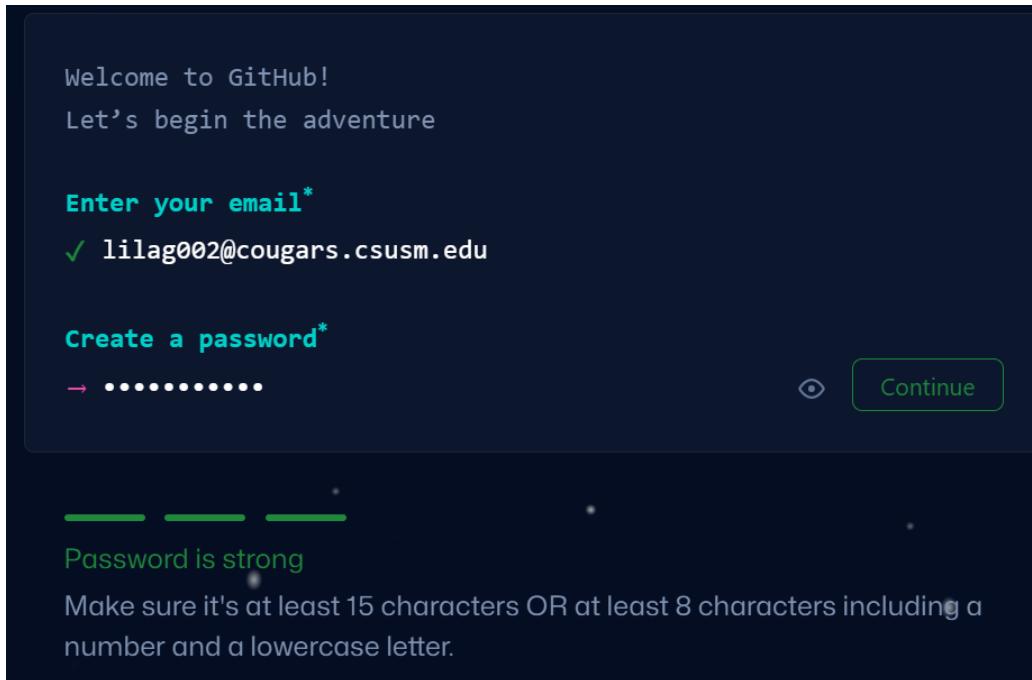
Step 2: Click on “Sign up” which is located on the top right of the screen (outlined in red.)



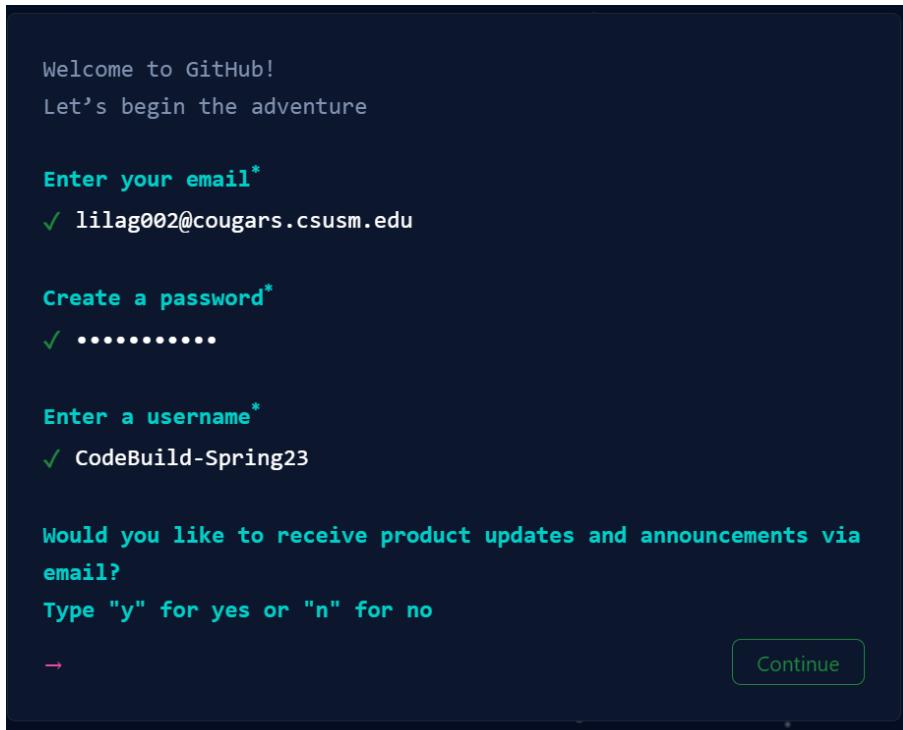
Code Build Demo

3

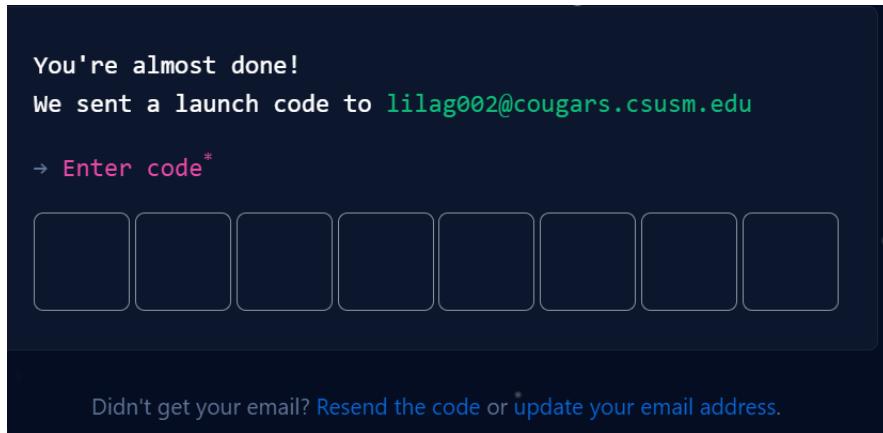
Step 3: While this is launched, follow the directions as prompted on screen and press continue.



Step 4: Create a username of your interest. For this example, I will be called "CodeBuild-Spring23." From there click y, and create account.



Step 5: Check your email and enter the code.



Step 6: Once you input your code, answer this portion and press continue. Same applies to the next page that gets displayed.

How many team members will be working with you?

This will help us guide you to the tools that are best suited for your projects.

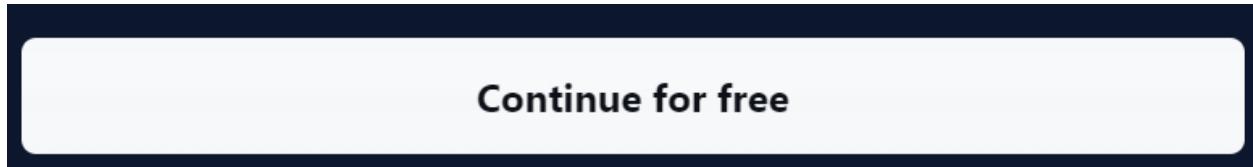
Just me	2 - 5	5 - 10
10 - 20	20 - 50	50+

Are you a student or teacher?

Student	Teacher
---------	---------

Continue

Step 7: From here press this to get create your account on github.



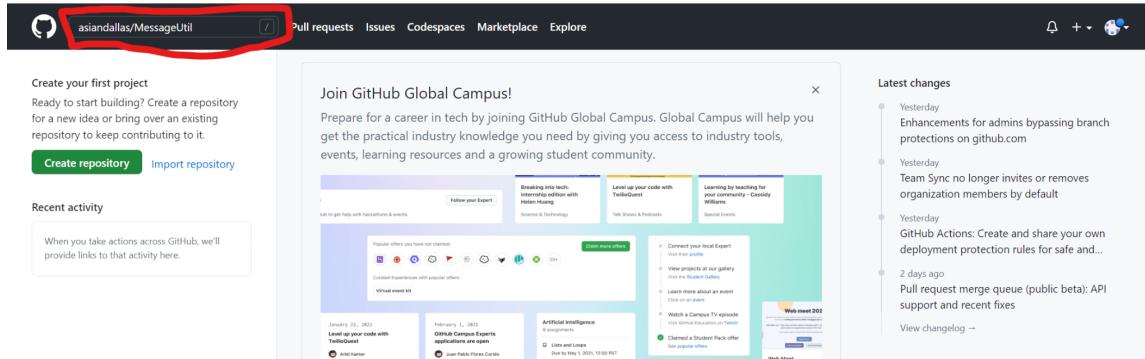
Code Build Demo

5

Demo:

Step 1: Once creating your account on GitHub, search the following on the search tab.

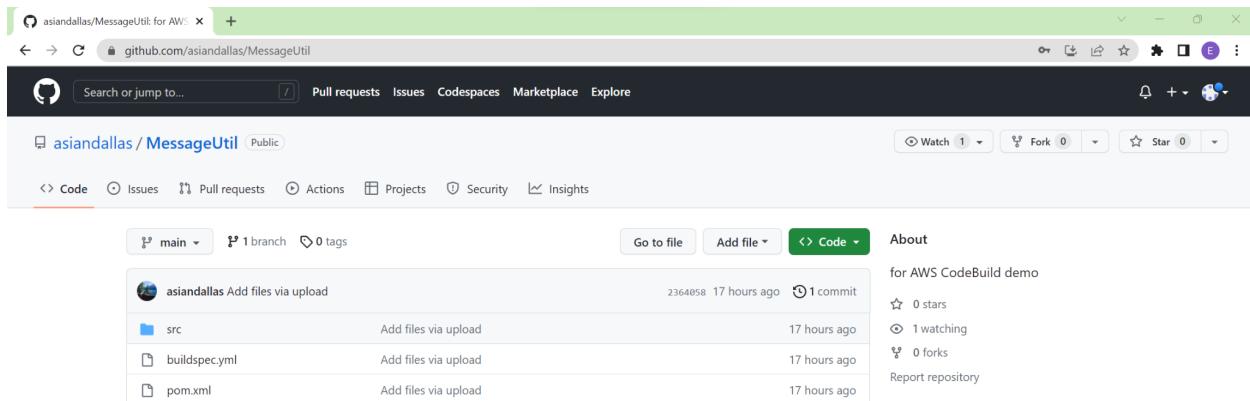
Search up ⇒ `asiandallas/MessageUtil`



Step 2: After it is being searched, click on the result as shown in the screenshot.

The screenshot shows the GitHub search results page. The search bar at the top has "asiandallas/MessageUtil" typed into it. Below the search bar, there's a "Beta" button and a "Try the all-new, faster and more powerful search experience" message. The main area shows "1 repository result" for "asiandallas/MessageUtil". The repository details are highlighted with a red box. The repository was created for AWS CodeBuild demo, is in Java, and was updated 17 hours ago.

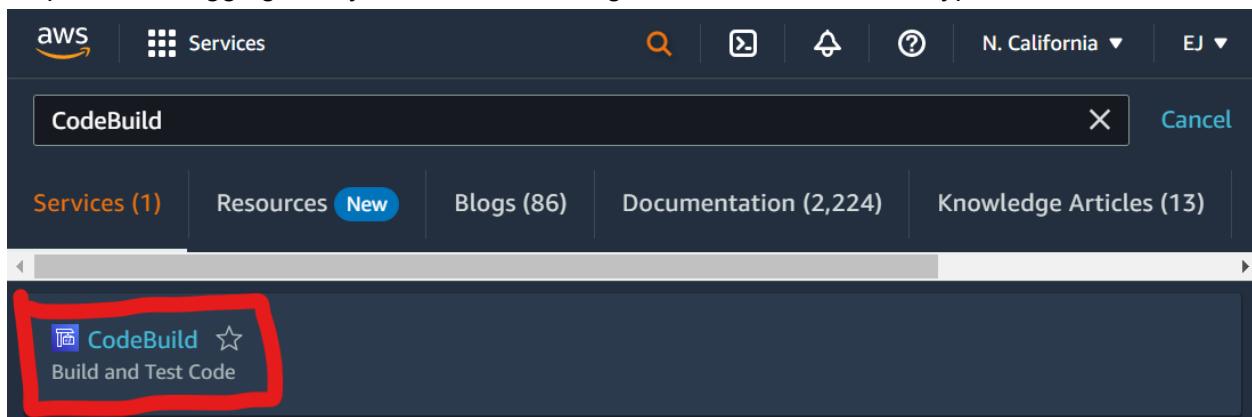
Step 3: Once launched, create a new tab to start the demo.



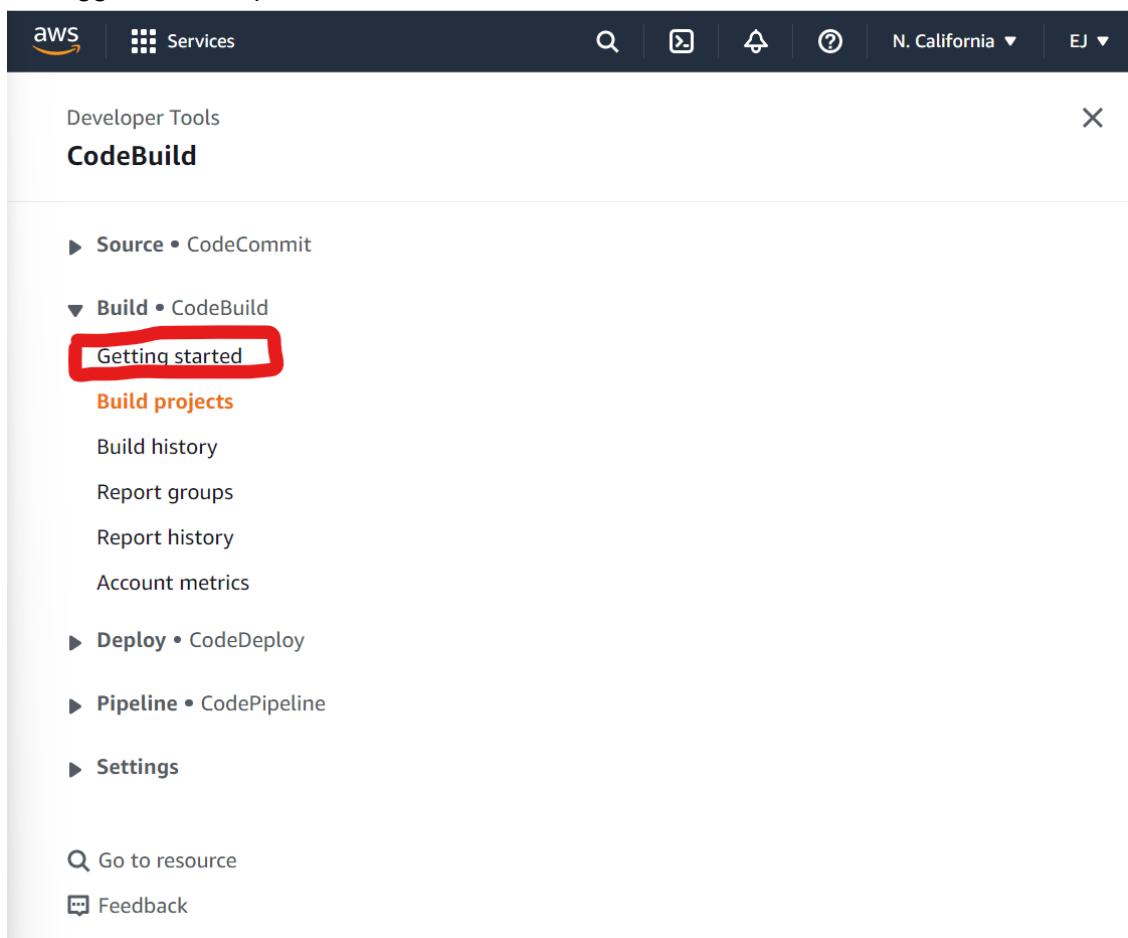
Code Build Demo

6

Step 4: Once logging in to your AWS account, go to the search bar and type CodeBuild



Step 5: When launched, select Getting started outlined in red. This can be found from clicking the toggle on the top left of the screen.



Step 5: Press the orange button

Developer Tools

AWS CodeBuild

Build and test code with elastic scaling. Pay only for the build time you use.

AWS CodeBuild is a fully managed continuous integration service that compiles source code, runs tests, and produces software packages that are ready to deploy. With CodeBuild, you don't need to provision, manage, and scale your own build servers. CodeBuild scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue.

Create AWS CodeBuild project

Get started with AWS CodeBuild by creating your first build project.

[Create project](#)

Step 6: Follow the layout as provided in the photo.

Create build project

Project configuration

Project name

codebuild-demo

A project name must be 2 to 255 characters. It can include the letters A-Z and a-z, the numbers 0-9, and the special characters - and _.

Description - *optional*

My first codebuild

Build badge - *optional*

Enable build badge

Enable concurrent build limit - *optional*

Limit the number of allowed concurrent builds for this project.

Restrict number of concurrent builds this project can start

► Additional configuration

tags

What can be noted for the following options:

Build badge: (not required), this is used to indicate the status of the latest build of the project

Enable concurrent build limit: (not required), enter the maximum number of builds for the project.

Tags: (not required), used to identify and organize AWS resources.

Code Build Demo

9

Step 7: Scroll down to source, and follow the instructions on the photo. Press “Connect to GitHub” after filling out the following in the photo.

Source

Add source

Source 1 - Primary

Source provider

GitHub ▾

Repository

AWS CodeBuild needs access to your GitHub account to display available repositories.

Connect using OAuth

Connect with a GitHub personal access token

Connect to GitHub

Source version - *optional* [Info](#)

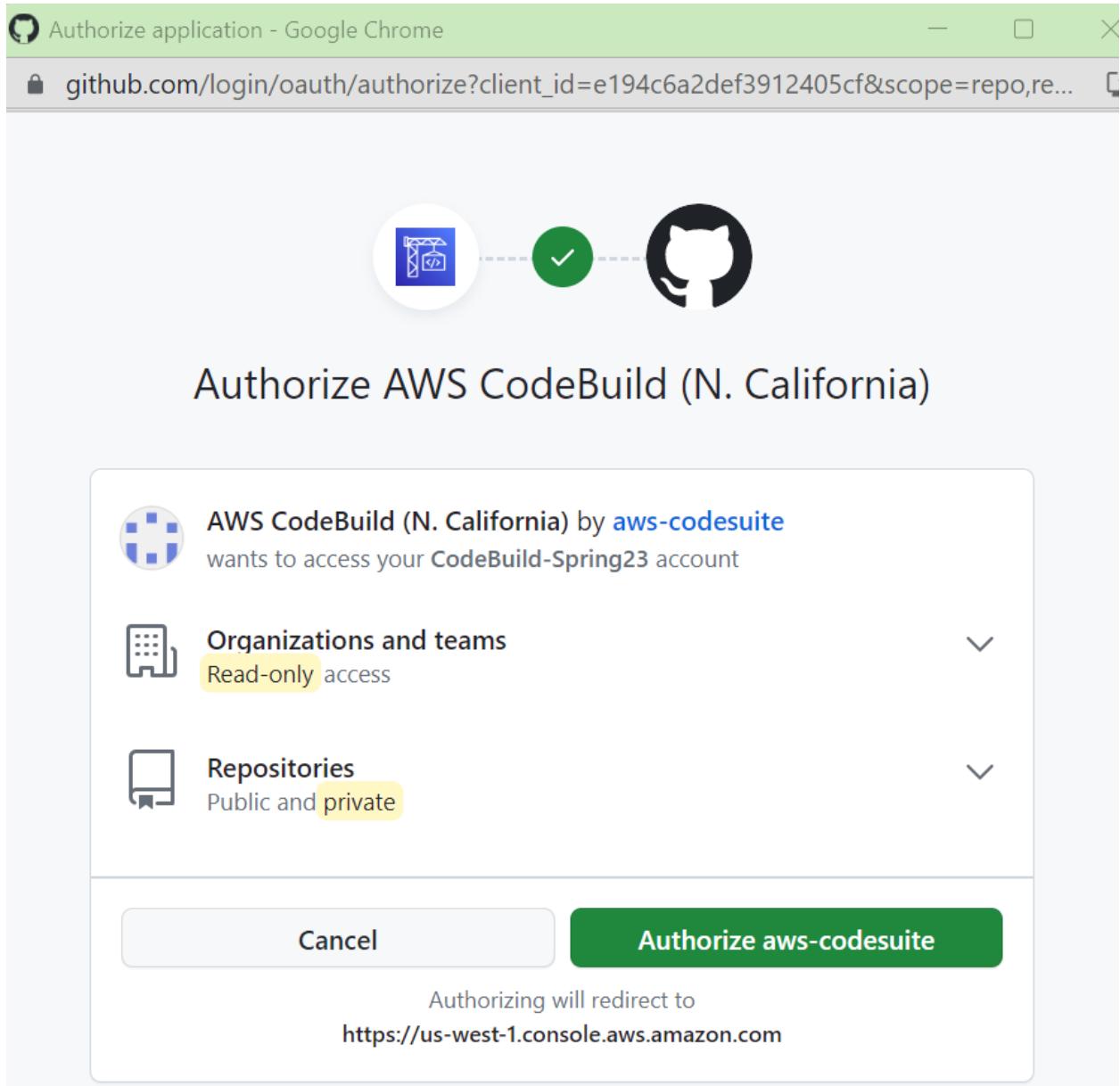
Enter a pull request, branch, commit ID, tag, or reference and a commit ID.

► Additional configuration
Git clone depth, Git submodules

Code Build Demo

10

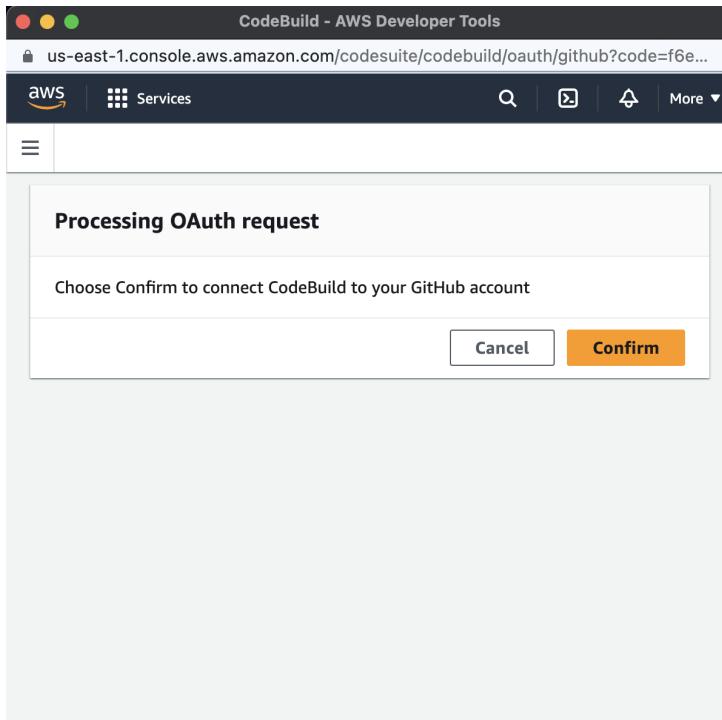
Step 8: Side panel opens, and click the green button



Code Build Demo

11

Step 9: Press Confirm, which will direct you back to the code build.



Step 10: You will receive an email that you have made or used from GitHub. Keep note that I used my school email for this demo, which is why it was sent on outlook, but should work the same if email was on gmail. Feel free to disregard at the moment when you receive the email. Clicking the link to visit will just show you that you have permission to use CodeBuild on your account.

[GitHub] A third-party OAuth application has been added to your account



[CAUTION - EXTERNAL SENDER]

Hey CodeBuild-Spring23!

A third-party OAuth application (AWS CodeBuild (N. California)) with read:org and repo scopes was recently authorized to access your account.

Visit <https://github.com/settings/connections/applications/e194c6a2def3912405cf> for more information.

To see this and other security events for your account, visit <https://github.com/settings/security-log>

If you run into problems, please contact support by visiting <https://github.com/contact>

Thanks,
The GitHub Team

Code Build Demo

12

The screenshot shows a GitHub profile page for 'CodeBuild-Spring23'. The top navigation bar includes links for 'Pull requests', 'Issues', 'Codespaces', 'Marketplace', and 'Explore'. On the right, there are icons for notifications, a plus sign, and a user profile. The main area displays the user's public profile information, including their name 'CodeBuild-Spring23', their account status as 'Your personal account', and a link to 'Go to your personal profile'. A sidebar on the left lists options like 'Public profile', 'Account', 'Appearance', 'Accessibility', and 'Notifications'. Below the sidebar, tabs for 'Access' and 'Permissions' are visible, with a 'Revoke access' button.

At any time you can choose to revoke access. Revoking it, will not permanently remove your whole status of the CodeBuild, but it will just revert back to [step 7](#).

Step 11: With updated source, copy the following instructions as provided.
Copy link of github ⇒ <https://github.com/asiandallas/MessageUtil>

The screenshot shows the 'Source' configuration page for an AWS CodeBuild project. The 'Source' tab is selected. It displays the primary source configuration: a GitHub provider for a public repository at <https://github.com/asiandallas/MessageUtil>. The 'Repository URL' field contains the same URL. Below the source configuration, there is a 'Connection status' section indicating an OAuth connection to GitHub, a 'Disconnect from GitHub' button, and an optional 'Source version' input field. At the bottom, there is a section for 'Additional configuration' related to Git clone depth and submodules.

**Additional configuration will not be needed for this demo.

Code Build Demo

13

Step 12: Scroll down to Environment and fill in the dropdowns as provided in the photo.

The screenshot shows the AWS CodeBuild console with the 'Environment' tab selected. The configuration fields visible include:

- Environment image:** A radio button for "Managed image" is selected, with the sub-instruction "Use an image managed by AWS CodeBuild". An alternative "Custom image" option is shown with the sub-instruction "Specify a Docker image".
- Operating system:** Set to "Amazon Linux 2".
- Runtime(s):** Set to "Standard".
- Image:** Set to "aws/codebuild/amazonlinux2-aarch64-standard:2.0".
- Image version:** Set to "Always use the latest image for this runtime version".
- Privileged:** An unchecked checkbox with the instruction "Enable this flag if you want to build Docker images or want your builds to get elevated privileges".
- Service role:** A radio button for "New service role" is selected, with the sub-instruction "Create a service role in your account". An alternative "Existing service role" option is shown with the sub-instruction "Choose an existing service role from your account".
- Role name:** Set to "codebuild-demo-role".

**Note that runtime will be standard to keep on the default version. Image would just specify the full path for the code pipeline to access.

Code Build Demo

14

Step 13: Still on Environment, open the Additional Configuration arrow and fill in the data from the image below.

▼ Additional configuration
Timeout, certificate, VPC, compute type, environment variables, file systems

Timeout
Default timeout is 1 hour

Hours: 1 Minutes: 0
Timeout must be between 5 minutes and 8 hours

Queued timeout
Default time in build queue is 8 hours

Hours: 8 Minutes: 0
Timeout must be between 5 minutes and 8 hours

Certificate
If you have a self-signed certificate or a certificate signed by a certification authority, choose the option to install it from your S3 bucket.

Do not install any certificate Install certificate from your S3 bucket

VPC
Select a VPC that your AWS CodeBuild project will access.

Compute
 4 GB memory, 2 vCPUs 16 GB memory, 8 vCPUs

Environment variables

Name	Value	Type	Remove
<input type="text"/>	<input type="text"/>	<input type="button" value="Plaintext"/>	<input type="button" value="Remove"/>

File systems

Identifier	ID	Directory path - optional	Remove
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Remove"/>

Mount point **Mount options - optional**

**Note, Certificate will not be needed as we did not connect an S3 bucket onto the CodeBuild since we used GitHub to deploy our repository. Others will be kept blank as there will not be much to be added.

Step 14: Scroll down to Buildspec. This will be important for CodeBuild to generate since the YAML file needs to be read.

Buildspec

Build specifications

Use a buildspec file
Store build commands in a YAML-formatted buildspec file

Insert build commands
Store build commands as build project configuration

Buildspec name - optional
By default, CodeBuild looks for a file named buildspec.yml in the source code root directory. If your buildspec file uses a different name or location, enter its path from the source root here (for example, buildspec-two.yml or configuration/buildspec.yml).

Step 15: Leave everything as is for Batch Configuration, Artifacts, and Logs. Press Create build project once completed.

Logs

CloudWatch

CloudWatch logs - *optional*
Checking this option will upload build output logs to CloudWatch.

Group name

Stream name

S3

S3 logs - *optional*
Checking this option will upload build output logs to S3.

[Cancel](#) [Create build project](#)

Step 16: Once created, this page should be open.

AWS Services Search [Option+S]

CodeBuild

Project created
You have successfully created the following project: codebuild-demo

Create a notification rule for this project

Developer Tools > CodeBuild > Build projects > codebuild-demo

codebuild-demo

Notify Share Edit Delete build project Start build with overrides Start build

Configuration

Source provider GitHub	Primary repository asianDallas/MessageUtil	Artifacts upload location -	Build badge Disabled
Public builds Disabled			

Build history Batch history Build details Build triggers Metrics

Build history

C Stop build View artifacts View logs Delete builds Retry build

Build run	Status	Build number	Source version	Submitter	Duration	Completed
No results There are no results to display.						

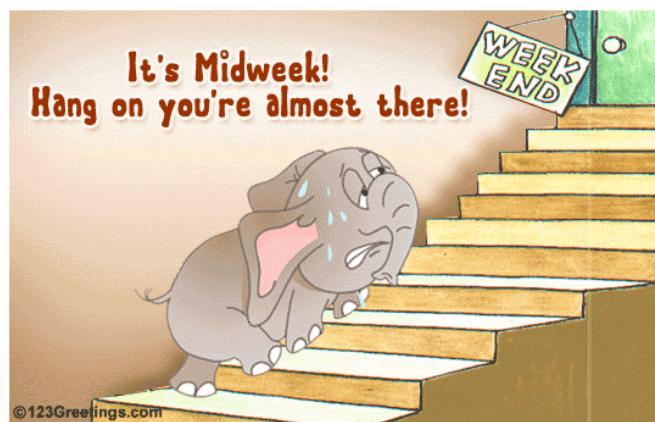
Code Build Demo

16

Step 17: Click on Start Build as indicated on the top right of the screen. At average, this will take a good five minutes to complete.

The screenshot shows the AWS CodeBuild console. On the left, there's a sidebar with navigation links: Source • CodeCommit, Build • CodeBuild (selected), Getting started, Build projects (Build project is highlighted in orange), Settings, Build history, Report groups, Report history, Account metrics, Deploy • CodeDeploy, Pipeline • CodePipeline, and Settings. Below these are Go to resource and Feedback links. The main content area has a green header bar stating "Build started" with a checkmark icon. It says "You have successfully started the following build: codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac". Below this, the breadcrumb navigation shows Developer Tools > CodeBuild > Build projects > codebuild-demo > codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac. The main title is "codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac". There are two buttons: "Stop build" and "Retry build". A "Build status" section displays the following details:

- Status: In progress
- Initiator: root
- Build ARN: arn:aws:codebuild:us-west-1:668444490235:build/codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac
- Resolved source version: -
- Start time: Apr 21, 2023 9:10 PM (UTC-7:00)
- End time: (not visible)



Step 18: After its finished processing, the build will indicate that the status has been a success.

Build started X

You have successfully started the following build: codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac

codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac

Stop build Retry build

Build status

Status	<input checked="" type="checkbox"/> Succeeded
Initiator	root
Build ARN	arn:aws:codebuild:us-west-1:668444490235:build/codebuild-demo:845a7014-9ebc-41b2-b4ed-08295eb31fac
Resolved source version	236405834d427ba0f4d13829cfb3adc0a0fbba10
Start time	Apr 21, 2023 9:10 PM (UTC-7:00)
End time	Apr 21, 2023 9:15 PM (UTC-7:00)
Build number	1

Code Build Demo

18

Some Considerations:

[Skip to step 19](#)

If you scroll down to “Build logs,” it breaks down the repository of what is being read. As prompted, CodeBuild has displayed 725 lines of building the log.

The screenshot shows the AWS CodeBuild interface. At the top, there are tabs for "Build logs", "Phase details", "Reports", and "Environment variables". Below these, there are two sub-tabs: "Build details" and "Resource utilization". The "Build logs" tab is selected. In the main content area, it says "Showing the last 725 lines of the build log." followed by a link "View entire log". To the right of this link is a button labeled "Tail logs". Below this, there is a section titled "Show previous logs" with a downward arrow icon. The log output itself starts with:

```
1 [Container] 2023/04/22 04:14:28 Waiting for agent ping
2 [Container] 2023/04/22 04:14:29 Waiting for DOWNLOAD_SOURCE
3 [Container] 2023/04/22 04:14:34 Phase is DOWNLOAD_SOURCE
4 [Container] 2023/04/22 04:14:34
CODEBUILD_SRC_DIR=/codebuild/output/src623018428/src/github.com/asi
andallas/MessageUtil
5 [Container] 2023/04/22 04:14:34 YAML location is
/codebuild/output/src623018428/src/github.com/asiandallas/MessageUt
il/buildspec.yml
```

On phase details, this is a sample of the following phases that occurred when running the CodeBuild (given the duration of the time to wait.)

The screenshot shows the AWS CodeBuild interface with the "Phase details" tab selected. Below the tabs, there is a section titled "Resource utilization". The main content area displays a table of build phases:

Name	Status	Context	Duration	Start time	End time
SUBMITTED	✔ Succeeded	-	<1 sec	Apr 21, 2023 9:10 PM (UTC-7:00)	Apr 21, 2023 9:10 PM (UTC-7:00)
QUEUED	✔ Succeeded	-	181 secs	Apr 21, 2023 9:10 PM (UTC-7:00)	Apr 21, 2023 9:13 PM (UTC-7:00)

As of for reports, this will just record any occurrences that pop up. Usually used for test cases that can be used from json or xml files.

The screenshot shows the 'Reports' tab selected in the navigation bar. Below it, the 'Resource utilization' section is visible. The main area is titled 'Report history' and contains a search bar, a refresh button, and two action buttons: 'View details' and 'View artifacts'. A pagination control with page number '1' is also present. A table header is shown with columns: Report, Type, Status, Line coverage %, Report group, and Duration. The message 'No results' is displayed below the table, followed by the sub-message 'There are no results to display.'

Similar to environment variables since we did not assign or create any variables as shown on [Step 13](#).

The screenshot shows the 'Environment variables' tab selected in the navigation bar. Below it, the 'Resource utilization' section is visible. The main area displays a table with columns: Name, Value, and Type. The message 'No environment variables configured for this build' is centered in the table area.

Sample size of how we created our build from the ground up using the GitHub repository plus supporting features along the way.

Resource utilization

Source

Source provider	Source identifier	Repository	Source version
GitHub	-	asiandallas/MessageUtil	-

Git clone depth: 1
Git submodules: False

Again, this is the sample size of how the storage was allocated from the GitHub repository. Since it is just a simple JUnit testing program of writing a message then it wouldn't have drastic performance.

----- BREAK -----

Step 19: Do not forget to close down your demo unless prompted to do so when wrapping up CodeDeploy and CodePipeline.

Name	Source provider	Repository	Latest build status	Description	Last Modified
codebuild-demo	GitHub	asiandallas/MessageUtil	Succeeded	-	8 minutes ago

Step 20: Make sure to navigate [here](#) to visit the link and click revoke access.

[Revoke access](#)

**To go straight to the instructions of the demo click [here](#)

Overview:

With the help of the managed cloud service AWS CodeBuild, an IT developer can automate and oversee server builds for software that is hosted in the Amazon Web Services (AWS) public cloud. The service is utilized by developers to compile, test, and deploy source code as build projects using the AWS Command Line Interface (AWS CLI). In other words, AWS CodeBuild is a fully managed continuous integration service that compiles source code, runs tests, and produces software packages that are ready to deploy. With CodeBuild, you don't need to provision, manage, and scale your own build servers. CodeBuild scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue.

Benefits and features:

1. Fully managed build service

- AWS CodeBuild scales up and down automatically to meet your build volume. It immediately processes each build you submit and can run separate builds concurrently, which means your builds are not left waiting in a queue.

2. Elastic scaling

- With AWS CodeBuild, you are charged based on the number of minutes it takes to complete your build. This means you no longer have to worry about paying for idle build server capacity.

3. Pay as you go

- You can bring your own build tools and programming runtimes to use with AWS CodeBuild by creating customized build environments in addition to the prepackaged build tools and runtimes supported by CodeBuild.

4. Extensible

- AWS CodeBuild belongs to a family of AWS Code Services which you can use to create complete, automated software release workflows for continuous integration and delivery (CI/CD). You can also integrate CodeBuild into your existing CI/CD workflow.