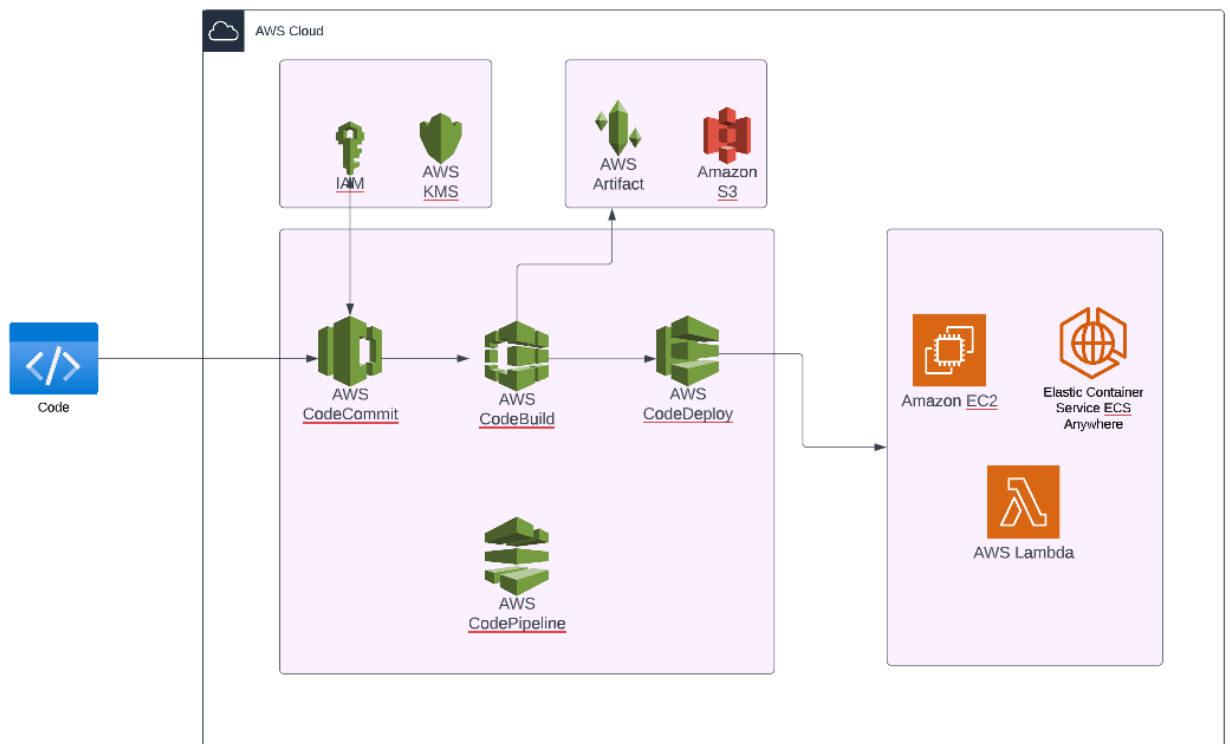
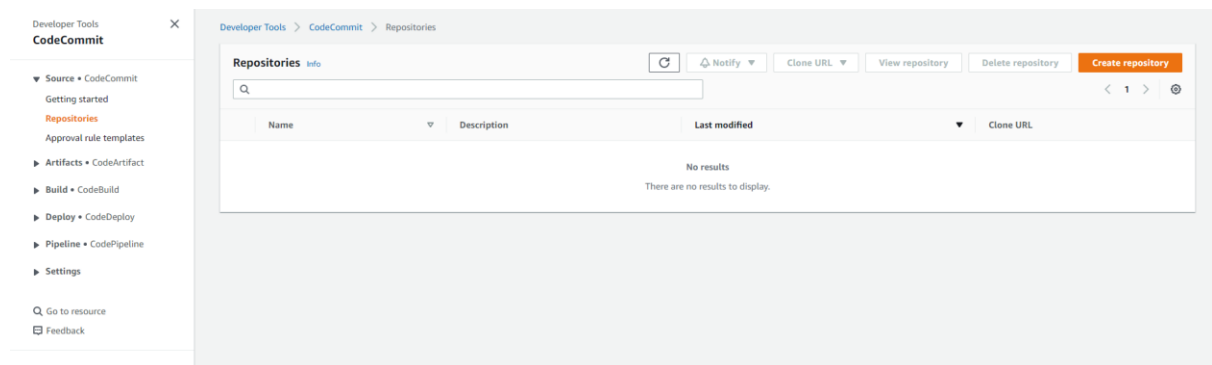


AWS CI/CD DevOps Project

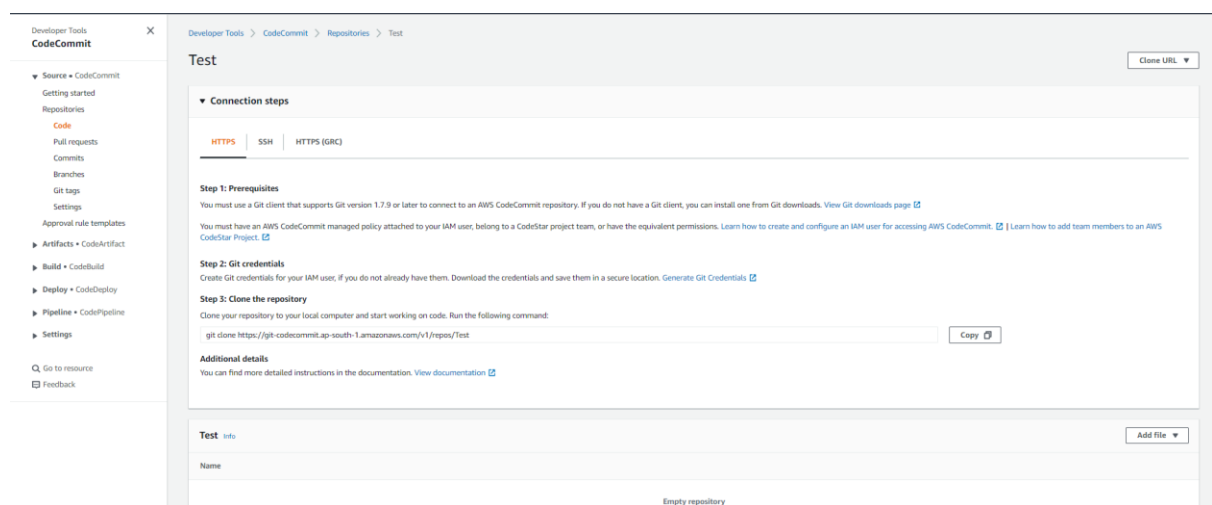
AWS Code Commit, Code Build, code deploy, and code pipeline.



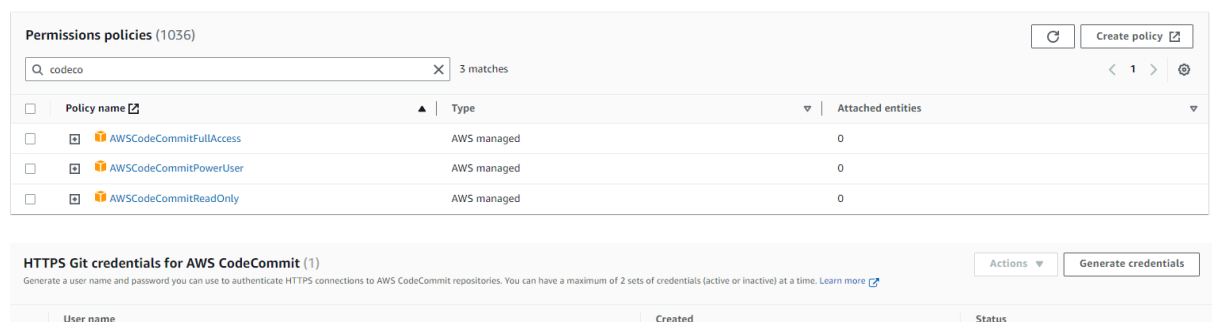
First, we need to Create Git Repository using a code commit




Click to Create Repository and enter the repo name and description and create the repo, the output will show as below.



Users can access the code commit needed to create one IAM and assign [AWSCodeCommitPowerUser](#) policy and provide security credentials to the user.



Clone your created Repo on your local system using VS code or any other git tools and enter your secret credentials just we created before.


> Desktop > AWS_DEVOPS > Test				
Name	Date modified	Type	Size	
 .git	14-02-2023 15:52	File folder		

Create one file and push to your Test Repo , below are the commands

Developer Tools > CodeCommit > Repositories > Test

Test Notify master Create pull request Clone URL

Test info Add file

Name
 test.html

Commands

git clone <gitURL>

git add .

git commit -m <message>

git push origin master

How to Build the project in Code build, click on create build project.

Developer Tools > CodeBuild > Build projects

Build projects info Refresh Notify Start build View details Edit Delete build project Create build project

Your projects < 1 > ⚙

Name	Source provider	Repository	Latest build status	Description	Last Modified
No results There are no results to display.					

Enter details in required fields as such name and discription

Project configuration

Project name

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*

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

Select the source code provider, we select the code commit and select the project repo and branch as show below. If you want to build a specific commit then select commit ID other wise blank.

Source

Add source

Source 1 - Primary

Source provider

AWS CodeCommit

Repository

Q Test X

Reference type

Choose the source version reference type that contains your source code.

☒ Branch

☐ Git tag

☐ Commit ID

Branch

Choose a branch that contains the code to build.

master

Commit ID - optional

Choose a commit ID. This can shorten the duration of your build.

Q aad712e8c8538680e8ce10e286eac1d29f3565e9 X

Source version Info

refs/heads/master^{aad712e8c8538680e8ce10e286eac1d29f3565e9}

aad712e8 test file

Additional configuration

Git clone depth, Git submodules

Git clone depth - optional

1

Git submodules - optional

☐ Use Git submodules

For build process we need to select Environment to build your code.

Also we need a one service role to execute the build process.

Environment

Environment image

☒ Managed image
Use an image managed by AWS CodeBuild

☐ Custom image
Specify a Docker image

Operating system

Ubuntu

The programming language runtimes are now included in the standard image of Ubuntu 18.04, which is recommended for new CodeBuild projects created in the console. See [Docker Images Provided by CodeBuild](#) for details.

Runtime(s)

Standard

Image

aws/codebuild/standard:6.0

Image version

Always use the latest image for this runtime version

Privileged

☐ Enable this flag if you want to build Docker images or want your builds to get elevated privileges

Service role

☒ New service role
Create a service role in your account

☐ Existing service role
Choose an existing service role from your account

Role name

codebuild-test-service-role

Type your service role name

► Additional configuration

Timeout, certificate, VPC, compute type, environment variables, file systems

We need a one build spec file to build our code, the file name is buildspec.yml. this file put in your code commit.

buildspec.yml

version: 0.2

phases:

install:

commands:

- echo Installing NGINX
- sudo apt-get update
- sudo apt-get install nginx -y

build:

commands:

- echo build started on 'date'
- cp index.html /var/www/html/

post_build:

commands:

- echo Configuring NGINX

artifacts:

files:

- /var/www/html/index.html or **'**/*'** for all the files

We can store artifacts anywhere we will use s3 for that, save all the settings, and build the project.

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).

buildspec.yml

Batch configuration

You can run a group of builds as a single execution. Batch configuration is also available in advanced option when starting build.

☐ Define batch configuration - optional
You can also define or override batch configuration when starting a build batch.

Artifacts

Add artifact

Artifact 1 - Primary

Type

Amazon S3

You might choose no artifacts if you are running tests or pushing a Docker image to Amazon ECR.

Bucket name

artifacts-test-aws-devops

☐ Enable semantic versioning
Use the artifact name specified in the buildspec file

Path - optional
The path to the build output ZIP file or folder.

Example: MyPath/MyArtifact.zip.

Namespace type - optional

None

Choose Build ID to insert the build ID into the path to the build output ZIP file or folder, e.g. MyPath/MyBuildID/MyArtifact.zip. Otherwise, choose None.

Artifacts packaging

☐ None
The artifact files will be uploaded to the bucket.

☒ Zip
AWS CodeBuild will upload artifacts into a compressed file that is put into the specified bucket.

☐ Disable artifact encryption
Disable encryption if using the artifact to publish a static website or sharing content with others

Additional configuration
Cache, encryption key

Project created

You have successfully created the following project: test

Create a notification rule for this project

Developer Tools > CodeBuild > Build projects > test

test

Notify

Share

Edit

Delete build project

Start build with overrides

Start build

Configuration

Source provider

AWS CodeCommit

Public builds

Disabled

Primary repository

Test

Artifacts upload location

artifacts-test-aws-devops

Build badge

Disabled

Build history

Batch history

Build details

Build triggers

Metrics

Build history

Stop build

View artifacts

View logs

Delete builds

Retry build

<

1

>

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

Build started

You have successfully started the following build: test:34c8b929-8072-459c-b8bb-05a6eeb0305b

Build status

Status

Failed

Initiator

Rahulwath

Build ID#

arn:aws:codebuild:ap-south-1:8729232b2284:build/test:34c8b929-8072-459c-b8bb-05a6eeb0305b

Resolved source version

-

Start time

Feb 14, 2023 5:44 PM (UTC+5:30)

End time

Feb 14, 2023 5:45 PM (UTC+5:30)

Build number

1

Build logs

Phase details

Reports

Environment variables

Build details

Resource utilization

Name	Status	Context	Duration	Start time	End time
SUBMITTED	✔ Succeeded	-	<1 sec	Feb 14, 2023 5:44 PM (UTC+5:30)	Feb 14, 2023 5:44 PM (UTC+5:30)
QUEUED	✔ Succeeded	-	1 sec	Feb 14, 2023 5:44 PM (UTC+5:30)	Feb 14, 2023 5:44 PM (UTC+5:30)
PROVISIONING	✔ Succeeded	-	31 secs	Feb 14, 2023 5:44 PM (UTC+5:30)	Feb 14, 2023 5:45 PM (UTC+5:30)
DOWNLOAD_SOURCE	✖ Failed	VAML_FILE_ERROR: stat /codebuild/output/xc661064206/src/git-codecommit.ap-south-1.amazonaws.com/v-1/region/Test/buildspec.yml: no such file or directory	5 secs	Feb 14, 2023 5:45 PM (UTC+5:30)	Feb 14, 2023 5:45 PM (UTC+5:30)
FINALIZING	✔ Succeeded	-	4 secs	Feb 14, 2023 5:45 PM (UTC+5:30)	Feb 14, 2023 5:45 PM (UTC+5:30)
COMPLETED	✔ Succeeded	-	-	Feb 14, 2023 5:45 PM (UTC+5:30)	-

So we have successfully build our code and artifact store in s3 bucket.

[Amazon S3](#) > [Buckets](#) > [artifacts-test-aws-devops](#)

artifacts-test-aws-devops [Info](#)

[Objects](#)
[Properties](#)
[Permissions](#)
[Metrics](#)
[Management](#)
[Access Points](#)

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 Inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	test	-	February 14, 2023, 19:12:13 (UTC+05:30)	196.0 B	Standard

Create application

Application configuration

Application name

Enter an application name

demo-app-deployment

100 character limit

Compute platform

Choose a compute platform

EC2/On-premises

Cancel

Create application

demo-app-deployment

Notify Delete application

Application details

Name

demo-app-deployment

Compute platform

EC2/On-premises

Deployments

Deployment groups

Revisions

Deployment groups

View details

Edit

Create deployment group

Search

< 1 >

Name	Status	Last attempted deployment	Last successful deployment	Trigger count
No deployment groups				
Before you can deploy your application using CodeDeploy, you must create a deployment group.				
<div>Create deployment group</div>				

codedeployrole

Allows CodeDeploy to call AWS services such as Auto Scaling on your behalf.

Delete

Summary

Edit

Creation date	ARN
February 16, 2023, 22:26 (UTC+05:30)	arn:aws:iam:872923282284:role/codedeployrole
Last activity	Maximum session duration
None	1 hour

Permissions Trust relationships Tags Access Advisor Revoke sessions

Permissions policies (0) Info			Simulate Remove Add permissions
You can attach up to 10 managed policies.			
Filter policies by property or policy name and press enter.			
<input type="checkbox"/>	Policy name	Type	Description
<input type="checkbox"/>	AmazonEC2FullAccess	AWS managed	Provides full access to Amazon EC2 via the AWS Manag...
<input type="checkbox"/>	AmazonEC2RoleforAWSCodeDeploy	AWS managed	Provides EC2 access to S3 bucket to download revision...
<input type="checkbox"/>	AmazonS3FullAccess	AWS managed	Provides full access to all buckets via the AWS Manage...
<input type="checkbox"/>	AWSCodeDeployFullAccess	AWS managed	Provides full access to CodeDeploy resources.
<input type="checkbox"/>	AWSCodeDeployRole	AWS managed	Provides CodeDeploy service access to expand tags an...
<input type="checkbox"/>	AWSCodeDeployRoleForECSLimited	AWS managed	Provides CodeDeploy service limited access to perform ...

Create deployment group

Application

Application
demo-app-deployment
Compute type
EC2/On-premises

Deployment group name

Enter a deployment group name

demo-app

100 character limit

Service role

Enter a service role

Enter a service role with CodeDeploy permissions that grants AWS CodeDeploy access to your target instances.

arn:aws:iam::872923282284:role/codedeployrole

Deployment type

Choose how to deploy your application

☒ In-place

Updates the instances in the deployment group with the latest application revisions. During a deployment, each instance will be briefly taken offline for its update.

☐ Blue/green

Replaces the instances in the deployment group with new instances and deploys the latest application revision to them. After instances in the replacement environment are registered with a load balancer, instances from the original environment are deregistered and can be terminated.

Environment configuration

Select any combination of Amazon EC2 Auto Scaling groups, Amazon EC2 instances, and on-premises instances to add to this deployment.

☐ Amazon EC2 Auto Scaling groups

☒ Amazon EC2 instances

1 unique matched instance. [Click here for details](#)

You can add up to three groups of tags for EC2 instances to this deployment group.

One tag group: Any instance identified by the tag group will be deployed to.

Multiple tag groups: Only instances identified by all the tag groups will be deployed to.

Tag group 1

Key

Name

Value - optional

demo-app

Remove tag

Agent configuration with AWS Systems Manager [Info](#)

AWS Systems Manager will install the CodeDeploy Agent on all instances and update it based on the configured frequency.



We recommend configuring your CodeDeploy Agent install and updates with AWS Systems Manager.
AWS Systems Manager provides more control over CodeDeploy Agent version updates and rollbacks than installing using other methods. [Learn more](#)

Install AWS CodeDeploy Agent

- ☒ Never
☐ Only once
☐ Now and schedule updates

Deployment settings

Deployment configuration

Choose from a list of default and custom deployment configurations. A deployment configuration is a set of rules that determines how fast an application is deployed and the success or failure conditions for a deployment.

CodeDeployDefault.AllAtOnce ▼

or

[Create deployment configuration](#)

Load balancer

Select a load balancer to manage incoming traffic during the deployment process. The load balancer blocks traffic from each instance while it's being deployed to and allows traffic to it again after the deployment succeeds.

☐ Enable load balancing

► Advanced - optional

Cancel

Create deployment group

Run below command in ec2 instance to install code deploy agent

```
sudo yum update
```

```
sudo yum install ruby
```

```
sudo yum install wget
```

```
wget https://{bucket-name}.s3.amazonaws.com/latest/install
```

use below URL for bucket name and region

```
https://docs.aws.amazon.com/codedeploy/latest/userguide/codedeploy-agent-operations-install-linux.html
```

```
chmod +x ./install
```

```
sudo ./install auto
```

```
sudo service codedeploy-agent status
```

create one IAM role for ec2 instance to connect with code deployment and s3 bucket and attached to ec2 instance.

ec2codedeployrole

Allows EC2 instances to call AWS services on your behalf.

Summary

Creation date	ARN
February 16, 2023, 23:19 (UTC+05:30)	arn:aws:iam::872823282284:role/ec2codedeployrole
Last activity	Maximum session duration
None	1 hour

Permissions | Trust relationships | Tags | Access Advisor | Revoke sessions

Permissions policies (3) [Info](#)

You can attach up to 10 managed policies.

Filter policies by property or policy name and press enter.

<input type="checkbox"/>	Policy name ?	Type	Description
<input type="checkbox"/>	AmazonEC2FullAccess	AWS managed	Provides full access to Amazon EC2 via the AWS Management Console.
<input type="checkbox"/>	AmazonS3FullAccess	AWS managed	Provides full access to all buckets via the AWS Management Console.
<input type="checkbox"/>	AWSCodeDeployFullAccess	AWS managed	Provides full access to CodeDeploy resources.

Create deployment for deploy code to ec2 instance as shown below

Create deployment

Deployment settings

Application
demo-app-deployment

Deployment group
 demo-app

Compute platform
EC2/On-premises

Deployment type
In-place

Revision type
☒ My application is stored in Amazon S3 ☐ My application is stored in GitHub

Revision location
Copy and paste the Amazon S3 bucket where your revision is stored
 s3://artifacts-test-aws-devops/test
s3://bucket-name/folder/object.[zip|tar|tgz]

Revision file type
 .zip

arn:aws:ec2:ap-south-1:872923282284:instance/i-0963e169a3e370f79

Deployment details

Application

demo-app-deployment

Deployment configuration

codeDeployDefault.A1Archive

Deployment description

-

Deployment ID

A-1G4AD29L

Deployment group

demo-app

Status

Succeeded

Initiated by User action

Revision details

Revision location

v2.0/infrastructure-aws-deploy/test

Revision created

1 hour ago

Revision description

Application revision registered by Deployment ID: 0-18P4VLS19L

Event	Duration	Status	Error code	Start time	End time
ApplicationStop	less than one second	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)
DownloadBundle	less than one second	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)
BeforeInstall	less than one second	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)
Install	less than one second	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)
AfterInstall	2 seconds	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)
ApplicationStart	less than one second	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)
ValidateService	less than one second	<div>Succeeded</div>	-	Feb 17, 2023 12:09 AM (UTC+5:30)	Feb 17, 2023 12:09 AM (UTC+5:30)

To create CI/CD pipeline below setting needed

Choose pipeline settings [Info](#)

Pipeline settings

Pipeline name

Enter the pipeline name. You cannot edit the pipeline name after it is created.

Demo-pipeline

No more than 100 characters

Service role

☒ New service role

Create a service role in your account

☐ Existing service role

Choose an existing service role from your account

Role name

Type your service role name

AWSCodePipelineServiceRole-ap-south-1-Demo-pipeline

Allow AWS CodePipeline to create a service role so it can be used with this new pipeline

Advanced settings

Cancel

Next

Step 1: Choose pipeline settings

Pipeline settings

Pipeline name

Demo-pipeline

Artifact location

A new Amazon S3 bucket will be created as the default artifact store for your pipeline

Service role name

AWSCodePipelineServiceRole-ap-south-1-Demo-pipeline

Step 2: Add source stage

Source action provider

Source action provider

AWS CodeCommit

RepositoryName

Test

BranchName

master

PollForSourceChanges

true

OutputArtifactFormat

CODE_ZIP

Step 3: Add build stage

Build action provider

Build action provider

AWS CodeBuild

ProjectName

test

Step 4: Add deploy stage

Deploy action provider

Deploy action provider

AWS CodeDeploy

ApplicationName

demo-app-deployment

DeploymentGroupName

demo-app

Cancel

Previous

Create pipeline