

In-Class: AWS CDK app

Start Assignment

Due Thursday by 9pm **Points** 1 **Submitting** a file upload **File Types** doc and docx

Your first AWS CDK app

https://docs.aws.amazon.com/cdk/v2/guide/hello_world.html 

Create the app

Build the app

List the stacks in the app

Add an Amazon S3 bucket

Synthesize an AWS CloudFormation template

Deploy the stack

Modifying the app

Destroy the app's resources

Create the app:

```
siri@siris-MacBook-Pro:~| ➡ mkdir hello-cdk  
cd hello-cdk
```

Install all dependencies ,activate the virtual environment and Synthesize an AWS CloudFormation template

Enjoy!

Initializing a new git repository...

Please run 'python3 -m venv .venv'!

Executing 'Creating virtualenv...'.

✔ All done!

siri@siris-MacBook-Pro:~/hello-cdk|main - source .venv/bin/activate

python -m pip install -r requirements.txt

Collecting aws-cdk-lib==2.68.0

Downloading aws_cdk_lib-2.68.0-py3-none-any.whl (26.8 MB)

26.8/26.8 MB 39.6 MB/s eta 0:00:00

Collecting constructs<11.0.0,>=10.0.0

Downloading constructs-10.1.273-py3-none-any.whl (57 kB)

57.0/57.0 kB 2.4 MB/s eta 0:00:00

Collecting aws-cdk.asset-kubectrl-v20<3.0.0,>=2.1.1

Downloading aws_cdk_asset_kubectrl_v20-2.1.1-py3-none-any.whl (25.4 MB)

25.4/25.4 MB 46.7 MB/s eta 0:00:00

Collecting aws-cdk.asset-awscli-v1<3.0.0,>=2.2.97

Downloading aws_cdk_asset_awscli_v1-2.2.100-py3-none-any.whl (14.7 MB)

14.7/14.7 MB 47.1 MB/s eta 0:00:00

Collecting typeguard==2.13.3

Downloading typeguard-2.13.3-py3-none-any.whl (17 kB)

Collecting jsii<2.8.0,>=1.77.0

Downloading jsii-1.77.0-py3-none-any.whl (571 kB)

571.4/571.4 kB 19.4 MB/s eta 0:00:00

Collecting aws-cdk.asset-node-proxy-agent-v5<3.0.0,>=2.0.77

Downloading aws_cdk_asset_node_proxy_agent_v5-2.0.80-py3-none-any.whl (1.3 MB)

1.3/1.3 MB 25.1 MB/s eta 0:00:00

Collecting publication<0.0.3-py2.py3-none-any.whl (7.7 kB)

Collecting typing_extensions<5.0,>=3.7

Downloading typing_extensions-4.5.0-py3-none-any.whl (27 kB)

Collecting importlib_resources>=5.2.0

Downloading importlib_resources-5.12.0-py3-none-any.whl (36 kB)

Collecting cattrs<22.3,>=1.8

Downloading cattrs-22.2.0-py3-none-any.whl (35 kB)

Collecting attrs<23.0,>=21.2

Downloading attrs-22.2.0-py3-none-any.whl (60 kB)

60.0/60.0 kB 2.4 MB/s eta 0:00:00

Collecting python-dateutil

Using cached python_dateutil-2.8.2-py2.py3-none-any.whl (247 kB)

Collecting exceptiongroup

Downloading exceptiongroup-1.1.0-py3-none-any.whl (14 kB)

Collecting six>=1.5

Using cached six-1.16.0-py2.py3-none-any.whl (11 kB)

Installing collected packages: publication, typing_extensions, typeguard, six, importlib_resources, exceptiongroup, attrs, python-dateutil, cattrs, jsii, constructs, aws-cdk.asset-node-proxy-agent-v5, a

ws-cdk.asset-kubectrl-v20, aws-cdk.asset-awscli-v1, aws-cdk-lib

Successfully installed attrs-22.2.0 aws-cdk-lib-2.68.0 aws-cdk.asset-awscli-v1-2.2.100 aws-cdk.asset-kubectrl-v20-2.1.1 aws-cdk.asset-node-proxy-agent-v5-2.0.80 cattrs-22.2.0 constructs-10.1.273 exceptio

ngroup-1.1.0 importlib_resources-5.12.0 jsii-1.77.0 publication-0.0.3 python-dateutil-2.8.2 six-1.16.0 typeguard-2.13.3 typing_extensions-4.5.0

[notice] A new release of pip available: 22.2.1 -> 23.0.1

[notice] To update, run: pip install --upgrade pip

siri@siris-MacBook-Pro:~/hello-cdk|main - cdk ls

HelloCdkStack

siri@siris-MacBook-Pro:~/hello-cdk|main - code .

siri@siris-MacBook-Pro:~/hello-cdk|main - cdk synth

Resources:

MyFirstBucketB8884501:

Type: AWS::S3::Bucket

Properties:

VersioningConfiguration:

Status: Enabled

UpdateReplacePolicy: Retain

DeletionPolicy: Retain

Metadata:

aws:cdk:path: HelloCdkStack/MyFirstBucket/Resource

CDKMetadata:

Type: AWS::CDK::Metadata

Properties:

Analytics: v2:deflate64:H4sIAAAAAAAAA/yXITQ5AMBBA4bPYt+MvEwsuIBxApRpkk7jYi402L1vrMihKSaDiBv3OR045wdTowI97V+xyuKiiJWdQz/bo/ttrb4JT+XfUakNHSLzqTF8txDmKCRbR6ROkCMe4a2rBPnTWd+3AAAAA=

Metadata:

aws:cdk:path: HelloCdkStack/CDKMetadata/Default

Condition: CDKMetadataAvailable

Conditions:

CDKMetadataAvailable:

Fn::Or:

- Fn::Or:

- Fn::Equals:

- Ref: AWS::Region

- ap-south-1

- Fn::Equals:

- Ref: AWS::Region

- ap-east-1

- Fn::Equals:

- Ref: AWS::Region

- ap-northeast-1

- Fn::Equals:

- Ref: AWS::Region

- ap-northeast-2

- Fn::Equals:

- Ref: AWS::Region

- ap-south-1

- Fn::Equals:

- Ref: AWS::Region

- ap-southeast-1

- Fn::Equals:

- Ref: AWS::Region

- ap-southeast-2

- Fn::Equals:

- Ref: AWS::Region

- ca-central-1

- Fn::Equals:

- Ref: AWS::Region

- cn-north-1

- Fn::Equals:

- Ref: AWS::Region

- cn-northwest-1

- Fn::Or:

- Fn::Equals:

- Ref: AWS::Region

- eu-central-1

- Fn::Equals:

- Ref: AWS::Region

- eu-north-1

```
[sirir@sirir-MacBook-Pro:~/hello-cdk|main$ ➦ cdk bootstrap
  Bootstrapping environment aws://971480383380/us-east-1...
Trusted accounts for deployment: (none)
Trusted accounts for lookup: (none)
Using default execution policy of 'arn:aws:iam::aws:policy/AdministratorAccess'. Pass '--cloudformation-execution-policies' to customize.
✔ Toolkit: creating CloudFormation changeset...
✔ Environment aws://971480383380/us-east-1 bootstrapped.

[sirir@sirir-MacBook-Pro:~/hello-cdk|main$ ➦ cdk deploy

  ✨ Synthesis time: 4.45s

HelloCdKStack: building assets...

current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
[0%] start: Building 5bb8eb8371e56620ed5b4d0c83689a608770cdfc75ca94830ef0c26e24af46be:current_account-current_region
[100%] success: Built 5bb8eb8371e56620ed5b4d0c83689a608770cdfc75ca94830ef0c26e24af46be:current_account-current_region

HelloCdKStack: assets built

current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-lookup-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
(To get rid of this warning, please upgrade to bootstrap version >= 8)
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
HelloCdKStack: deploying... [1/1]
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
[0%] start: Publishing 5b08eb8371e56620ed5b4d0c83689a608770cdfc75ca94830ef0c26e24af46be:current_account-current_region
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-file-publishing-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
[100%] success: Published 5b08eb8371e56620ed5b4d0c83689a608770cdfc75ca94830ef0c26e24af46be:current_account-current_region
HelloCdKStack: creating CloudFormation changeset...

✔ HelloCdKStack

  ✨ Deployment time: 38.69s

Stack ARN:
arn:aws:cloudformation:us-east-1:971480383380:stack/HelloCdKStack/f5b0cfa0-beef-11ed-b47d-0adbb06ea993

  ✨ Total time: 43.14s
```

```
[sirir@sirir-MacBook-Pro:~/hello-cdk|main$ ➦ cdk diff
```

Stack **HelloCdKStack**
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-lookup-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
(To get rid of this warning, please upgrade to bootstrap version >= 8)
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.

IAM Statement Changes

	Resource	Effect	Action	Principal	Condition
+	<code>\$(Custom::S3AutoDeleteObjectsCustomResourceProvider/Role.Arn)</code>	Allow	<code>sts:AssumeRole</code>	<code>Service:lambda.amazonaws.com</code>	
+	<code>\$(MyFirstBucket.Arn)</code> <code>\$(MyFirstBucket.Arn)/*</code>	Allow	<code>s3:DeleteObject*</code> <code>s3:GetBucket*</code> <code>s3:List*</code>	<code>AWS:\$(Custom::S3AutoDeleteObjectsCustomResourceProvider/Role.Arn)</code>	

IAM Policy Changes

	Resource	Managed Policy ARN
+	<code>\$(Custom::S3AutoDeleteObjectsCustomResourceProvider/Role)</code>	<code><"Fn::Sub": "arn:\${AWS::Partition}:iam:aws:policy/service-role/AWSLambdaBasicExecutionRole"</code>

(NOTE: There may be security-related changes not in this list. See <https://github.com/aws/aws-cdk/issues/1299>)

Resources

```
[~] AWS::S3::Bucket SirirFirst2826D0FC2B9 orphan
[+] AWS::S3::Bucket MyFirstBucket MyFirstBucket88884501
[+] AWS::S3::BucketPolicy MyFirstBucketPolicy MyFirstBucketPolicy3243DEFD
[+] Custom::S3AutoDeleteObjects MyFirstBucket/AutoDeleteObjectsCustomResource MyFirstBucket/AutoDeleteObjectsCustomResourceC52FCF6E
[+] AWS::IAM::Role Custom::S3AutoDeleteObjectsCustomResourceProvider/Role CustomS3AutoDeleteObjectsCustomResourceProviderRole381BD092
[+] AWS::Lambda::Function Custom::S3AutoDeleteObjectsCustomResourceProvider/Handler CustomS3AutoDeleteObjectsCustomResourceProviderHandler9D98184F
```

Deploy the stack

```
[sirir@sirir-MacBook-Pro:~/hello-cdk|main$ ➦ cdk deploy
```

✨ Synthesis time: 4.6s

HelloCdKStack: building assets...

current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
[0%] start: Building 2332a8953f2d92ebfdd01cf20d5a2f5b5f2ef29764cda4186f01c55ede8c73:current_account-current_region
[0%] start: Building ae4309db3131cf6a9d0c8b71e34fa8cb659e08b7cca59429ae16086f68c77d8:current_account-current_region
[50%] success: Built 2332a8953f2d92ebfdd01cf20d5a2f5b5f2ef29764cda4186f01c55ede8c73:current_account-current_region
[100%] success: Built ae4309db3131cf6a9d0c8b71e34fa8cb659e08b7cca59429ae16086f68c77d8:current_account-current_region

HelloCdKStack: assets built

current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-lookup-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
(To get rid of this warning, please upgrade to bootstrap version >= 8)
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
This deployment will make potentially sensitive changes according to your current security approval level (—require-approval broadening).
Please confirm you intend to make the following modifications:

IAM Statement Changes

	Resource	Effect	Action	Principal	Condition
+	<code>\$(Custom::S3AutoDeleteObjectsCustomResourceProvider/Role.Arn)</code>	Allow	<code>sts:AssumeRole</code>	<code>Service:lambda.amazonaws.com</code>	
+	<code>\$(MyFirstBucket.Arn)</code> <code>\$(MyFirstBucket.Arn)/*</code>	Allow	<code>s3:DeleteObject*</code> <code>s3:GetBucket*</code> <code>s3:List*</code>	<code>AWS:\$(Custom::S3AutoDeleteObjectsCustomResourceProvider/Role.Arn)</code>	

IAM Policy Changes

	Resource	Managed Policy ARN
+	<code>\$(Custom::S3AutoDeleteObjectsCustomResourceProvider/Role)</code>	<code><"Fn::Sub": "arn:\${AWS::Partition}:iam:aws:policy/service-role/AWSLambdaBasicExecutionRole"</code>

(NOTE: There may be security-related changes not in this list. See <https://github.com/aws/aws-cdk/issues/1299>)

Do you wish to deploy these changes (y/n)? y

HelloCdKStack: deploying... [1/1]

current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-deploy-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
[0%] start: Publishing 2332a8953f2d92ebfdd01cf20d5a2f5b5f2ef29764cda4186f01c55ede8c73:current_account-current_region
[0%] start: Publishing ae4309db3131cf6a9d0c8b71e34fa8cb659e08b7cca59429ae16086f68c77d8:current_account-current_region
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-file-publishing-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
current credentials could not be used to assume 'arn:aws:iam::971480383380:role/cdk-hnb659fde-file-publishing-role-971480383380-us-east-1', but are for the right account. Proceeding anyway.
[50%] success: Published 2332a8953f2d92ebfdd01cf20d5a2f5b5f2ef29764cda4186f01c55ede8c73:current_account-current_region
[100%] success: Published ae4309db3131cf6a9d0c8b71e34fa8cb659e08b7cca59429ae16086f68c77d8:current_account-current_region
HelloCdKStack: creating CloudFormation changeset...

✔ HelloCdKStack

✨ Deployment time: 68.52s

Stack ARN:
arn:aws:cloudformation:us-east-1:971480383380:stack/HelloCdKStack/f5b0cfa0-beef-11ed-b47d-0adbb06ea993

✨ Total time: 73.12s

Destroy the app's resources

```
[sirir@sirir-MacBook-Pro:~/hello-cdk|main] ✨ ➦ cdk destroy
Are you sure you want to delete: HelloCdkStack (y/n)? y
HelloCdkStack: destroying... [1/1]
current credentials could not be used to assume 'arn:aws:iam::971488383388:role/cdk-hnb659fds-deploy-role-971488383388-us-east-1', but are for the right account. Proceeding anyway.
✔ HelloCdkStack: destroyed
[sirir@sirir-MacBook-Pro:~/hello-cdk|main] ✨ ➦ █
```