

AWS CLOUD DEVELOPMENT KIT

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CALLISTA

AGENDA

- Infrastructure-as-Code and CloudFormation
- Intro to *AWS* Cloud Development Kit (CDK)
- Demo
- Reflections on pros and cons

INFRASTRUCTURE-AS-CODE

- Templates
- Avoid operations through CLI or GUI
- Facilitate set-up and recreation
- Overview
- Versioning

| CLOUDFORMATION

- First release February 2011
- Offer templating in YAML and JSON
- Well documented

QuickTime Player Arkiv Redigera Innehåll Fönster Hjälp

AWS::S3::Bucket - AWS CloudF X

https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/aws-properties-s3-bucket.html

aws Search in this guide English Sign In to the Console

AWS > Documentation > AWS CloudFormation > User Guide Feedback Preferences

AWS::S3::Bucket

- AbortIncompleteMulti partUpload
- AccelerateConfiguratio n
- AccessControlTranslati on
- AnalyticsConfiguratio n
- BucketEncryption
- CorsConfiguration
- CorsRule
- DataExport
- DefaultRetention
- DeleteMarkerReplicati on
- Destination
- EncryptionConfigurati on
- FilterRule
- IntelligentTieringConfि guration
- InventoryConfiguratio n
- LambdaConfiguration
- LifecycleConfiguration
- LoggingConfiguration
- Metrics
- MetricsConfiguration
- NoncurrentVersionTra nsition
- NotificationConfigurat

AWS::S3::Bucket

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The `AWS::S3::Bucket` resource creates an Amazon S3 bucket in the same AWS Region where you create the AWS CloudFormation stack.

To control how AWS CloudFormation handles the bucket when the stack is deleted, you can set a deletion policy for your bucket. You can choose to *retain* the bucket or to *delete* the bucket. For more information, see [DeletionPolicy Attribute](#).

Important

You can only delete empty buckets. Deletion fails for buckets that have contents.

Syntax

To declare this entity in your AWS CloudFormation template, use the following syntax:

JSON

```
{
  "Type" : "AWS::S3::Bucket",
  "Properties" : {
    "AccelerateConfiguration" : AccelerateConfiguration,
    "AccessControl" : String,
    "AnalyticsConfigurations" : [ AnalyticsConfiguration, ... ],
    "BucketEncryption" : BucketEncryption,
    "BucketName" : String,
    "CorsConfiguration" : CorsConfiguration,
    "IntelligentTieringConfigurations" : [ IntelligentTieringConfiguration, ... ],
    "InventoryConfigurations" : [ InventoryConfiguration, ... ],
    "LifecycleConfiguration" : LifecycleConfiguration,
    "LoggingConfiguration" : LoggingConfiguration,
```

On this page

- Syntax
- Properties
- Return values
- Examples
- See also

```

MonitoringDashboard:
  Type: AWS::CloudWatch::Dashboard
  Properties:
    DashboardName: ServiceDashboard
    DashboardBody: !Sub
      - |
        {
          "start": "-PT12H",
          "periodOverride": "auto",
          "widgets":
            [
              {
                "type": "metric",
                "x": 0,
                "y": 0,
                "width": 24,
                "height": 6,
                "properties": {
                  "metrics": [
                    [{"expression": "SEARCH('{AWS/ApplicationELB,LoadBalancer,TargetGroup} MetricName
                    ],
                  "title": "Healthy Hosts",
                  "view": "timeSeries",
                  "stacked": true,
                  "period": 300,
                  "stat": "Average",
                  "region": "eu-west-1"
                }
              ]
            ]
        }
      - TargetGroupName: !GetAtt TargetGroup.TargetGroupName
  
```

CONS

- Syntax of *YAML* and *JSON*
- Type safety
- Requires good knowledge of *AWS* services
- Testing

| AWS CLOUD DEVELOPMENT KIT

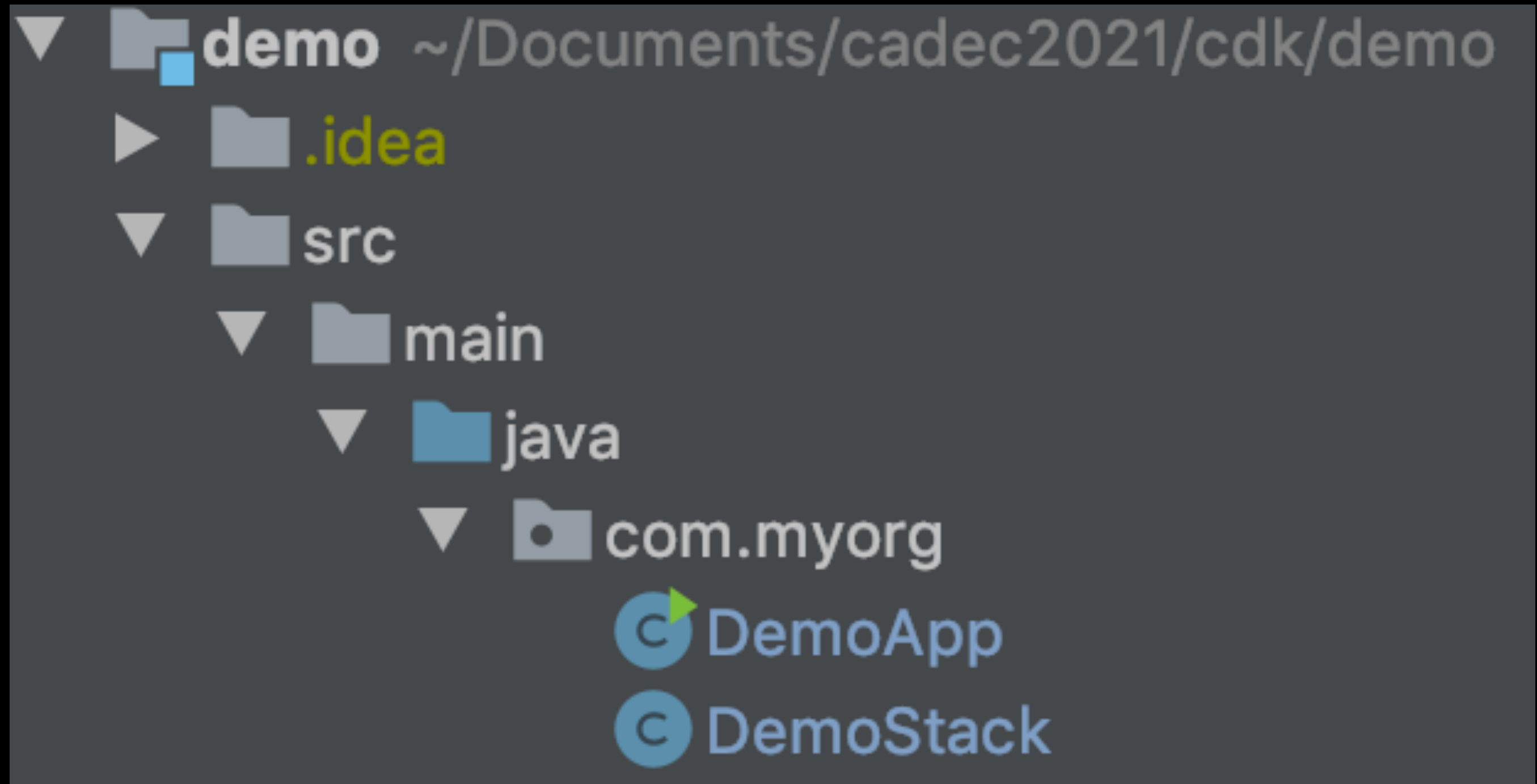
"A SOFTWARE DEVELOPMENT FRAMEWORK FOR DEFINING CLOUD INFRASTRUCTURE IN CODE AND PROVISIONING IT THROUGH AWS CLOUDFORMATION."¹

- First release July 2019
- Programming code -> CloudFormation
- JavaScript, TypeScript, Python, C#, Java
- Open source

PROJECT SET-UP

- Node.js
- AWS CLI (credential configuration)
- CDK CLI
- `cdk init --language java`

PROJECT SET-UP



| AWS CLOUD DEVELOPMENT KIT

```
public class S3Stack extends Stack {  
  
    public S3Stack(Construct scope, String id, StackProps props){  
        super(scope, id, props);  
  
        Bucket.Builder.create(this, "DemoBucket")  
            .publicReadAccess(true)  
            .removalPolicy(RemovalPolicy.DESTROY)  
            .websiteIndexDocument("index.html")  
            .build();  
    }  
  
}
```

AWS CLOUD DEVELOPMENT KIT

```
public class DemoApp {  
  
    public static void main(final String[] args){  
        App app = new App();  
  
        new S3Stack(app, "S3Stack", StackProps.builder()  
            .env(Environment.builder()  
                .region("eu-west-1")  
                .account("123412341234")  
                .build())  
            .build());  
  
        app.synth();  
    }  
  
}
```

AWS CLOUD DEVELOPMENT KIT

```
public MyEcsConstructStack(Construct scope, String id, StackProps props){
    super(scope, id, props);
    Vpc vpc = Vpc.Builder.create(this, "MyVpc")
        .maxAzs(3).build();

    Cluster cluster = Cluster.Builder.create(this, "MyCluster")
        .vpc(vpc).build();

    ApplicationLoadBalancedFargateService.Builder.create(this, "MyFargateService")
        .cluster(cluster)
        .cpu(512)
        .desiredCount(6)
        .taskImageOptions(
            ApplicationLoadBalancedTaskImageOptions.builder()
                .image(ContainerImage.fromRegistry("amazon/amazon-ecs-sample"))
                .build())
        .memoryLimitMiB(2048)
        .publicLoadBalancer(true).build();
}
```

EXAMPLE FROM [HTTPS://DOCS.AWS.AMAZON.COM/CDK/LATEST/GUIDE/HOME.HTML](https://docs.aws.amazon.com/cdk/latest/guide/home.html)

L1, CLOUDFORMATION ONLY

```
CfnBucket.Builder.create(this, "DemoBucket")
    .websiteConfiguration(CfnBucket.WebsiteConfigurationProperty.builder()
        .indexDocument("index.html")
        .errorDocument("error.html")
        .build())
    .corsConfiguration(CfnBucket.CorsConfigurationProperty.builder()
        .corsRules(Collections.singletonList(
            CorsRule.builder()
                .allowedHeaders(Collections.singletonList("Authorization"))
                .allowedMethods(Collections.singletonList(HttpMethods.GET))
                .allowedOrigins(Collections.singletonList("*"))
                .build())
        ))
    .build())
.build();
```

L2, CURATED

```
Bucket.Builder.create(this, "CuratedBucket").build();
```

accessControl?

Type: `BucketAccessControl` (optional, default: `BucketAccessControl.PRIVATE`)

Specifies a canned ACL that grants predefined permissions to the bucket.

blockPublicAccess?

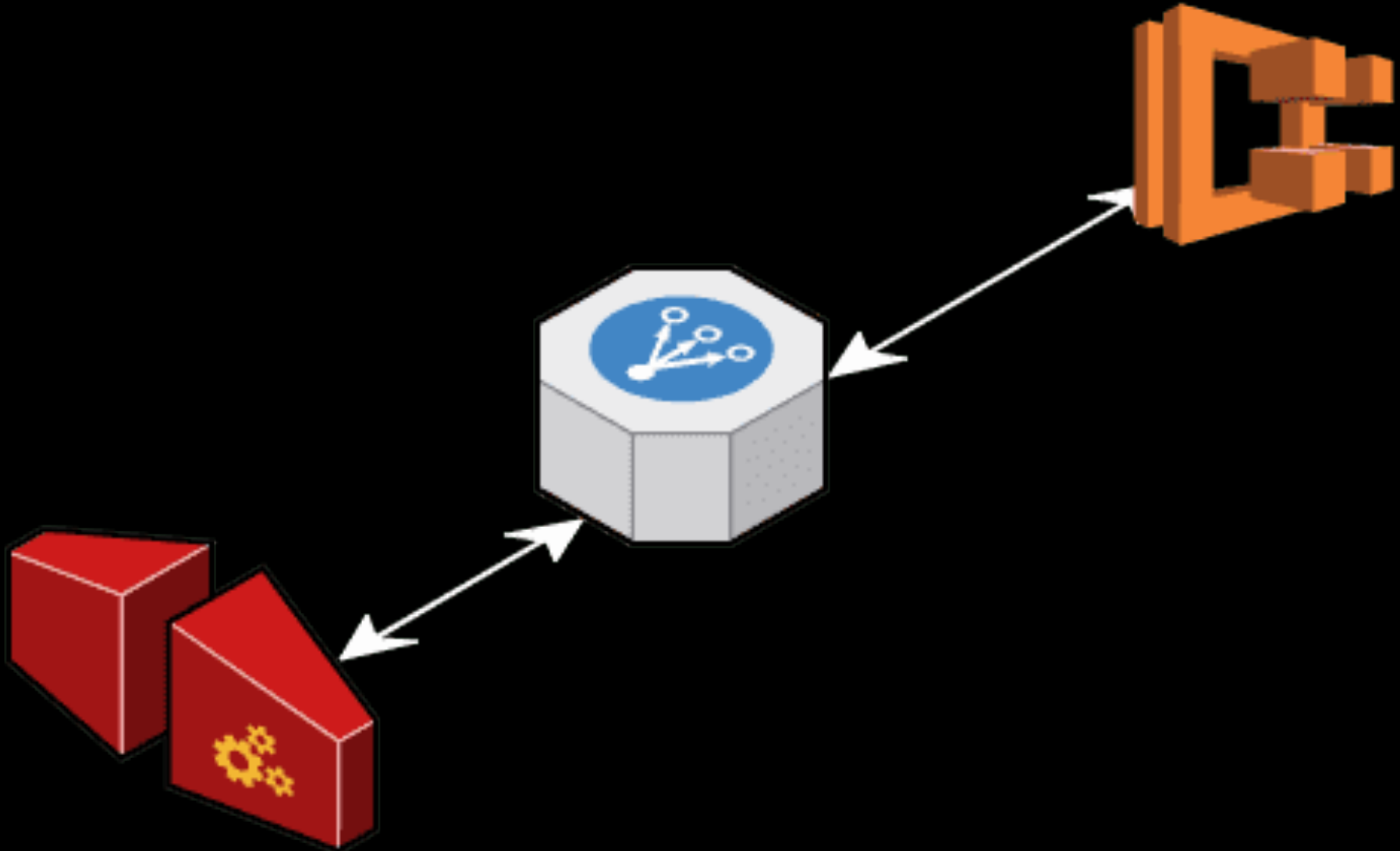
Type: `BlockPublicAccess` (optional, default: `false` New buckets and objects don't allow public access, but users can modify bucket policies or object permissions to allow public access.)

The block public access configuration of this bucket.

SOURCE: [HTTPS://DOCS.AWS.AMAZON.COM/CDK/API/LATEST/DOCS/@AWS-CDK_AWS-S3.BUCKET.HTML](https://docs.aws.amazon.com/cdk/api/latest/docs/@aws-cdk_aws-s3.Bucket.html) (2020-12-13)

L3, PATTERNS

```
ApplicationLoadBalancedFargateService.Builder.create(this, "MyFargateService")
    .cluster(cluster)
    .cpu(512)
    .desiredCount(6)
    .taskImageOptions(
        ApplicationLoadBalancedTaskImageOptions.builder()
            .image(ContainerImage.fromRegistry("amazon/amazon-ecs-sample"))
            .build())
    .memoryLimitMiB(2048)
    .publicLoadBalancer(true).build();
```

Documents/cadec2021/cdk using  ew-dev

→ █

|

PROS & CONS

CLOUDFORMATION

+

General perks of Infrastructure-as-Code

-

Syntax of YAML and JSON

No type safety

Demands good knowledge of underlying services

CDK

+

Existing IDE

Type safety

Abstraction

Export self-made constructs

Improved readability

Logical constructs

-

Risk of erroneous configuration (abstraction)

Some constructs require work-arounds

STAY SAFE!

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