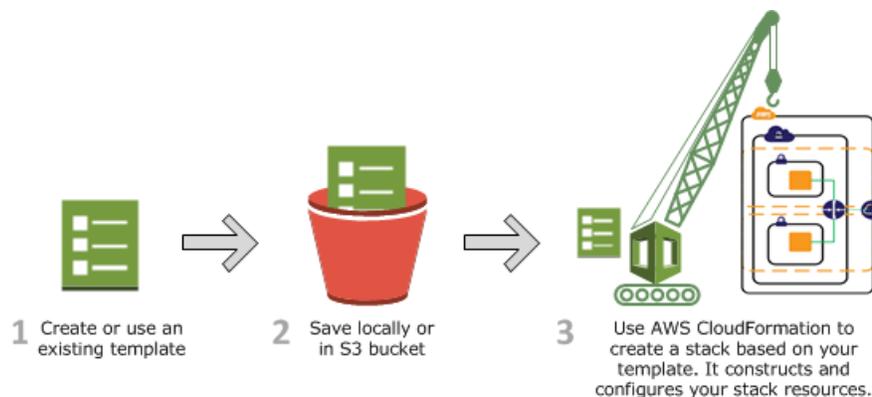




AWS
CloudFormation

❖ AWS CLOUD FORMATION:

- CloudFormation is an **infrastructure as code (IaC)** service that allows you to easily model, provision, and manage AWS and third-party resources.
- AWS CloudFormation is a service that helps you model and set up your AWS resources so that you can spend less time managing those resources and more time focusing on your applications that run in AWS.
- AWS CloudFormation works with templates and stacks.
- Creating templates in AWS CloudFormation, you use a JSON/YAML script.
- CloudFormation can:
 - Simplify infrastructure management.
 - Quickly replicate your infrastructure.
 - Easily control and track changes to your infrastructure.



USE CASES:

- Manage infrastructure with DevOps
- Scale production stacks
- Share best practices

BENEFITS:

- Save time – you don't have to manually create duplicate architecture in additional regions.
- Model it all
- Since your infrastructure is now code, you can version control your infrastructure. Allowing for rollbacks to previous versions of your infrastructure if a new version has issues.

- Allows for backups of your infrastructure.
- Great solution for disaster recovery.

➤ **WHAT IS JSON:**

- JSON stands for **JavaScript Object Notation**
- JSON is a lightweight format for storing and transporting data
- JSON is "self-describing" and easy to understand
- AWS template format version:
 - Description
 - Meta-data
 - Parameters
 - Mappings
 - Conditions
 - Outputs
 - Resources (The only section that is required)

JSON SYNTAX RULES:

- Data is in name/value pairs
- Data is separated by commas
- Curly braces hold objects
- Square brackets hold arrays

➤ **YAML:**

- YAML stands for **YAML Ain't Markup Language**, but it originally stood for **Yet Another Markup Language**.
- YAML is a human-readable data serialization language, like XML & JSON.

YAML SYNTAX RULES:

- 3 dashes (---) are used to signal the start of a document, while each document ends with three dots (...). YAML is case sensitive
- The files should have **.yaml or .yml** as the extension
- It does not allow tabs while creating YAML files; spaces are allowed instead.

➤ CLOUDFORMATION COMPONENTS:

- Templates
- Stacks
- StackSet
- CloudFormer

TEMPLATES:

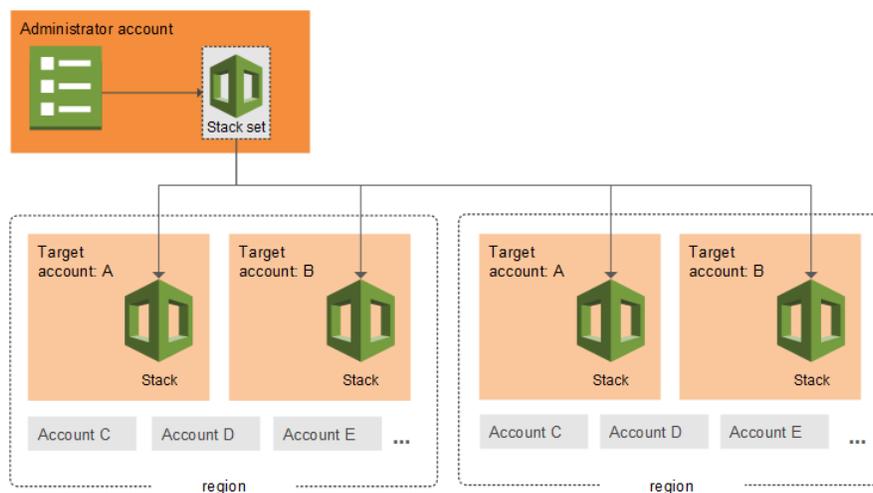
- A CloudFormation template is a JSON or YAML formatted text file that describes your AWS infrastructure.
- You can save these files with any extension, such as .json, .yaml, .template, or .txt.
- AWS CloudFormation uses these templates as blueprints for building your AWS resources.
- Templates can include several major sections:
 - AWS Template Format Version
 - Description
 - Metadata
 - Parameters
 - Mappings
 - Conditions
 - Resources
 - Outputs

STACK:

- A stack is the implementation of your template.
- A stack is a collection of AWS resources that you can manage as a single unit. In other words, you can create, update, or delete a collection of resources by creating, updating, or deleting stacks.
- All the resources in a stack are defined by the stack's AWS CloudFormation template.
- **CHANGE SETS:** If you need to make changes to the running resources in a stack, you update the stack. Before making changes to your resources, you can generate a change set, which is a summary of your proposed changes.

STACK SETS:

- A StackSet is a container for AWS CloudFormation stacks that lets you provision stacks across AWS accounts and regions by using a single AWS CloudFormation template.
- A stack set is a regional resource. If you create a stack set in one AWS Region, you can't see it or change it in other Regions.
- Stack sets can be created using either self-managed permissions or service-managed permissions.



CLOUDFORMER:

- CloudFormer is a template creation beta tool that creates an AWS CloudFormation template from existing AWS resources in your account.
- This means you can capture and redeploy applications you already have running.
- AWS CloudFormation provides an easy way for creating and configuring collections of AWS resources.
- CloudFormer creates a template in an Amazon S3 bucket.

➤ **CLOUDFORMATION DESIGNER:**

- **AWS CloudFormation Designer (Designer)** is a graphic tool for creating, viewing, and modifying AWS CloudFormation templates.
- With Designer, you can diagram your template resources using a drag-and-drop interface, and then edit their details using the integrated JSON and YAML editor.
- Designer is part of the AWS CloudFormation console.
- Designer panes and components are:
 - Toolbar
 - Resource types pane
 - Canvas pane
 - Fit to window button
 - Full screen and Split screen buttons
 - Integrated JSON and YAML editor pane
 - Messages pane

➤ **CLOUDFORMATION REGISTRY:**

- The CloudFormation registry lets you manage extensions, both public and private, such as resources, modules, and hooks that are available for use in your AWS account.
- The registry makes it easier to discover and provision extensions in your AWS CloudFormation templates in the same manner you use AWS-provided resources.

PUBLIC AND PRIVATE EXTENSIONS:

- Extension types are registered as either public or private. Currently, the registry offers the following extension types:

RESOURCE TYPES: model and provision custom logic as a resource, using stacks in CloudFormation.

MODULES: package resource configurations for inclusion across stack templates, in a transparent, manageable, and repeatable way.

HOOKS: proactively inspect the configuration of your AWS resources before provisioning.