Cloud Formation Template (CFT)

Introduction

- It gives developers and systems administrators an easy way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable fashion.
- Called as "Infrastructure as Code"

Objectives

- Create a standalone stack using the existing template.

<u>Pre-Requisites</u>

- AWS Account (Signup User) / IAM User Account
- Practical knowledge on AWS CLI / AWS Console
- Basic knowledge on AWS Resources and Cloud Formation Template
- Basic Understand on JSON
- Key Pair to access to login your instance (Assumed this document, you have already have the .pem key)

Template Components

Key	Description
AWSTemplateFormatVersion	Specifies the AWS CloudFormation template version that the template conforms to. The template format version is not the same as the API or WSDL version.
Description	A text string that describes the template. This section must always follow the template format version section.
Parameters (optional)	Specifies values that you can pass in to your template at runtime (when you create or update a stack). You can refer to parameters in the Resources and Outputs sections of the template.
Mappings (optional)	A mapping of keys and associated values that you can use to specify conditional parameter values, similar to a lookup table. You can match a key to a corresponding value by using the Fn::FindInMap intrinsic function in the Resources and Outputs section.
Conditions	Defines conditions that control whether certain resources are created or whether certain resource properties are assigned a value during stack creation or update. For example, you could conditionally create a resource that depends on whether the stack is for a production or test environment.

Resources	Specifies the stack resources and their properties, such as an Amazon Elastic Compute Cloud instance or an Amazon Simple Storage Service bucket. You can refer to resources in the Resources and Outputs sections of the template.
Outputs (optional)	Describes the values that are returned whenever you view your stack's properties. For example, you can declare an output for an Amazon S3 bucket name and then call the aws cloudformation describe-stacks AWS CLI command to view the name.

Instructions

Creating Stack Using CloudFormation Template

1. Login as Admin User/IAM User with the below URL

<u>https://aws.amazon.com/console/</u> [Admin User] <u>https://My_AWS_Account_ID.signin.aws.amazon.com/console/</u> [IAM User]

- 2. Select the Region which you want run the cloud Formation Template (eg: ap-northeast-1 / us-east-1)
- 3. Check the AMI in template exists in the selected region or not (Note: If not, copy the AMI from one region to another region)
- 4. Select Services -> CloudFormation from Management Tools
- 5. Click on **Create Stack** on top of Header

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reate Stack Actions - Design template		C O
ter: Active - By Name:		Showing 0 stacks
	Design a template Templates self AVIS CloudFormation which AVIS resources to previous and how to provision them. When you create a CloudFormation stack, you must be add to your templates, you can use the diag and-diop bot called AVIS CloudFormation Designer. You drag and drop the resources that you want to add to your template and diag lows between resources or create an extension. To use Designer to create a template to to open and modely a serplate. How one your	
	Create a Stack AWS Cloudformation allows you to guickly and easily deploy your inhibitoricular resources and applications on AWS. You can use one of the templates we provide to get tateled guickly with applications like vitorifiness or togaid, one of the many tample templates or create your own template. You do not currently have any stacks. Click the Create New Stack New You can use an ew AWS cloudformation stack. Create New Stack	4
	Create a Template from your Existing Resources If you already have AWS resources numing, the CloudFormer tool can create a template from your existing resources. This means you can capture and redsploy applications you a leady have naming. To do this, dick Launch CloudFormer and create an AVS CloudFormer URL available on the Outputs tab.	
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6. Pick a template (<name>.template) from the Local PC / Amazon S3 template URL

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Select Template Specify Details Options Review	Select Template Select the template that descrit	es the stack that you want to create. A stack is a group of related resources that you manage as a single unit.					
	Design a template	Use AWS CloudFormation Designer to create or modify an existing tem Design template	plate. Learn more.				
	Choose a template	A template is a JSON-formatted text file that describes your stack's reso Select a sample template Upload a template to Amazon S3 Choose File No file chosen Specify an Amazon S3 template URL	urces and their properties. Learn more.				
				Cancel	Next		

7. Click on Next

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8. Give the Stack Name and Choose the appropriate Parameters

Select Template Specify Details	Specify Details		
Options Review	Specify a stack name and para	meter values. You can use or change t	e default parameter values, which are defined in the AWS CloudFormation template. Learn more.
	Stack name	my-test	k l
	Parameters		
	InstanceType	t2.micro	WebServer EC2 instance type
	KeyName	test-sai-us-north Name of an existing EC2 KeyPair to enable	SSH access to the instance
	SSHLocation	0.0.0/0	The IP address range that can be used to SSH to the EC2 instances

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9. Click on Next

10. Create Tags, if you want (Help you identify and categorize those resources.)

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Select Template Specify Details		Options							
Options Review		Tags You can specify tags (key-value pairs) for resources in your stack. You can add up to 10 unique key-value pairs for each stack. Learn more.							
		Key (127 characters maximum)	Value (255 characters maximum)						
		1 Name	test-stack			+			
		 Advanced You can set additional options for your stack, like notification options and 	i a stack policy. Learn more.						
				Cancel	Previous	Next			
				3					
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- 11. Click on Next
- 12. Review Created template, stack details before starting / Create the Stack

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Select Template Specify Details	Review	
Options Review	Template	
• Winn sets	Template UR Description Estimate cos	https://s3-external-1_amazonaws.com/c1-templates-vfax00lit/vf-us-east-1/201534552Y-EC2InstanceWthSecurityGroupSample.template AWS CloudFormation Sample Template EC2InstanceWthSecurityGroupSample: Create an Amazon EC2 Instance running the Amazon Linux AMI. The AMI is chosen based on the region in which the stack is run. This example creates an EC2 security group for the instance to give you SSH access. **WARNING** This template creates an Amazon EC2 Instance. You will be billed for the AWS resources used if you create a stack from this template. Cost
	Stack details	
	Stack name	• my-lest
	InstanceTyp KeyNam SSHLocation	: 12.micro 1 esc.au.e.onth 0.0.00
	Create IAM resource	s No
	Options	
	Tags	2
	Name	test-stack
	Advanced	
	Notification Timeou Rollback on failur	none Yes
		Cancel Previous Create

13. Click On Create and wait until completion

14. Check the Resources, OutPuts, Parameters, Tags ... from the bottom section once after CREATE_COMPLETE

Create Stack	Actions	s •	Design templa	ate							C
Filter: Active	- By N	lame:								Showin	ing 1 sta
Stack Nam	ne	Crea	ted Time	Status		tatus Description		Description			
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15. Check the Resources and go to relevant services and verify as per template, resources are created or not

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EC2 Dashboard	Launch Instance Connect Actions V	순 🕈 🙆
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Reports	Nama v Instance ID 🔺 Instance Tune v Availability Zone v Instance State v Status Checks v Alarm Status	Public DNS y Dublic ID
LIMITS		
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Reserved Instances		
Commands		
Dedicated Hosts		
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Connecting to EC2 (Webserver) instance using SSH

- Open the Terminal
- Locating to Path and give the permission to the .pem key chmod 400 /path/my-key-pair.pem
- Login to ec2 using the below command
 - ssh -i /path/my-key-pair.pem <user_name>@<instance_url>
- Verify that the fingerprint in the security alert matches the fingerprint ssh -i /path/my-key-pair.pem <user_name>@<instance_url>
- Install apache2 / httpd and test the server



Note : We can download the sample cloudformation templates by below URL:

http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/sample-templates-services-us-west-2_.html

Copying Files

scp -ri <keyname.pem> <file path> <username>@<server-name/server-ip address>:<path>

<u>To Download</u>

scp -i </path/my-key-pair.pem> <user_name>@<instance_url>

***** Thank You ***** Sivaram