



# AWS CloudFormation with Template Designer

TR Unconference Day

Presented by Felix Eyetan

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# Today's Agenda

- ❑ What is CloudFormation
- ❑ Why use CloudFormation
- ❑ Anatomy of a CloudFormation Template
- ❑ What is the CloudFormation Designer
- ❑ CloudFormation Designer Walk Through
- ❑ Hands-on Exercises and discussions, as we go along, of key concepts and features
- ❑ Unconference Voting (you must ☺)
- ❑ Group picture (if possible)



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# About me



[www.linkedin.com/in/eyetanfelix/](https://www.linkedin.com/in/eyetanfelix/)

I am a Software Engineer that loves to learn new and better ways of being a Software Engineer.

I just began my journey into DevOps and seem to be taking a lot of interest in Infrastructure as Code.



Certified Internet  
Web Professional



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# What is CloudFormation?

Our goal today is...

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# AWS CloudFormation Definition

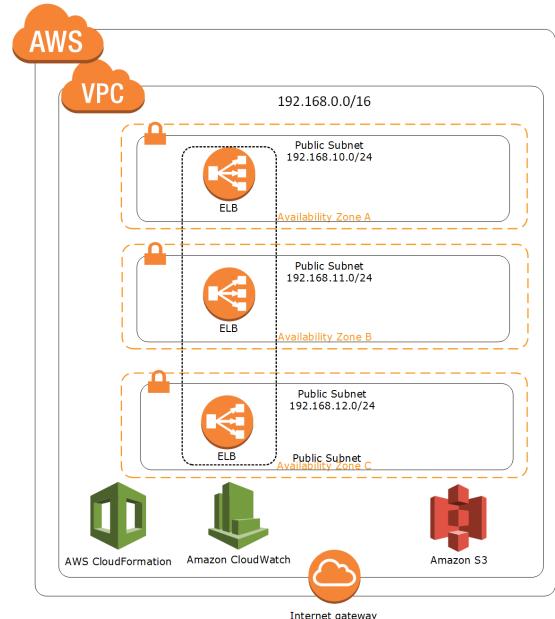
CloudFormation is an AWS service that allows you to create and provision AWS infrastructure deployments predictably and repeatably.

It enables you to create, update and delete your infrastructure as a single unit. With CloudFormation you can describe your infrastructure, as a Stack and the CloudFormation engine will proceed to provision them as described.

It is your Infrastructure as Code service.

AWS CloudFormation is a service that helps you model and set up your Amazon Web Services resources so that you can spend less time managing those resources and more time focusing on your applications that run in AWS.

– Official AWS definition



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A wide-angle photograph of a city skyline at night. The sky is dark, and numerous skyscrapers are brightly lit from within, creating a dense grid of light points. In the foreground, there are lower buildings and apartment complexes with their lights on. The overall atmosphere is one of a bustling urban center.

# Why CloudFormation?

Some reasons include:

- ❑ Simplify infrastructure management
- ❑ Quickly replicate your Infrastructure in multiple regions
- ❑ Easily control and track changes to your infrastructure
- ❑ Integrates with development, CI/CD, and other management tools
- ❑ Can save time and money

Your infrastructure is described in what is called a **Stack** and saved as what is called a **template**. Templates are text files with your resource definitions, properties and setting and could be saved as a **.json** or **.yaml** formatted file.

They can also be saved as a **.template** or even **.txt** file.

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# Anatomy of a Template

## **AWSTemplateFormatVersion:**

#This specifies the version the CloudFormation template conforms to

## **Description:**

#A text string that describes of your template. Entirely up to you

## **Metadata:**

#They provide additional information about the template, the Template designer uses this a lot

## **Parameters:**

#Specifies the values that you can pass to your template at run time, saves you having to hardcode some values which makes sense when running the template in other regions based on certain scenarios

## **Mappings:**

#A mapping of keys and associated values that can be used to specify additional parameter values. This is similar to a look up table

## **Conditions:**

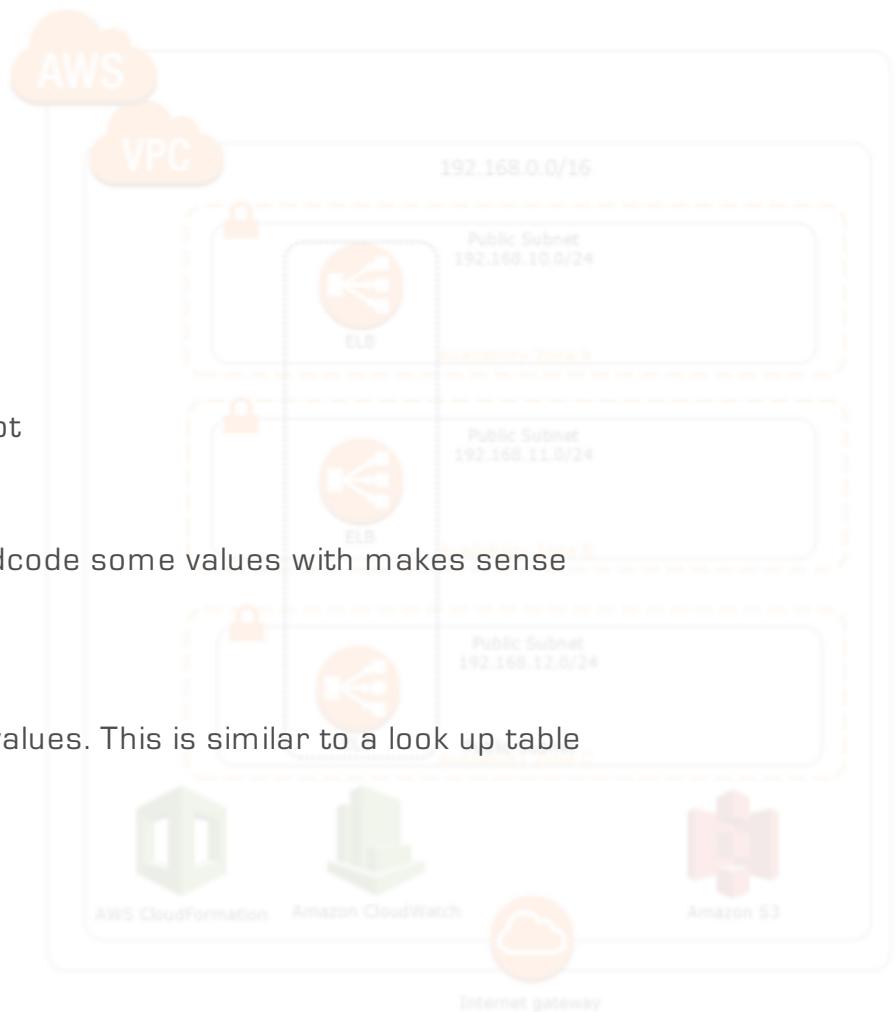
#Controls whether certain resources are created or not based on certain conditions

## **Outputs:**

#These are values that are returned whenever you view your Stack properties

## **Resources: [required]**

#These specify your Stack resources and their properties e.g. your description of your EC2 instance and what security group, or instance size it has etc.



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# Template Designer

AWS CloudFormation 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. Whether you are a new or an experienced AWS CloudFormation user.

## Pros

- You can quickly see the interrelationship between resources and easily modify templates
- You can quickly get your resource definition quickly due to the drag and drop UI
- You can quickly get to the documentation of that resource by right lighting the resource icon in the designer, much quicker than having to search for it as the documentation is really lengthy
- Helps visualize your infrastructure, images are powerful
- Helps speed up template editing
- Helps switch between **json** and **yaml** hence to separate teams or engineers can work on the same infrastructure Stack
- AWS provides some sample template from the designer that can get you up and running quickly.

## Cons

- The designer adds more to your template file, this will add to the overall file size and length and may be distracting to some developers
- Like any tool, you have to learn to use it, as it has its own quirks that will take getting used to
- Only available from the AWS console.



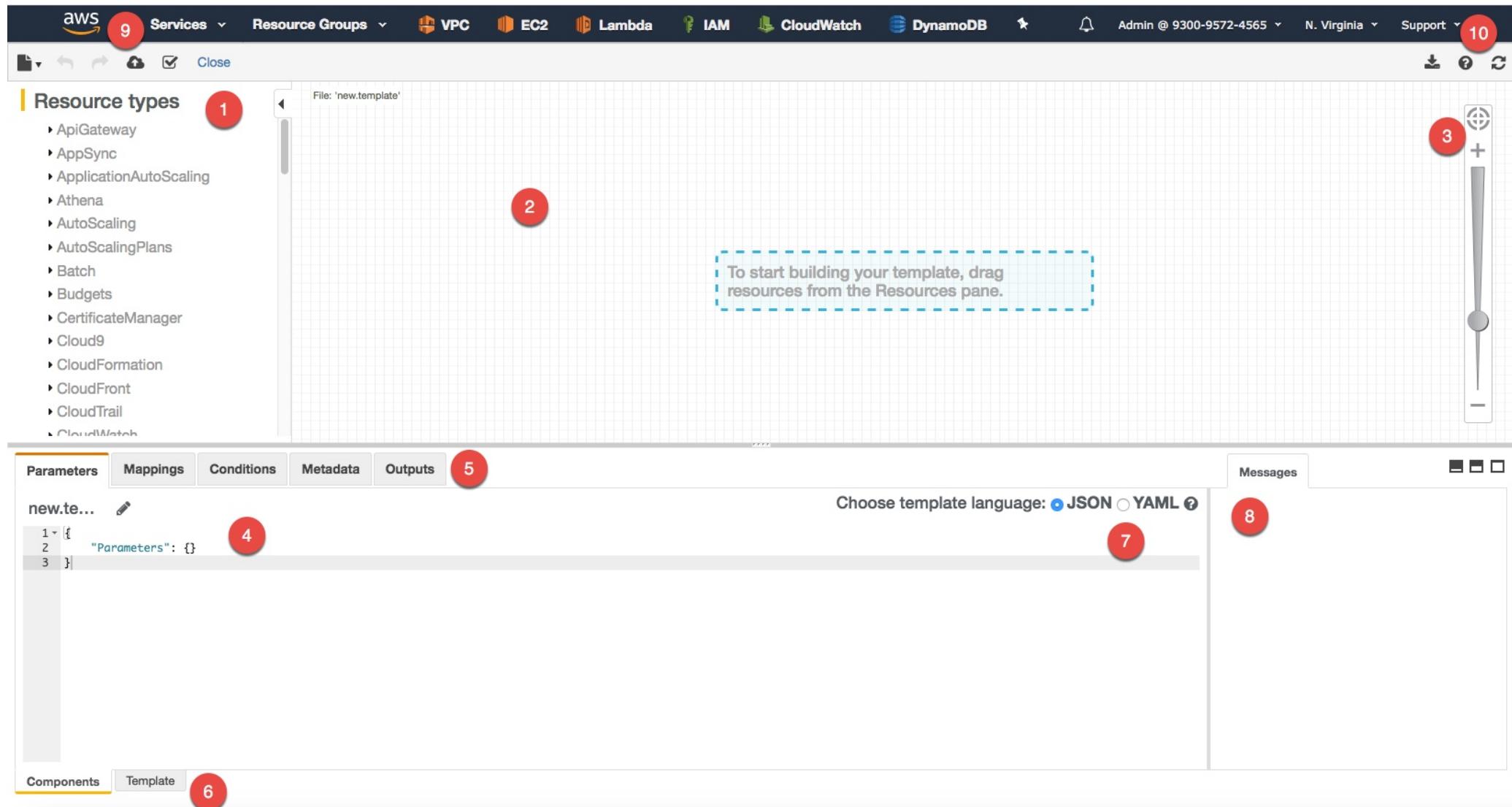
# Hands-on and Exercises



If you have an AWS account, free, not free or TR Sandbox. Resource creation will be minimal in these exercises and we'll be cleaning up any resource created.

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# The Designer



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# Exercises

## Familiarize exercise

Create one VPC with one subnet with 2 EC2 instance having one Security group and depending on one s3 bucket.

### Exercise 1a

Create an S3 bucket using the CloudFormation designer

### Exercise 1b

Create an S3 bucket using the CloudFormation designer, add a parameter call “Bucket Name” to request a bucket name a create time

### Exercise 2a

Upload exercise 2a file and run it. [talk about Events console logs, Stack deletion etc. fix any issues and rerun template

### Exercise 2b

- Add a new tag called Name to the EC2 instance. Use Update Stack under Stack actions button
- Make the following Parameters and reference them in the Stack:
  - The instance AMI to use
  - The subnet to place it in
  - Some other tags like team name, environment etc.

### Exercise 2c

Update the Stack by adding another instance to it using the Designer

### Exercise 2d

Add a new Security groups resource to the instances one with SSH port open  
Update and lock down SSH port on instance.

### Exercise 3a

Create an Auto scaling group with 3 EC2 instances, add a Security group.

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# Next Steps

- ❑ Safari Online. Authors include
  - ❑ Paul M. Duvall
  - ❑ Manuj Aggarwal
  - ❑ Richard A. Jones
- ❑ Basic AWS Foundation by Jason Gilbert (TR Hub)
- ❑ ACloud Guru website

Connect with me:

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# Questions



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