Module 8: CloudFormation
Assignment - 1

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Problem Statement:

You work for XYZ Corporation. Your team is asked to deploy similar architecture multiple times for testing, development, and production purposes. Implement CloudFormation for the tasks assigned to you below.

Tasks To Be Performed:

1. Create a template which can create an S3 bucket named "intellipaat-<yourname>"
2. The template should be able to enable versioning for the bucket created.

Solution

Managing all the resources of a complex application on AWS becomes a problem when there are a lot of resources to be maintained, e.g., if I have to launch 5 EC2 instances of different configurations like separate VPCs subnet mask, IGW will take a lot of time as well as effort, so CloudFormation (CF) comes into the picture.

CF allows us to model our entire infrastructure in a file and that file is just a code, I can just write a code and upload it in my CF and it will create my entire infrastructure for me.

We can create or modify an existing AWS CF template. A template describes all of our resources and their properties. Basically, we write our code in the form of a template and later we upload that code to our CF and it deploys all our services.

To make changes or modifications, we can simply track the differences in our templates to check changes in our infrastructure, similar to the way developers control revisions to source code. Let's say there is a web server running and I have to make some changes, I can just make changes in the source code, and the changes are made, in the same manner, I can just make changes to my CF template and my entire infrastructure will be modified account to my templates. We can also reuse our template to set up our resources consistently and repeatedly. We can just describe our resources over and over to multiple regions. Since we are using our template to modify which brought us to this point, can we reuse them? So, the answer is yes, we can reuse them, going with the same template, I can make changes in the template. I don't want to make changes; I can use the same template in different regions to launch even if I can use the same template in the same region to launch my resources.

How does CF work?

Let's say code infrastructure from scratch, we will be writing our code in either YAML/JSON file then or we can upload the code to the S3 bucket or directly to the CF stack, once we have uploaded our template to the bucket or directly to the CF stack (we can directly provide the link over the stack), it will extract the details what we are going to launch and then it will start configuring the resources.

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Steps for the creation of S3 bucket with versioning enabled in CloudFormation

- Go to the management console, search CloudFormation
- Choose Designer.
- Choose Template.

Here we can write the codes either in JSON/YAML format.

```
{
    "AWSTemplateFormatVersion": "2010-09-09",
    "Resources": {
        "myS3Bucket": {
            "Type": "AWS::S3::Bucket",
            "Properties": {
                "BucketName": "intellipaat-bikironsharma",
                "VersioningConfiguration": {
                    "Status": "Enabled"
                }
            },
            "Metadata": {
                "AWS::CloudFormation::Designer": {
                    "id": "2382d86c-61d2-42f8-bba0-490966a1ff76"
                }
            }
        }
    },
    "Metadata": {
        "AWS::CloudFormation::Designer": {
            "2382d86c-61d2-42f8-bba0-490966a1ff76": {
                "size": {
                    "width": 60,
                    "height": 60
                },
                "position": {
                    "x": 340,
                    "y": 130
                },
                "z": 1,
                "embeds": []
            }
        }
    }
}
```

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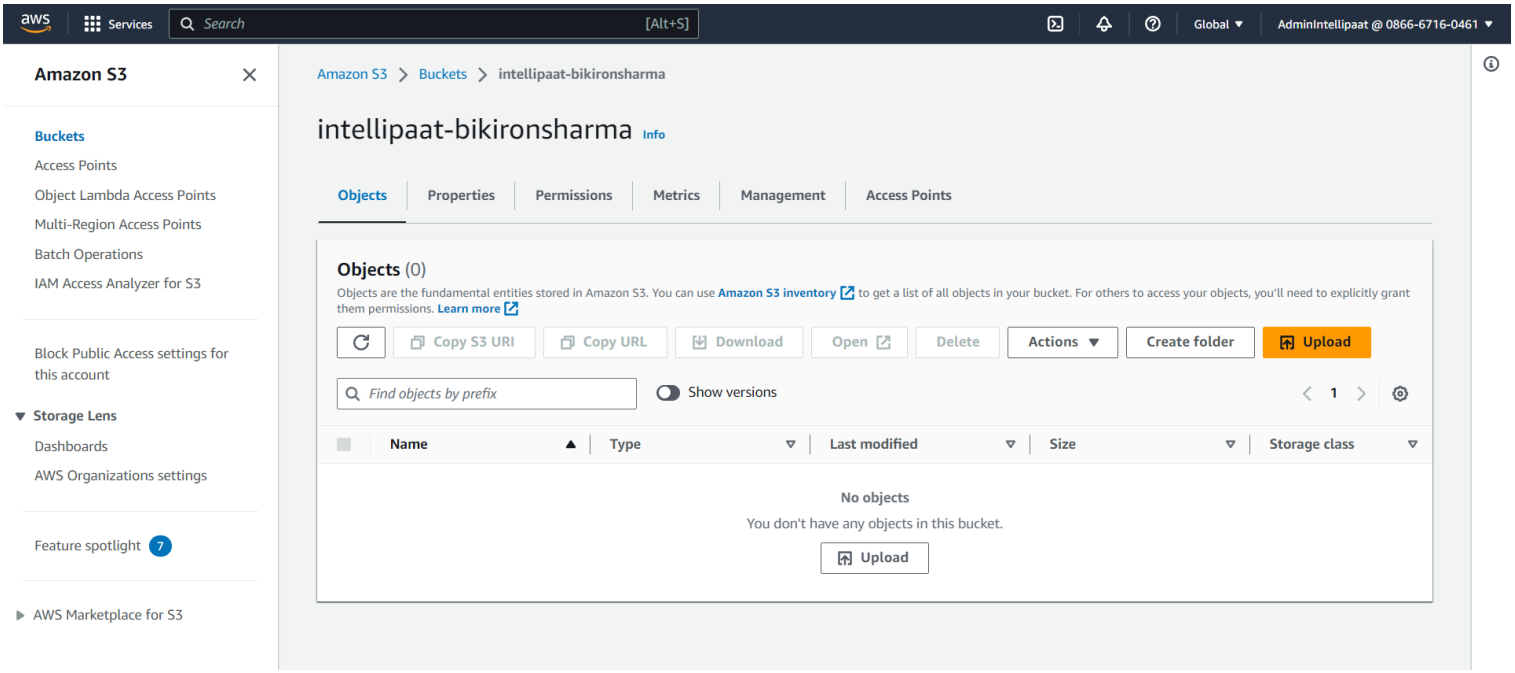
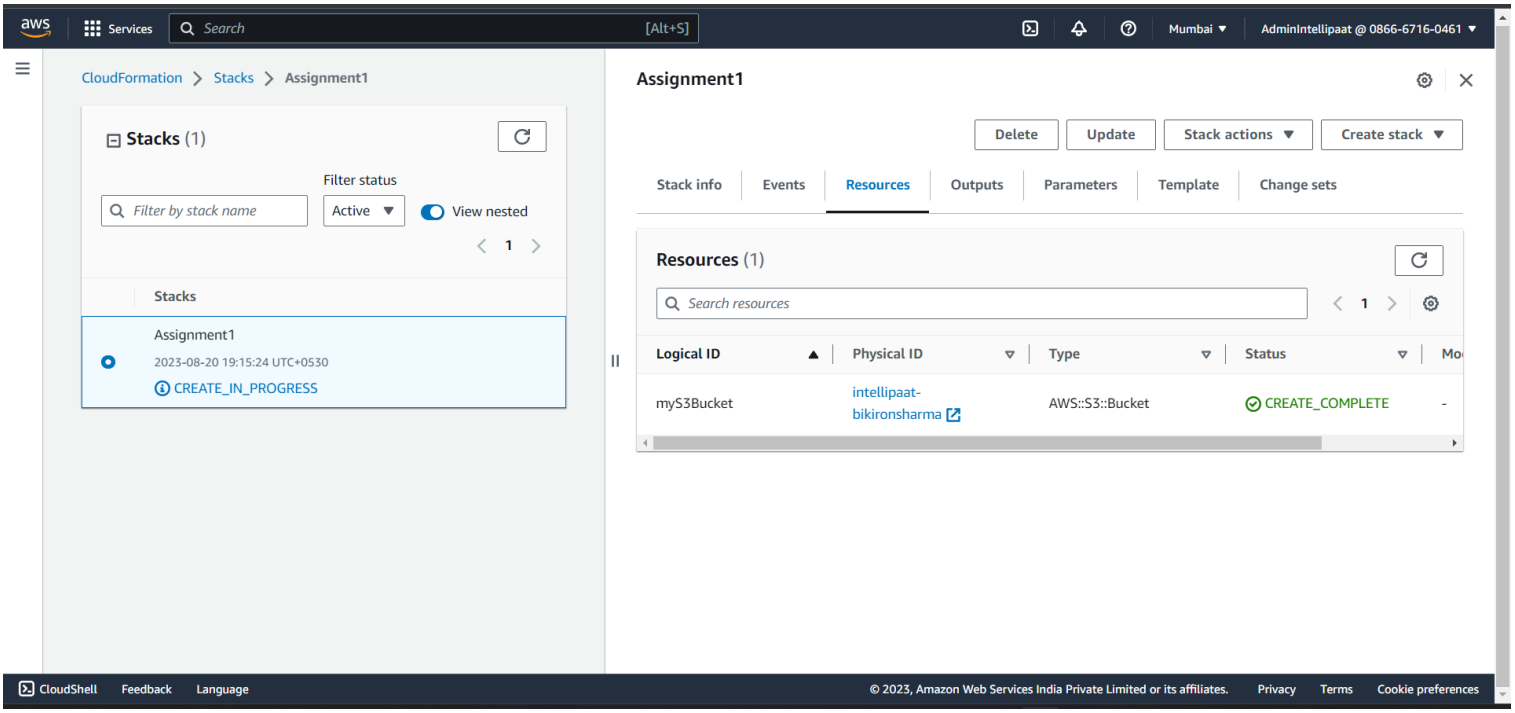
- Now click on the validation mark, which means the codes you use in JSON/YAML is correct or not.
- Now, we will upload this template to the Stack, or we can also download this template on to our local machine also.
- After clicking on to the stack, it will show→ Prepare template(template is ready)→Template source(Amazon S3 URL)
- whenever we click on the 'create stack' button, basically It will be redirected to my "Create stack" option, it will upload this template on S3 bucket→Next→Stack Name(Assignment1)→Next→Here you will see a template URL(you can see in which region the template is uploaded to the s3 bucket) but your S3 bucket will create in the selected region only→ Submit

RESULT




Services
Search
[Alt+S]
Mumbai
AdminIntellipaat @ 0866-6716-0461
CloudFormation > Stacks > Assignment1
Stacks (1)
Filter status
Filter by stack name
Active
View nested
1
Stacks
Assignment1
2023-08-20 19:15:24 UTC+0530
CREATE_IN_PROGRESS
Assignment1
Delete
Update
Stack actions
Create stack
Stack info
Events
Resources
Outputs
Parameters
Template
Change sets
Resources (1)
Search resources
1
Logical ID
Physical ID
Type
Status
myS3Bucket
intellipaat-bikironsharma
AWS::S3::Bucket
CREATE_COMPLETE
CloudShell
Feedback
Language
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