**AWS Cloudformation**

It is an infrastructure as code provider that allows you to create and define a file and then uploading it to AWS Cloudformation, now AWS will take that file and deploy your application in a single click. And then provide you status update, if anything goes wrong then it will rollback automatically.

**Key Concepts**

* We create a template in .yaml and .json format which contain resources.

{

"Resources": {

"FirstEC2Instance": { ---name of resource

"Type": "AWS::EC2::Instance", ---aws : provider, ec2 : service name, instance : resource

"Properties": {

"ImageId": "ami-0ab4d1e9cf9a1215a" --for image id goto ec2 and then launch instance and then select image id

}

}

}

}

* Stacks – it is a larger grouping of templates and resources.
* Changesets – it is a diff between about what cloudformation has from previous upload and what you are attempting to upload. So it is a diff between these two things.

-🡪 Cloudformation works in incremental steps .

Structure of JSON Document/Template section

1. AWS Template format version (optional)
2. Description (optional)
3. Metadata(optional)
4. Parameter (optional)
5. Mapping (optional)
6. Condition (optional)
7. Output (optional)
8. Resource (required)

**Steps to create first EC2 instance –**

1. First we need to create template in json file and insert every key and value required as

{

"Resources": {

"FirstEC2Instance": { ---name of resource

"Type": "AWS::EC2::Instance", ---aws : provider, ec2 : service name, instance : resource

"Properties": {

"ImageId": "ami-0ab4d1e9cf9a1215a" --for image id goto ec2 and then launch instance and then select image id

}

}

}

}

Note - Every name should be in right format and quotes and format should also be in right format, and to get the format and syntax go to google and search aws resource type then go to your resource and see the syntax.

1. Login to aws, before creating cloudformation stack we need to create a role to give permission to stack at the deployment time. we will use this rule during stack creation.
2. Search for IAM in AWS and then select the role option > create role >cloudFormation > give administration access > give key value, key is name and value is the name like cloudknowledge > role name like cloud knowledge, now the role is generated.
3. Go to cloudformation > create stack > then select how to upload template whether you want to upload file or create online, after adding template if your template is correct then it will go to next age otherwise give error.
4. Then give stack name > then give key and value, and in permission select role which you had created
5. Now the final submit is there and after submit your stack will take time and it got done.