



Mapping and Pseudo Parameters

1. In this lab you are going to learn about mapping and pseudo parameters.
2. What is mapping? It's just like a dictionary. You want to fetch some value; you have to give the key name and you can create multiple levels inside. And once you declare a mapping variable, you can use a Find in Map intrinsic function to find values from your keys.
3. You can also refer to AWS Documentation for more information about mapping and pseudo parameters.
4. Now I have a template which you can get on GitHub. In this code you can see that this is mapping for AMI.
5. So, we're saying for this region, if you're doing it in this region, you can say Find in Map function for this particular region, and it will return the value.

```
1  Mappings:
2    AmiRegionMap:
3      us-east-1:
4        AMI: "ami-0440d3b780d96b29d"
5      us-east-2:
6        AMI: "ami-02ca28e7c7b8f8be1"
7      us-west-1:
8        AMI: "ami-07619059e86eaaaa2"
9
10 Resources:
11   MyInstance:
12     Type: AWS::EC2::Instance
13     Properties:
14       InstanceType: t2.micro
15       ImageId: !FindInMap
16         - AmiRegionMap
17         - !Ref AWS::Region
18         - AMI
19       Tags:
20         - Key: "Name"
21         - Value: !Join ["-", [demo, instance, from, cloudformation]]
22     SecurityGroups:
23       - !Ref DemoSG
24
25 DemoSG:
26   Type: AWS::EC2::SecurityGroup
27   Properties:
28     GroupDescription: Allow ssh & http from Anywhere-IPv4
29     SecurityGroupIngress:
30       - IpProtocol: tcp
31         FromPort: 80
32         ToPort: 80
33         CidrIp: 0.0.0.0/0
34       - IpProtocol: tcp
35         FromPort: 22
36         ToPort: 22
37         CidrIp: 0.0.0.0/0
```

6. Now upload this template to your CloudFormation and create your stack. One more important thing, that is you need to be in the region which you have mentioned in the code.

- Like I have mentioned US regions, so I need to be in one of those regions. The catch is that it will find the AMI ID for that particular region and then it will create everything.
- Now create your stack. I am in Ohio region right now.

Prerequisite - Prepare template

Prepare template
Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.

Template is ready Use a sample template Create template in Designer

Specify template
A template is a JSON or YAML file that describes your stack's resources and properties.

Template source
Selecting a template generates an Amazon S3 URL where it will be stored.

Amazon S3 URL
Provide an Amazon S3 URL to your template. Upload a template file
Upload your template directly to the console. Sync from Git - new
Sync a template from your Git repository.

Upload a template file

mapping.yaml

S3 URL: <https://s3.ap-south-1.amazonaws.com/cf-templates-kmi81w4ukk76-ap-south-1/2024-02-21T134617.472Znzo-mapping.yaml>

- Here you can see the process of creation. First the security groups got created then the instances after that your stack got created successfully.

CloudFormation > Stacks > mapping

mapping

Stacks (1)

Filter status
Active View nested

Stacks

<input checked="" type="radio"/> mapping	2024-02-21 19:19:07 UTC+0530	<input checked="" type="radio"/> CREATE_COMPLETE
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Events (8)

Timestamp	Logical ID	Status	Status reason
2024-02-21 19:19:50 UTC+0530	mapping	<input checked="" type="radio"/> CREATE_COMPLETE	-
2024-02-21 19:19:50 UTC+0530	MyInstance	<input checked="" type="radio"/> CREATE_COMPLETE	-
2024-02-21 19:19:18 UTC+0530	MyInstance	<input checked="" type="radio"/> CREATE_IN_PROGRESS	Resource creation Initiated
2024-02-21 19:19:16 UTC+0530	MyInstance	<input checked="" type="radio"/> CREATE_IN_PROGRESS	-
2024-02-21 19:19:15 UTC+0530	DemoSG	<input checked="" type="radio"/> CREATE_COMPLETE	-
2024-02-21 19:19:15 UTC+0530	DemoSG	<input checked="" type="radio"/> CREATE_IN_PROGRESS	Resource creation Initiated
2024-02-21 19:19:10 UTC+0530	DemoSG	<input checked="" type="radio"/> CREATE_IN_PROGRESS	-
2024-02-21 19:19:07 UTC+0530	mapping	<input checked="" type="radio"/> CREATE_IN_PROGRESS	User Initiated

- Now as I navigate to EC2 in Ohio region I can see my instance there with the security group assigned to it.
- So, find in Map has found the right AMI ID for us based on our region. Also, we are selecting automatically based on where the template is getting where the stack is getting created.
- After that just delete your stack and it will delete all the resources.

Instances (1/1) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
demo-instance-from-cloudformation	i-0b8f0fd38d8903f16	Running	t2.micro	2/2 checks passed	View alarms +	us-east-2a

Instance: i-0b8f0fd38d8903f16 (demo-instance-from-cloudformation)

Details | Status and alarms [New](#) | Monitoring | Security | Networking | Storage | Tags

Instance summary

Instance ID i-0b8f0fd38d8903f16 (demo-instance-from-cloudformation)	Public IPv4 address 18.226.248.1 Open address	Private IPv4 addresses 172.31.3.6
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-18-226-248-1.us-east-2.compute.amazonaws.com Open address

Security Groups (1/2) Info

Name	Security group ID	Security group name	VPC ID	Description
-	sg-0dcaa79eabcaef63	mapping-DemoSG-9UD0YCFCLAJK	vpc-0655a0406b8344ffa	Allow ssh &

sg-0dcaa79eabcaef63 - mapping-DemoSG-9UD0YCFCLAJK

Inbound rules (2)

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-0ed3e3d923a48b3...	IPv4	HTTP	TCP	80
-	sgr-0908dbafdd3df77ae	IPv4	SSH	TCP	22