

AWS CloudFormation Project Report

Main Goal of this Project Using CloudFormation:

The goal of this project is to simulate a real-world cloud provider scenario using AWS CloudFormation by provisioning three EC2 instances for three different IAM users. Each user can only access and manage their assigned Windows-based EC2 instance via the AWS Management Console using RDP access. This ensures user-level isolation and secure access, all achieved through infrastructure as code.

CloudFormation YAML Code:

```
AWSTemplateFormatVersion: '2010-09-09'
Description: CloudFormation Template to create 3 EC2 instances and IAM users with isolated access

Parameters:
  KeyName:
    Type: String
    Default: key30April
  AmiId:
    Type: String
    Default: ami-0a56bfb349bfb3bb8

Resources:
  ChaithuInstance:
    Type: AWS::EC2::Instance
    Properties:
      InstanceType: t2.micro
      KeyName: !Ref KeyName
      ImageId: !Ref AmiId
      Tags:
        - Key: Name
          Value: ChaithuInstance

  RenuInstance:
    Type: AWS::EC2::Instance
    Properties:
      InstanceType: t2.micro
      KeyName: !Ref KeyName
      ImageId: !Ref AmiId
      Tags:
        - Key: Name
          Value: RenuInstance

  SrinivasInstance:
    Type: AWS::EC2::Instance
```

Properties:

InstanceType: t2.micro
KeyName: !Ref KeyName
ImageId: !Ref AmiId
Tags:
- Key: Name
Value: SrinivasInstance

ChaithuUser:

Type: AWS::IAM::User

Properties:

UserName: Chaithu
LoginProfile:
Password: Chaithu@2007
PasswordResetRequired: false

Policies:

- PolicyName: ChaithuPolicy
PolicyDocument:
Version: "2012-10-17"
Statement:
- Effect: Allow
Action:
- ec2:DescribeInstances
- ec2:StartInstances
- ec2:StopInstances
Resource: "*"
Condition:
StringEquals:
ec2:ResourceTag/Name: ChaithuInstance

RenuUser:

Type: AWS::IAM::User

Properties:

UserName: Renu
LoginProfile:
Password: Renu@1975
PasswordResetRequired: false

Policies:

- PolicyName: RenuPolicy
PolicyDocument:
Version: "2012-10-17"
Statement:
- Effect: Allow
Action:
- ec2:DescribeInstances
- ec2:StartInstances
- ec2:StopInstances
Resource: "*"
Condition:
StringEquals:
ec2:ResourceTag/Name: RenuInstance

SrinivasUser:

```
Type: AWS::IAM::User
Properties:
  UserName: Srinivas
  LoginProfile:
    Password: Srinu@1969
    PasswordResetRequired: false
  Policies:
    - PolicyName: SrinivasPolicy
      PolicyDocument:
        Version: "2012-10-17"
        Statement:
          - Effect: Allow
            Action:
              - ec2:DescribeInstances
              - ec2:StartInstances
              - ec2:StopInstances
            Resource: "*"
            Condition:
              StringEquals:
                ec2:ResourceTag/Name: SrinivasInstance
```

Description of Code by Simple Steps:

Description of Code in Simple Steps:

1. Parameters section defines the EC2 Key Pair and the AMI ID to launch Windows instances.
2. Three EC2 instances are created: one for each user with unique tags.
3. Three IAM users are created with usernames and passwords set.
4. Each user is assigned a policy with permissions to Start/Stop/Describe only their tagged instance.
5. The Condition block ensures users can only act on EC2 instances tagged with their name.

Use of AWS CloudFormation in This Project:

Use of AWS CloudFormation in This Project:

- Automates provisioning of infrastructure (IAM users, EC2 instances).
- Ensures security through strict IAM policies and resource-level permissions.
- Makes infrastructure reproducible and version-controlled.
- Saves time compared to manual setup in the AWS Console.