**Jenkins Pipeline for AWS**

**CloudFormation Deployment**

**Description**

This tutorial covers **how to set up a Jenkins pipeline** to deploy AWS infrastructure using **CloudFormation**.

**Prerequisites**

1. AWS Free Tier Account
2. IAM User with CloudFormation & EC2 Permissions
3. AWS CLI installed & configured on Jenkins Server
4. GitHub repository containing a CloudFormation template

**Step 1: Create an IAM User in AWS**

1. Go to AWS IAM Console → [IAM Users](https://console.aws.amazon.com/iam/)
2. Click Users → Create User
3. Enter User Name: jenkins-user
4. Click Next: Permissions -> Attach policies directly
5. Attach these policies:

AWSCloudFormationFullAccess

AmazonEC2FullAccess

IAMFullAccess

1. Click **Next: Tags** → **Next: Review** → **Create User**
2. Create **Access Key ID** and **Secret Access Key** under Security Credentials -> **Access keys (**save them securely)

**Step 2: Configure AWS CLI on Jenkins Server**

1. Open Command Prompt (cmd) on Jenkins Server and run below
   1. aws configure
2. Enter credentials:
   1. **Access Key ID**: (Paste from AWS)
   2. **Secret Access Key**: (Paste from AWS)
   3. **Default region**: eu-west-2
   4. **Output format**: json
3. To Verify credentials run
   1. aws sts get-caller-identity
4. This should return your IAM user details.

**Step 3: Store AWS Credentials in Jenkins**

1. Go to Jenkins Dashboard → Manage Jenkins → Manage Credentials
2. Click **Global Credentials** → **Add Credentials**
3. Select **AWS Credentials**
4. Enter below
   1. Access Key ID
   2. Secret Access Key
5. Save with **ID**: aws-credentials

**Step 4: Set Up a GitHub Repository**

1. Create a GitHub Repository
2. Upload your CloudFormation template (e.g., stack-template.json)

**Step 5: Create a Jenkins Pipeline Job**

1. Go to Jenkins **Dashboard** → **New Item**
2. Enter Job Name → Select **Pipeline** → Click OK
3. Scroll down to Pipeline Section → Select **Pipeline Script**

**Step 6: Add the Pipeline Script**

1. Paste this pipeline script into Jenkins:

pipeline {

agent any

environment {

AWS\_REGION = 'eu-west-2'

STACK\_NAME = 'jenkins-cloudformation-stack'

}

stages {

stage('Checkout') {

steps {

git(

url: "https://github.com/rajandubey/DevOps\_With\_AWS.git",

branch: "main",

)

}

}

stage('Deploy CloudFormation Stack') {

steps {

withCredentials([aws(credentialsId: 'AWS\_Jenkins\_User')])

{

script {

bat '''

aws cloudformation deploy --stack-name %STACK\_NAME% --template-file AWS\_EC2\_Creation.json --capabilities CAPABILITY\_IAM --region %AWS\_REGION%

'''

}

}

}

}

}

}

**Step 7: Run the Jenkins Job**

1. Click Save
2. Click Build Now
3. Monitor the logs to check for errors

**Step 8: Verify the Stack in AWS**

1. Go to AWS Console → CloudFormation
2. Check if the stack jenkins-cloudformation-stack is created successfully
3. Verify resources (EC2, S3, IAM, etc.)