# **Instruction Guide: Provisioning an AWS EC2 Instance with Terraform**

This guide explains how to use Terraform to provision an AWS EC2 instance using the provided configuration.

## **Prerequisites**

Before you begin, ensure that:  
 ✔️ Terraform is installed on your machine.  
 ✔️ AWS CLI is installed and configured (aws configure).  
 ✔️ You have IAM permissions to create EC2 instances.

## **Step 1: Create a Terraform Configuration File**

Open a terminal and create a new directory for your Terraform project:  
  
 mkdir terraform-ec2 && cd terraform-ec2

Create a new Terraform file:  
  
 touch main.tf

Open main.tf in a text editor and paste the following configuration:  
  
 terraform {

required\_providers {

aws = {

source = "hashicorp/aws"

version = "~> 4.16"

}

}

required\_version = ">= 1.2.0"

}

provider "aws" {

region = "us-west-2"

}

resource "aws\_instance" "app\_server" {

ami = "ami-830c94e3"

instance\_type = "t2.micro"

tags = {

Name = "Arjun"

}

}

## **Step 2: Initialize Terraform**

Before using Terraform, initialize the working directory:

terraform init

✔️ This downloads necessary provider plugins and prepares the working directory.

## **Step 3: Format and Validate Terraform Configuration**

After initialization, it's a best practice to format and validate the Terraform files.

**Format Terraform Code** Run the following command to format .tf files properly:  
  
 terraform fmt

1. ✔️ This ensures that the Terraform file is clean and structured.

**Validate Terraform Configuration** Check for syntax errors or misconfigurations:  
  
 terraform validate

1. ✔️ If there are no errors, you will see a success message.

## **Step 4: Plan the Deployment**

Before applying, review the planned changes:

terraform plan

✔️ This command shows what Terraform will create or change.

## **Step 5: Apply the Configuration**

Run the following command to create the EC2 instance:

terraform apply

✔️ Terraform will prompt for confirmation. Type **yes** and press Enter.

Terraform will now:

* Provision an EC2 instance in **us-west-2**.
* Assign it the **ami-830c94e3** Amazon Machine Image (AMI).
* Use a **t2.micro** instance type.
* Tag it as "Arjun".

## **Step 6: Verify the EC2 Instance**

Once the deployment is complete, run:

aws ec2 describe-instances --filters "Name=tag:Name,Values=Arjun"

✔️ This will display details about your EC2 instance.

Alternatively, you can check the AWS Console under **EC2 Instances** in **us-west-2**.

## **Step 7: View Terraform State**

After deployment, you can inspect Terraform’s state file using:

terraform show

✔️ This command will display the details of the resources Terraform manages, including the EC2 instance ID, AMI, instance type, and tags.

## **Step 8: Destroy the EC2 Instance**

If you want to delete the instance, run:

terraform destroy

✔️ Terraform will ask for confirmation. Type **yes** to proceed.