

Infrastructure as Code (IaC)

with Terraform and Cloudformation

Terraform

Terraform is an open-source infrastructure as code software tool that enables you to safely and predictably create, change, and improve infrastructure.

<https://www.terraform.io/>

Terraform workflow

- **Write:** You define resources using Terraform language
- **Plan:** Terraform creates an execution plan describing the infrastructure.
- **Apply:** On approval, Terraform performs the proposed.



Providers

Providers are plugins that implement resource types.
Resources can be on the cloud platform or not.

- AWS
- GCP
- VMWARE

<https://registry.terraform.io/>



Modules

Modules are self-contained packages of Terraform configurations that are managed as a group.

- AWS Security-Group
- GCP Kubernetes-engine
- OCI Compute-Instance

<https://registry.terraform.io/browse/modules>

About the Terraform Language

The main purpose of the Terraform language is to declare resources, which represent infrastructure objects.

<https://www.terraform.io/language>

```
terraform {  
  required_providers {  
    aws = {  
      source  = "hashicorp/aws"  
      version = "~> 3.27"  
    }  
  }  
  
  required_version = ">= 0.14.9"  
}  
  
provider "aws" {  
  profile = "default"  
  region  = "us-west-2"  
}  
  
resource "aws_instance" "app_server" {  
  ami           = "ami-830c94e3"  
  instance_type = "t2.micro"  
  
  tags = {  
    Name = "ExampleAppServerInstance"  
  }  
}
```

Let's go to practice

Repository used for studies.

<https://github.com/tiagopgeremias/iac-learning>

AWS Cloudformation

Is a service that lets you manage resources on AWS based on a template

<https://aws.amazon.com/pt/cloudformation/>

AWS Cloudformation

Using templates YAML or JSON, or Designer to create your resources.

<https://aws.amazon.com/pt/cloudformation/>

AWS Cloudformation

Deployment can be done using the S3 bucket or uploading the template manually

<https://aws.amazon.com/en/cloudformation/>

Let's go to practice

Repository used for studies.

<https://github.com/tiagopgeremias/iac-learning>

Thanks for watching!