Infraestrutura como Código (IaC)

Infraestrutura como Código (IaC)

Definição

É o processo de criação e gerenciamento de uma infraestrutura qualquer através de codificação.

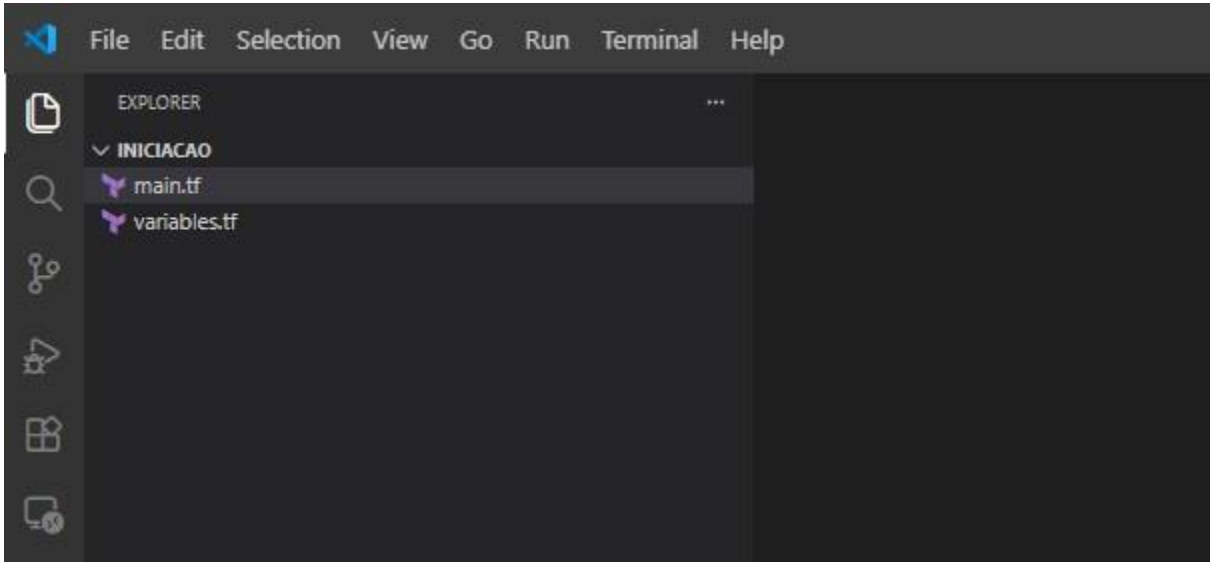
Depois de implementada a configuração em código, o processo de criação e gerenciamento da infraestrutura se torna mais rápido, permitindo ainda a replicação da mesma agilizando os processos.

Infraestrutura como Código (IaC)

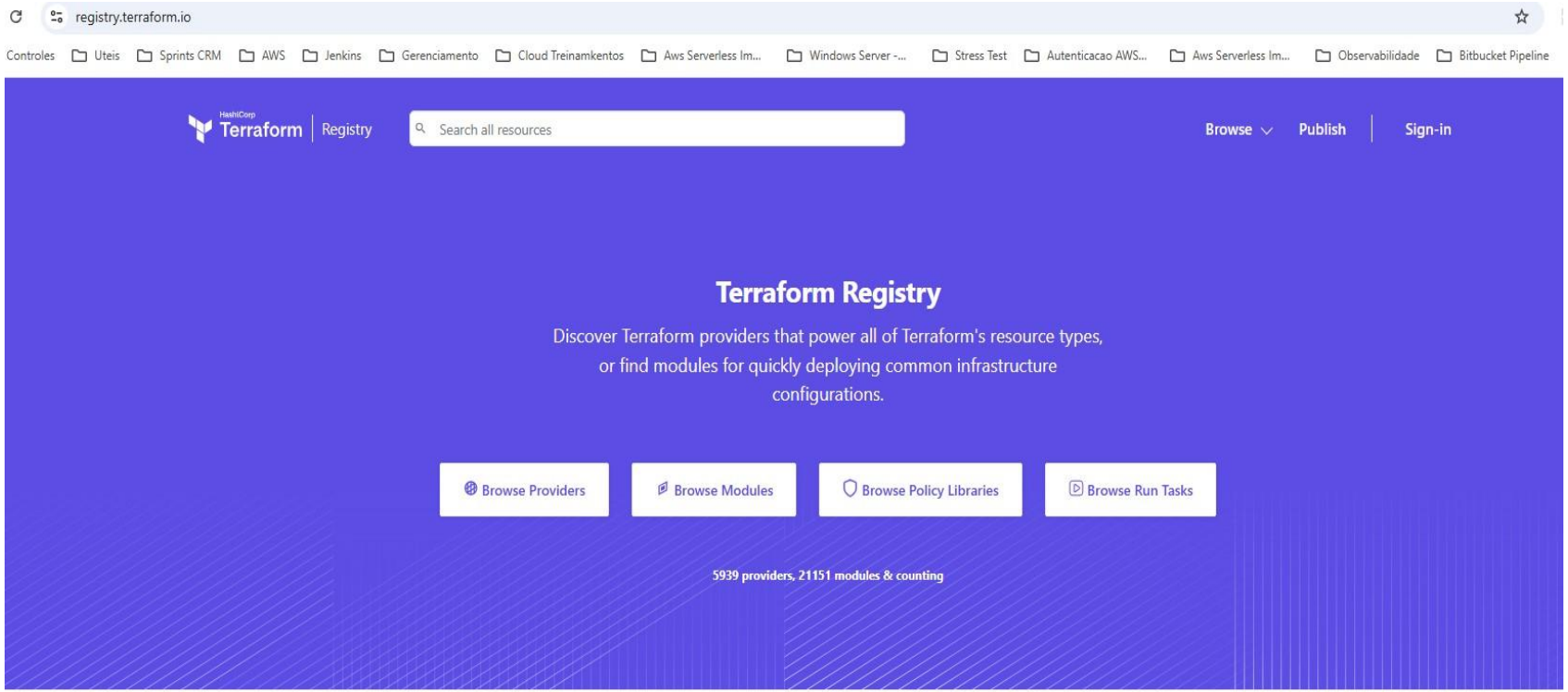
Ferramentas

- Terraform (Hashicorp)
- CloudFormation (AWS)
- Pulumi
- Ansible

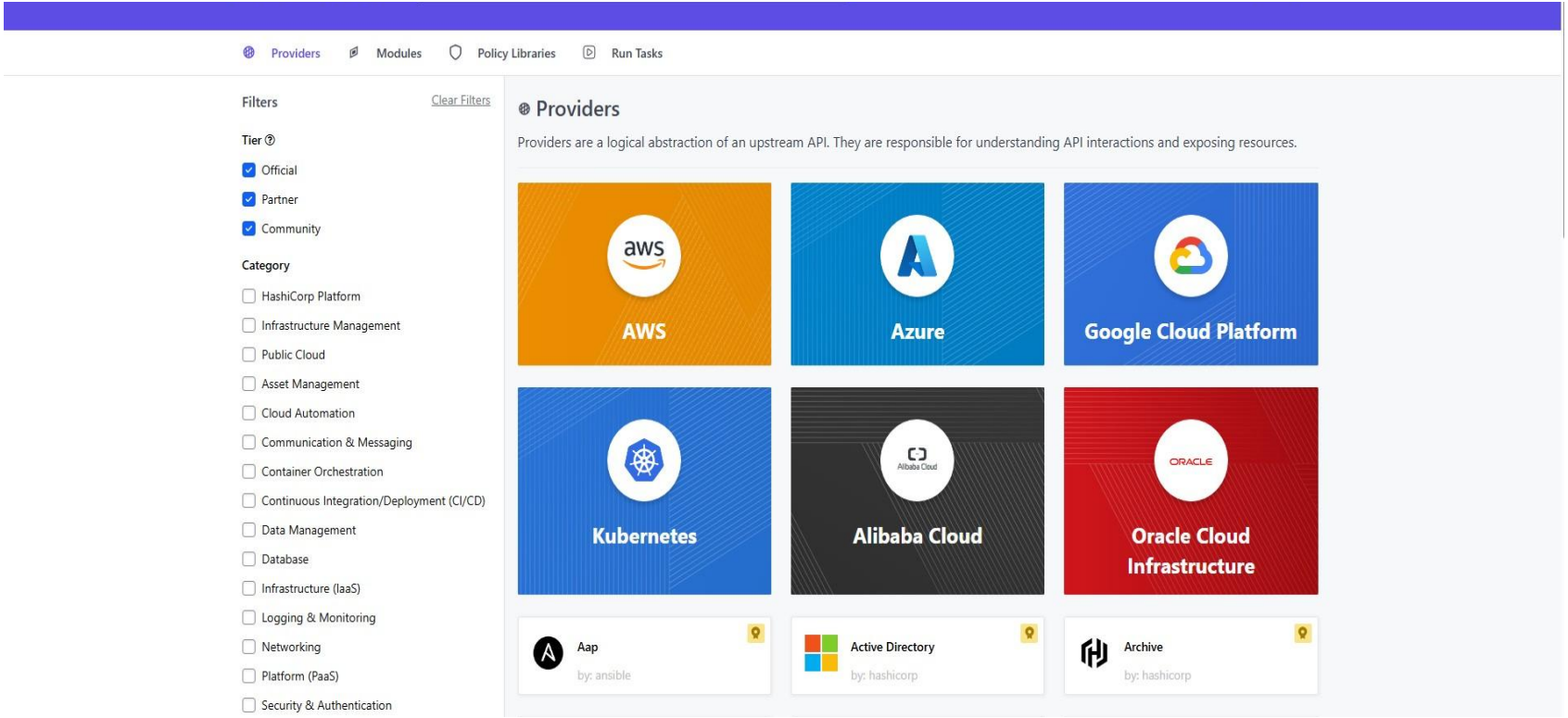
Infraestrutura como Código (IaC)



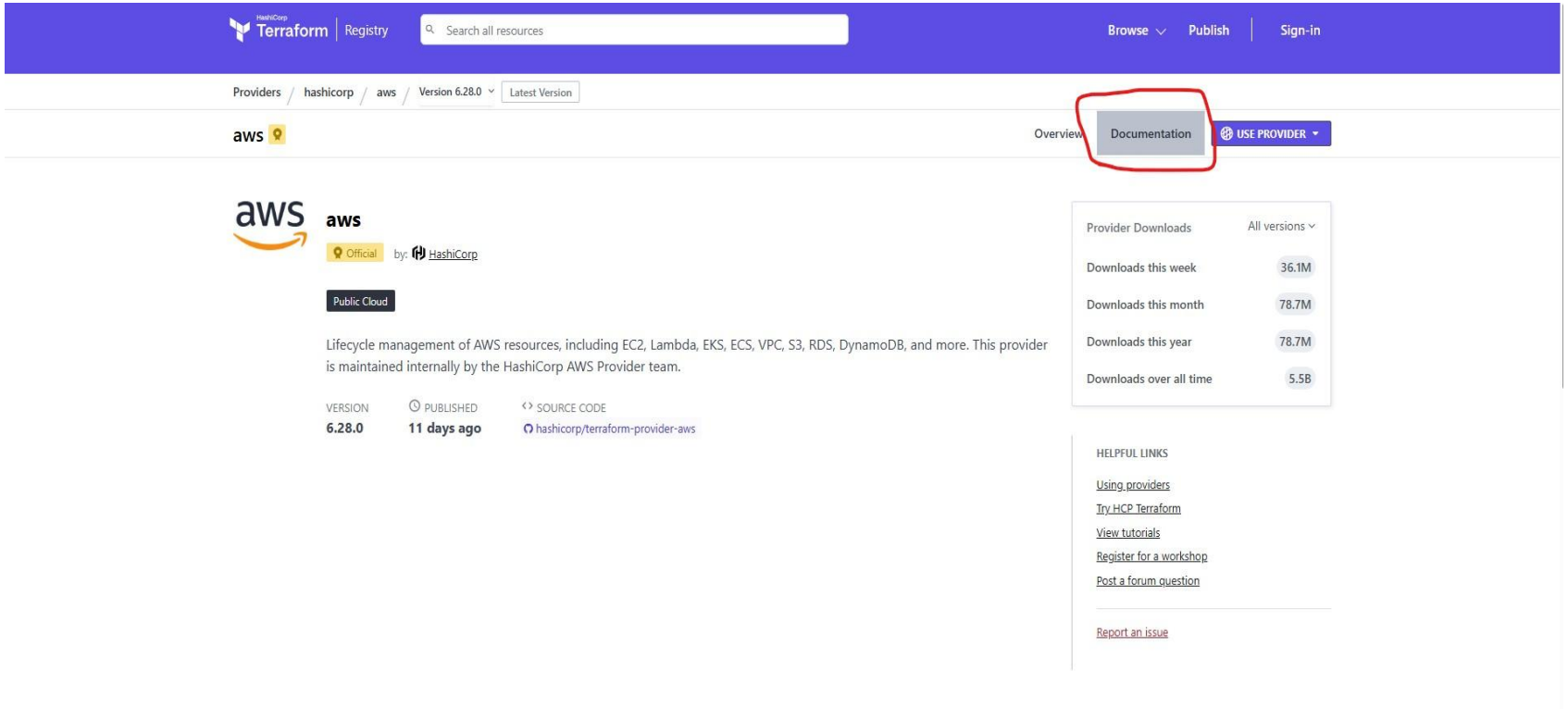
Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)



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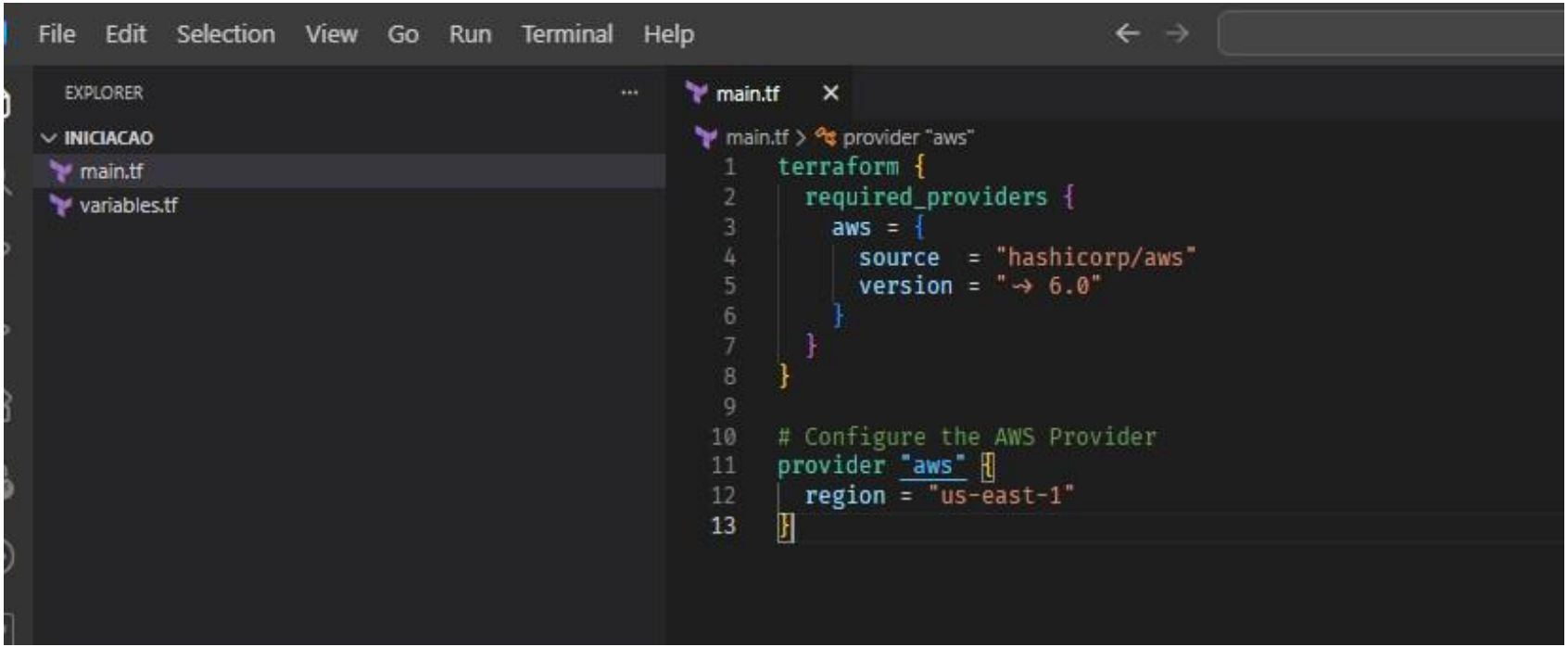
```
terraform {
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "~> 6.0"
    }
  }
}

# Configure the AWS Provider
provider "aws" {
  region = "us-east-1"
}
```

Infraestrutura como Código (IaC)



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Provider Configuration

> **Warning:**
>
> Hard-coded credentials are not recommended in any Terraform configuration and risks secret leakage should this file ever be committed to a public version control system.

Credentials can be provided by adding an `access_key` , `secret_key` , and optionally `token` , to the `aws` provider block.

Usage:

```
provider "aws" {
  region     = "us-west-2"
  access_key = "my-access-key"
  secret_key = "my-secret-key"
}
```

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```
provider "aws" {
  profile = "customprofile"
}
```

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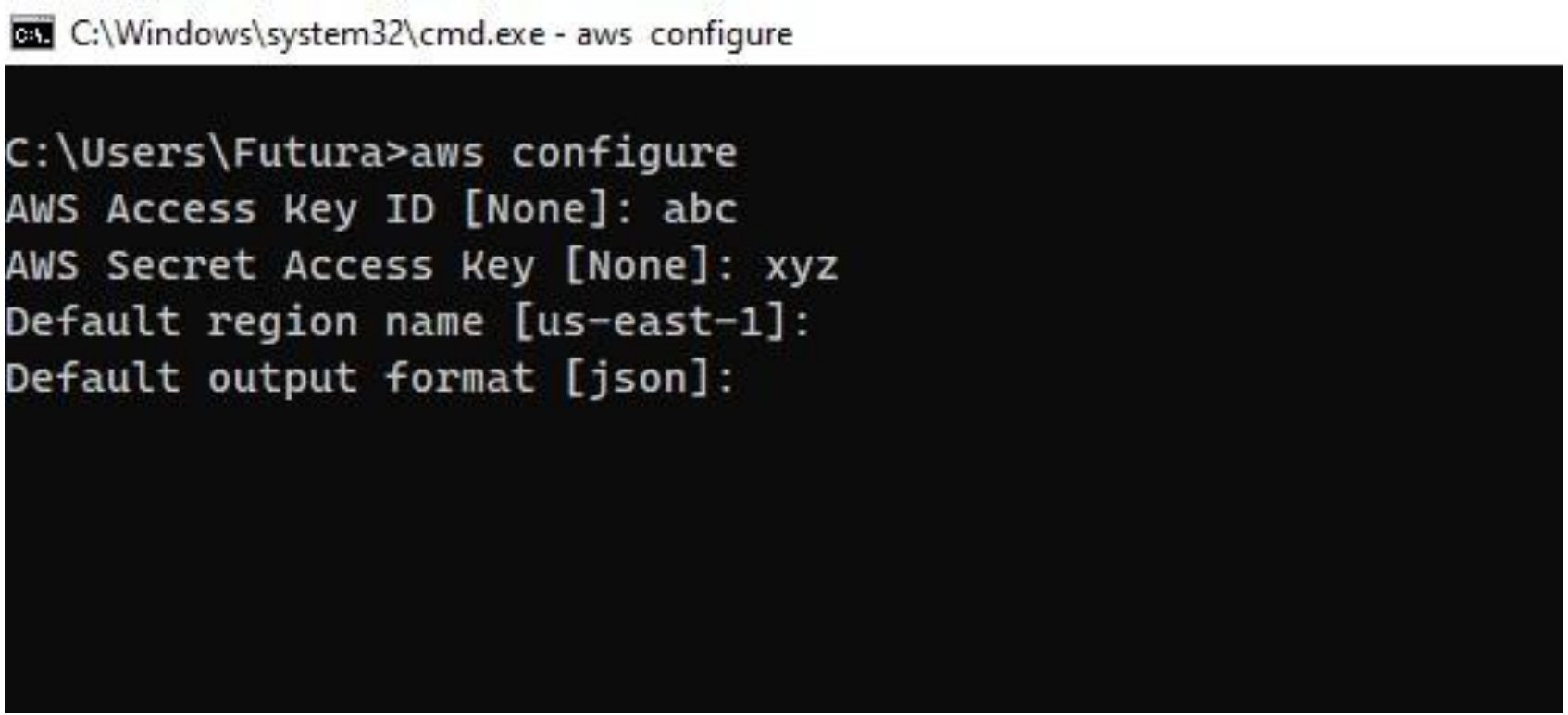
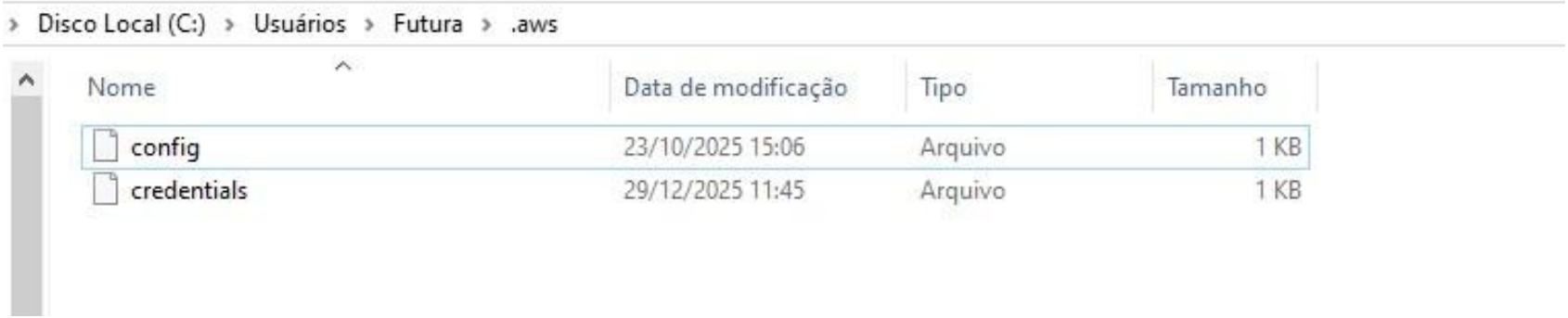
Infraestrutura como Código (IaC)



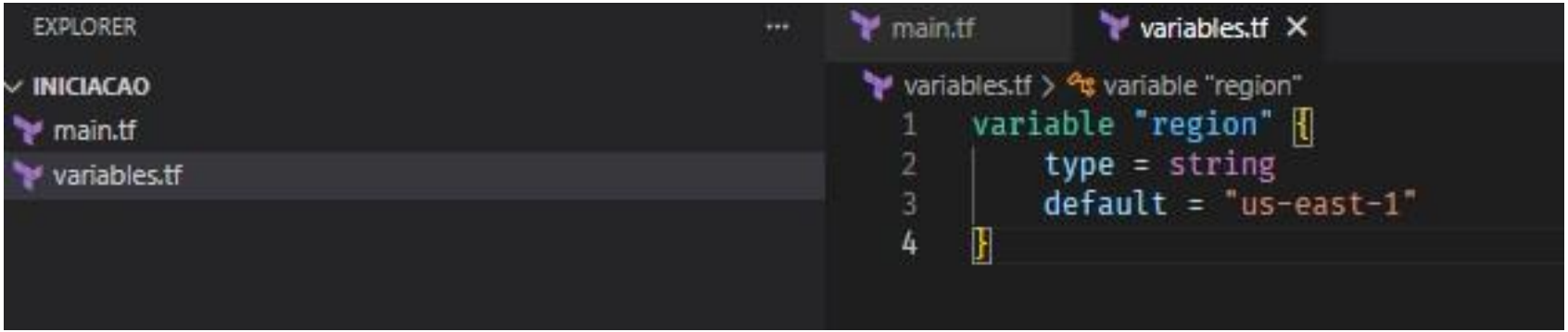
Infraestrutura como Código (IaC)

```
C:\Users\Futura>aws configure
AWS Access Key ID [None]: abc
AWS Secret Access Key [None]: xyz
Default region name [us-east-1]:
Default output format [json]:

C:\Users\Futura>aws configure --profile customprofile
AWS Access Key ID [None]: abc
AWS Secret Access Key [None]: xyz
Default region name [None]:
Default output format [None]:
```

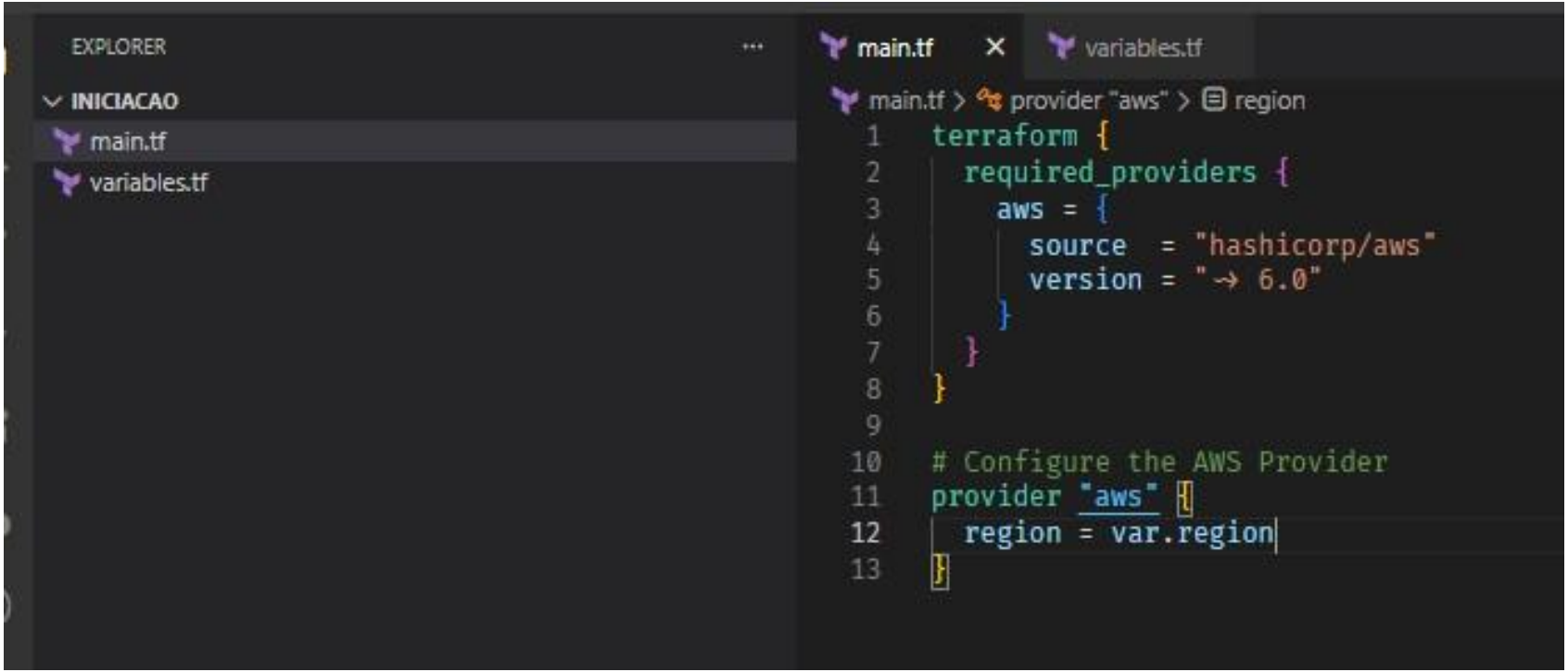
Infraestrutura como Código (IaC)



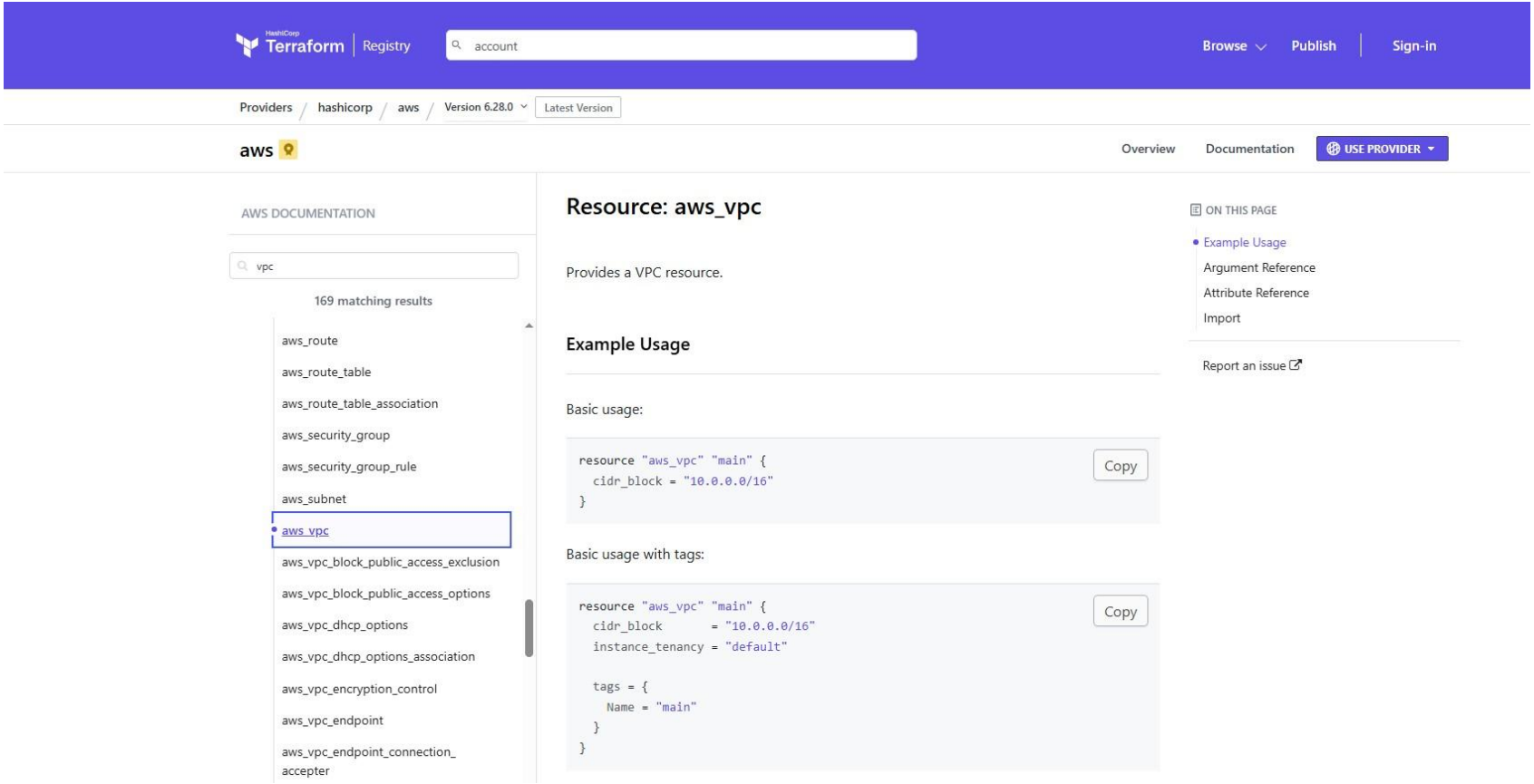
Infraestrutura como Código (IaC)



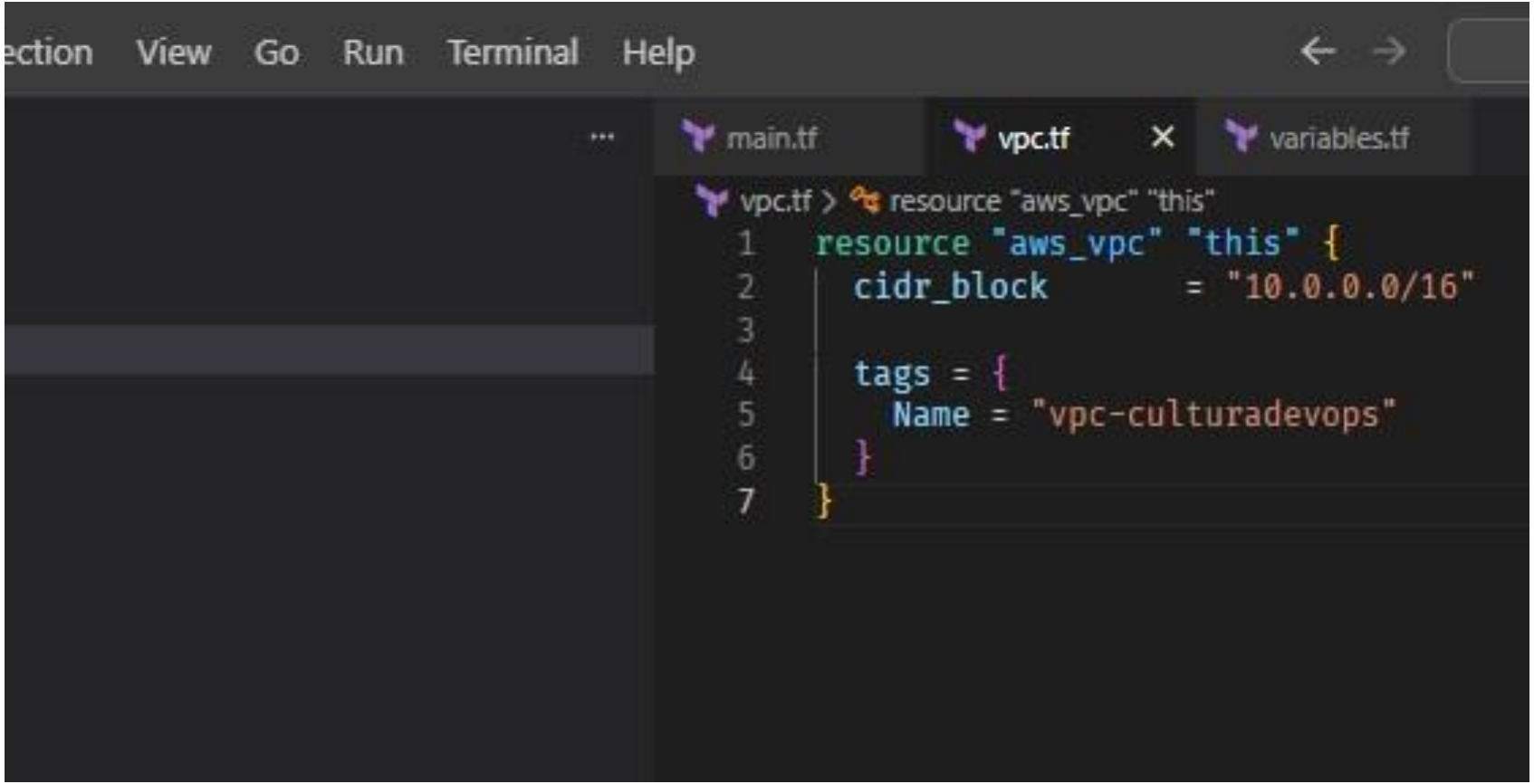
Infraestrutura como Código (IaC)



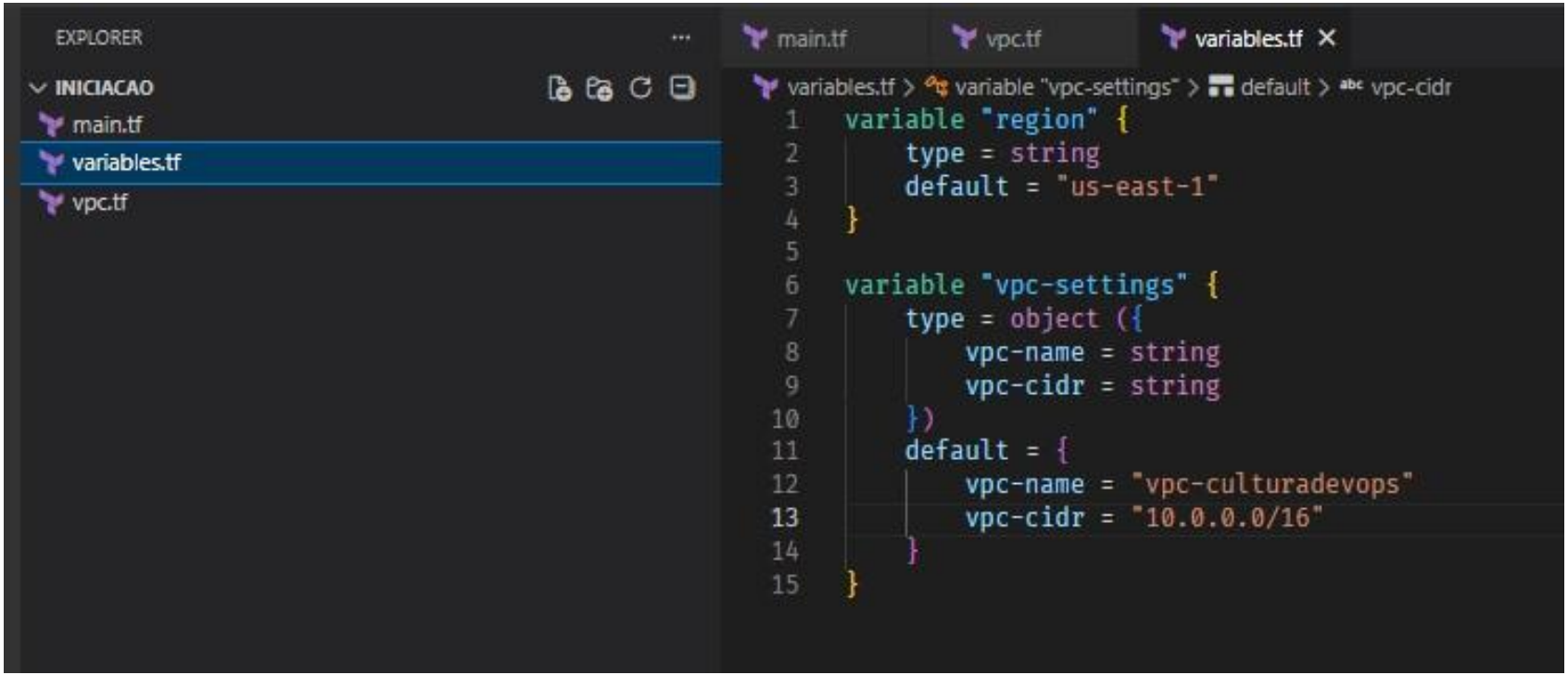
Infraestrutura como Código (IaC)



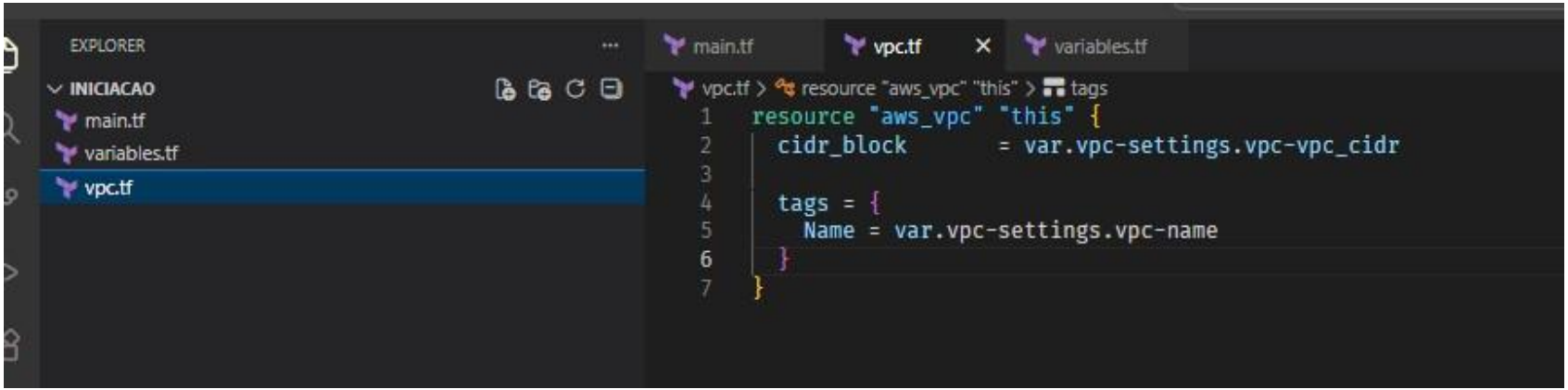
Infraestrutura como Código (IaC)



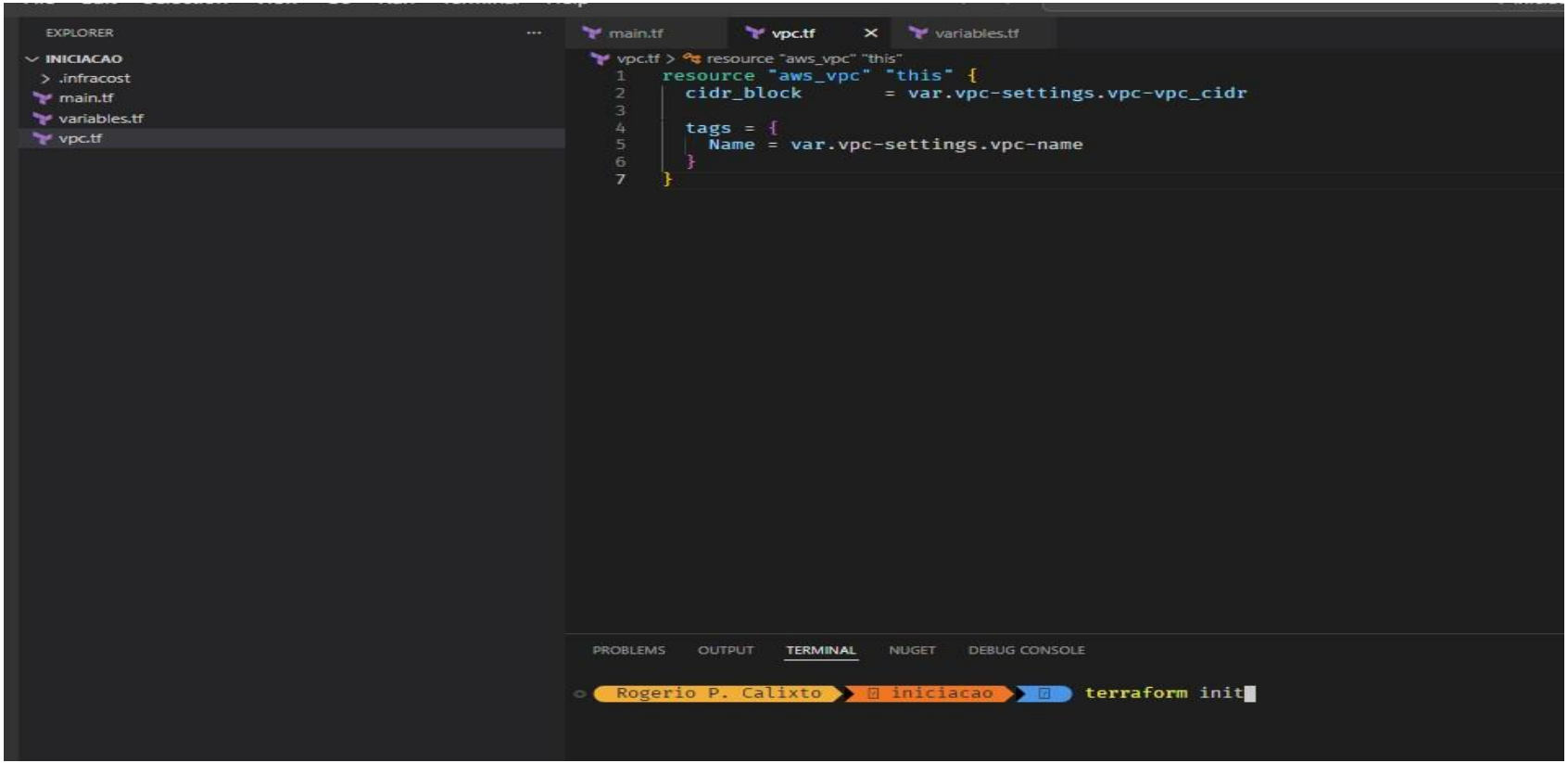
Infraestrutura como Código (IaC)



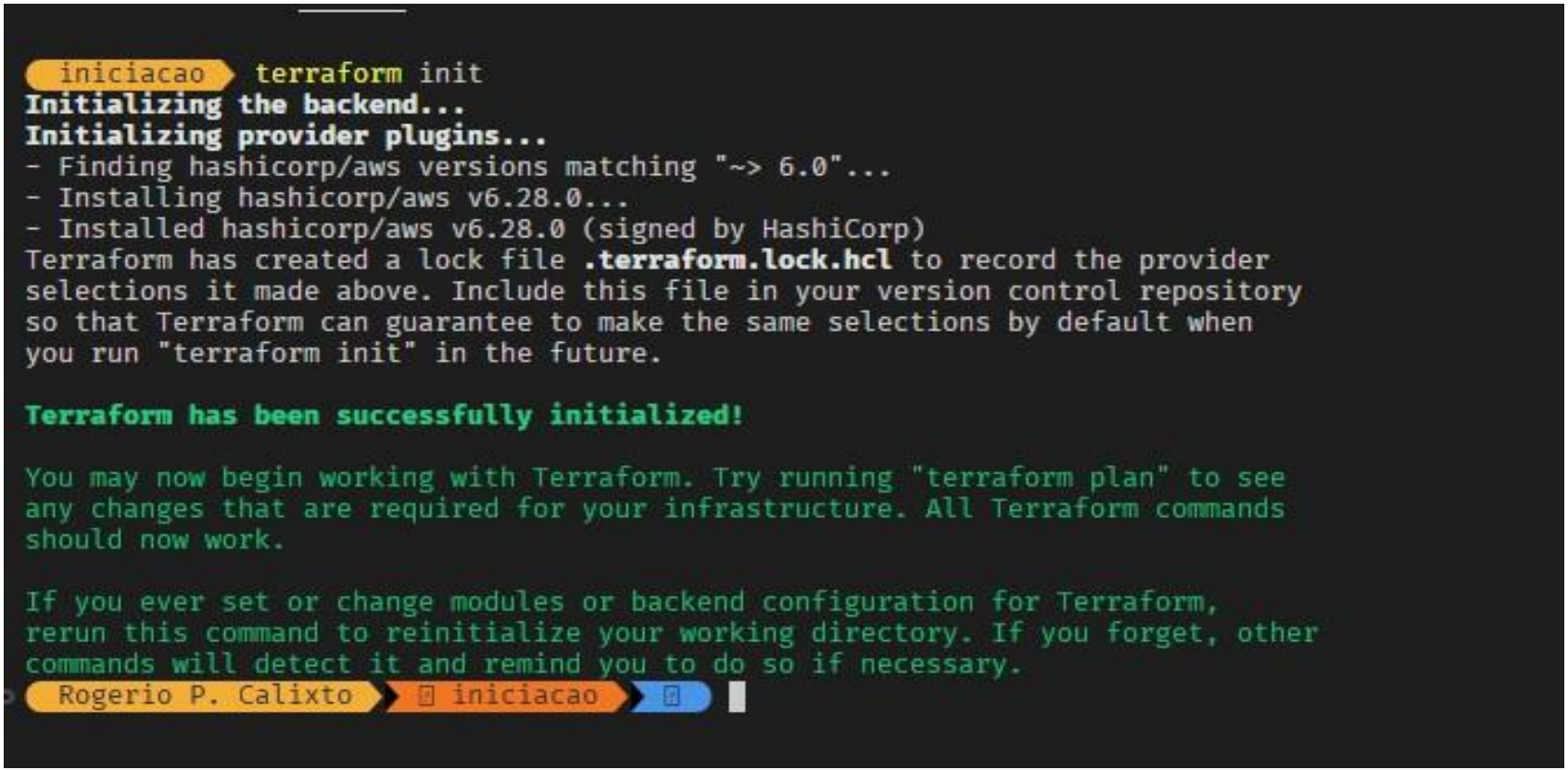
Infraestrutura como Código (IaC)



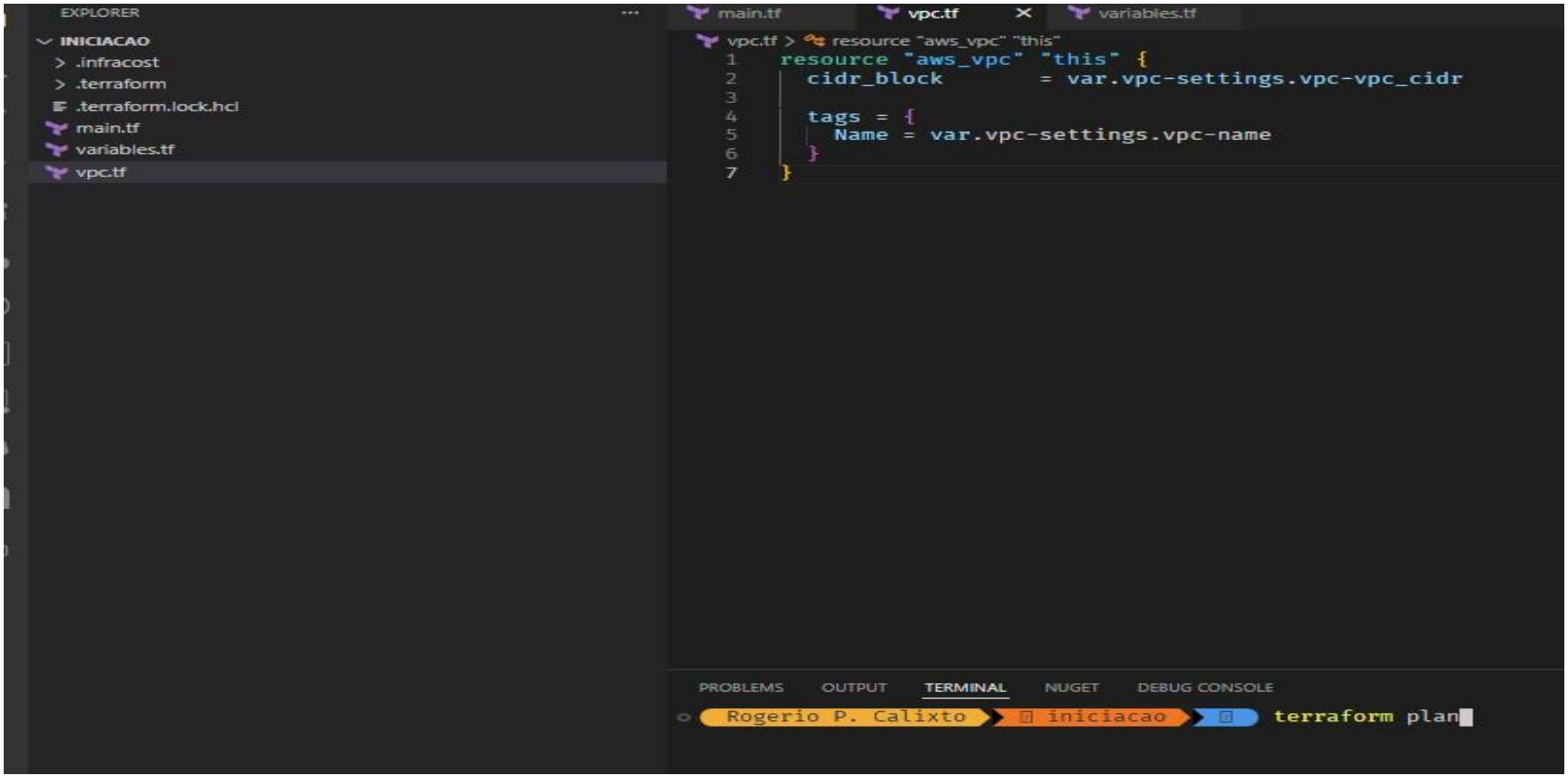
Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)



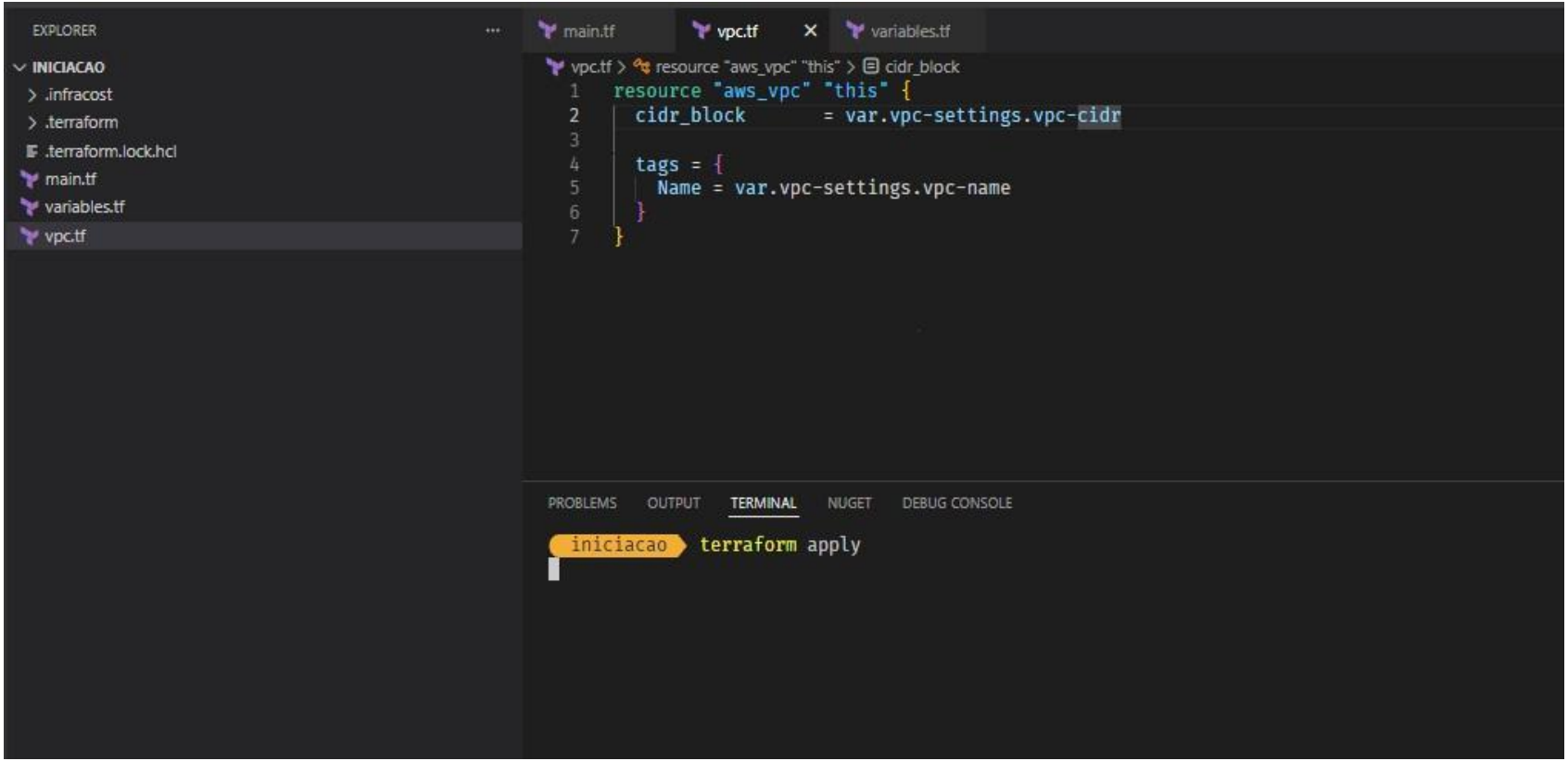
Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)

```
iniciacao terraform plan

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
  + create

Terraform will perform the following actions:

  # aws_vpc.this will be created
  + resource "aws_vpc" "this" {
      + arn                                  = (known after apply)
      + cidr_block                           = "10.0.0.0/16"
      + default_network_acl_id               = (known after apply)
      + default_route_table_id               = (known after apply)
      + default_security_group_id            = (known after apply)
      + dhcp_options_id                      = (known after apply)
      + enable_dns_hostnames                 = (known after apply)
      + enable_dns_support                   = true
      + enable_network_address_usage_metrics = (known after apply)
      + id                                   = (known after apply)
      + instance_tenancy                     = "default"
      + ipv6_association_id                  = (known after apply)
      + ipv6_cidr_block                      = (known after apply)
      + ipv6_cidr_block_network_border_group = (known after apply)
      + main_route_table_id                  = (known after apply)
      + owner_id                             = (known after apply)
      + region                               = "us-east-1"
      + tags                                 = {
          + "Name" = "vpc-culturadevops"
        }
      + tags_all                             = {
          + "Name" = "vpc-culturadevops"
        }
    }

Plan: 1 to add, 0 to change, 0 to destroy.

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if you run "terraform apply" now.
Rogerio P. Calixto  iniciacao
```

Infraestrutura como Código (IaC)



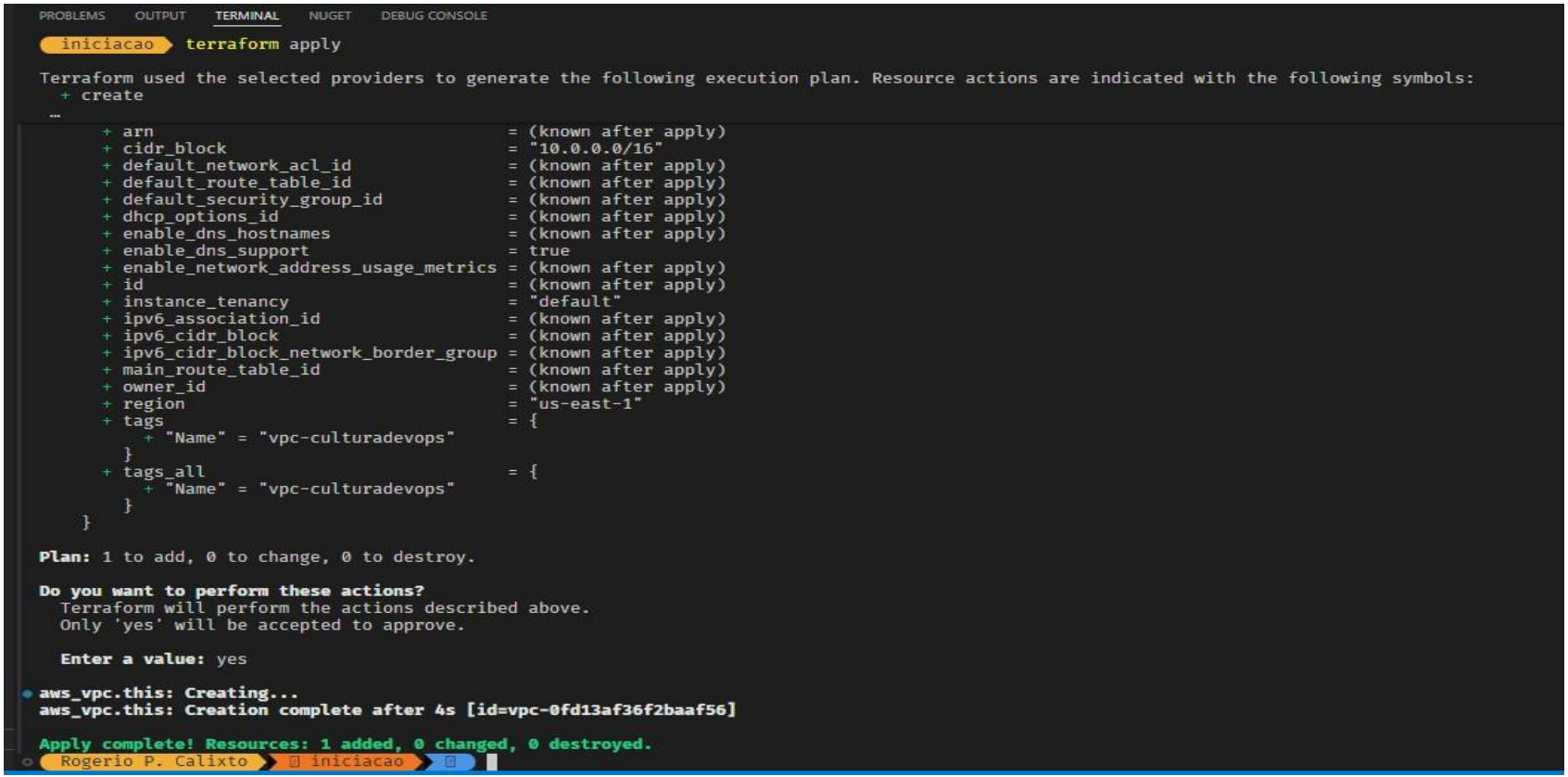
Infraestrutura como Código (IaC)

```
Terraform will perform the following actions:

  # aws_vpc.this will be created
  + resource "aws_vpc" "this" {
      + arn                                  = (known after apply)
      + cidr_block                           = "10.0.0.0/16"
      + default_network_acl_id               = (known after apply)
      + default_route_table_id               = (known after apply)
      + default_security_group_id            = (known after apply)
      + dhcp_options_id                      = (known after apply)
      + enable_dns_hostnames                 = (known after apply)
      + enable_dns_support                   = true
      + enable_network_address_usage_metrics = (known after apply)
      + id                                   = (known after apply)
      + instance_tenancy                     = "default"
      + ipv6_association_id                  = (known after apply)
      + ipv6_cidr_block                      = (known after apply)
      + ipv6_cidr_block_network_border_group = (known after apply)
      + main_route_table_id                  = (known after apply)
      + owner_id                             = (known after apply)
      + region                               = "us-east-1"
      + tags                                 = {
          + "Name" = "vpc-culturadevops"
        }
      + tags_all                             = {
          + "Name" = "vpc-culturadevops"
        }
    }

Plan: 1 to add, 0 to change, 0 to destroy.
```

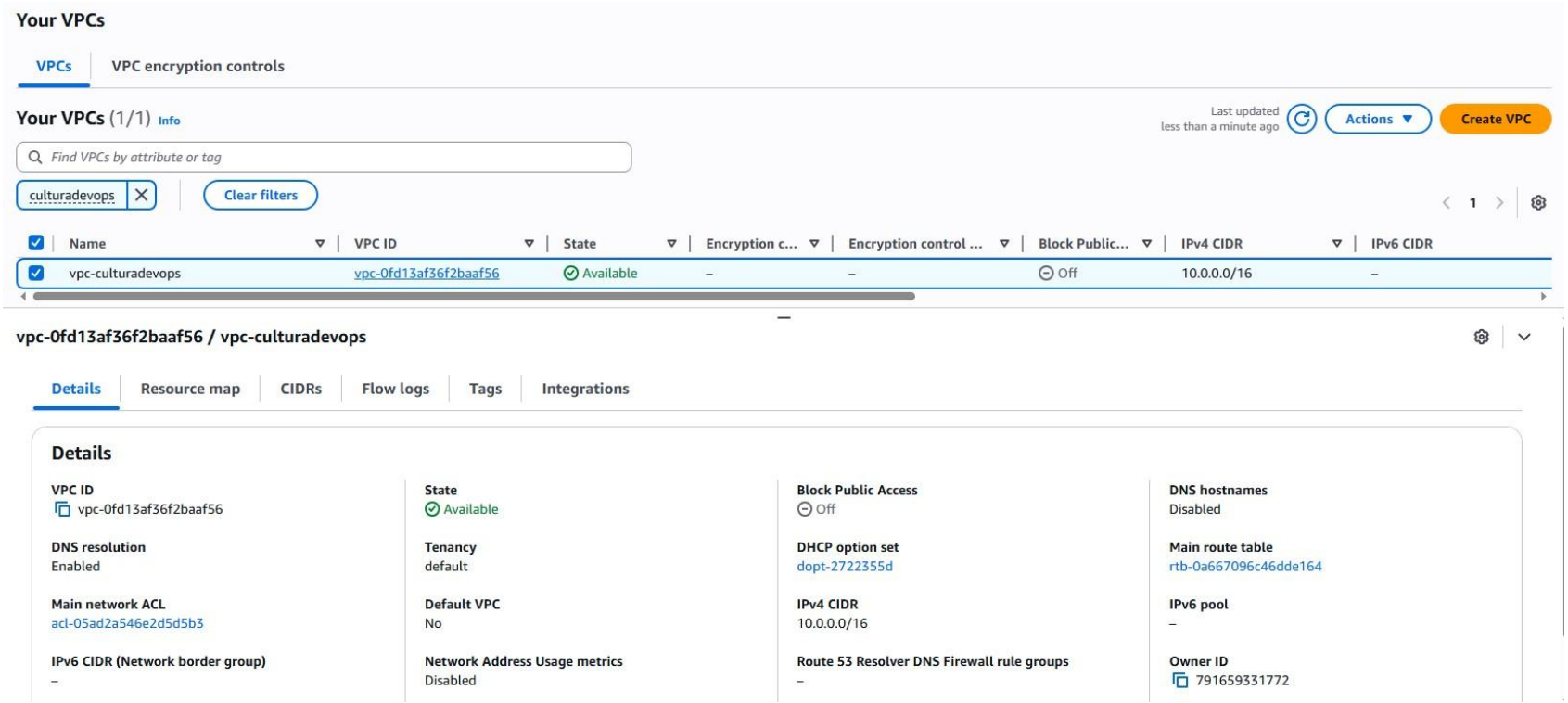
Infraestrutura como Código (IaC)

```
…
      + arn                                  = (known after apply)
      + cidr_block                           = "10.0.0.0/16"
      + default_network_acl_id               = (known after apply)
      + default_route_table_id               = (known after apply)
      + default_security_group_id            = (known after apply)
      + dhcp_options_id                      = (known after apply)
      + enable_dns_hostnames                 = (known after apply)
      + enable_dns_support                   = true
      + enable_network_address_usage_metrics = (known after apply)
      + id                                   = (known after apply)
      + instance_tenancy                     = "default"
      + ipv6_association_id                  = (known after apply)
      + ipv6_cidr_block                      = (known after apply)
      + ipv6_cidr_block_network_border_group = (known after apply)
      + main_route_table_id                  = (known after apply)
      + owner_id                             = (known after apply)
      + region                               = "us-east-1"
      + tags                                 = {
          + "Name" = "vpc-culturadevops"
        }
      + tags_all                             = {
          + "Name" = "vpc-culturadevops"
        }
    }

Plan: 1 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes
```

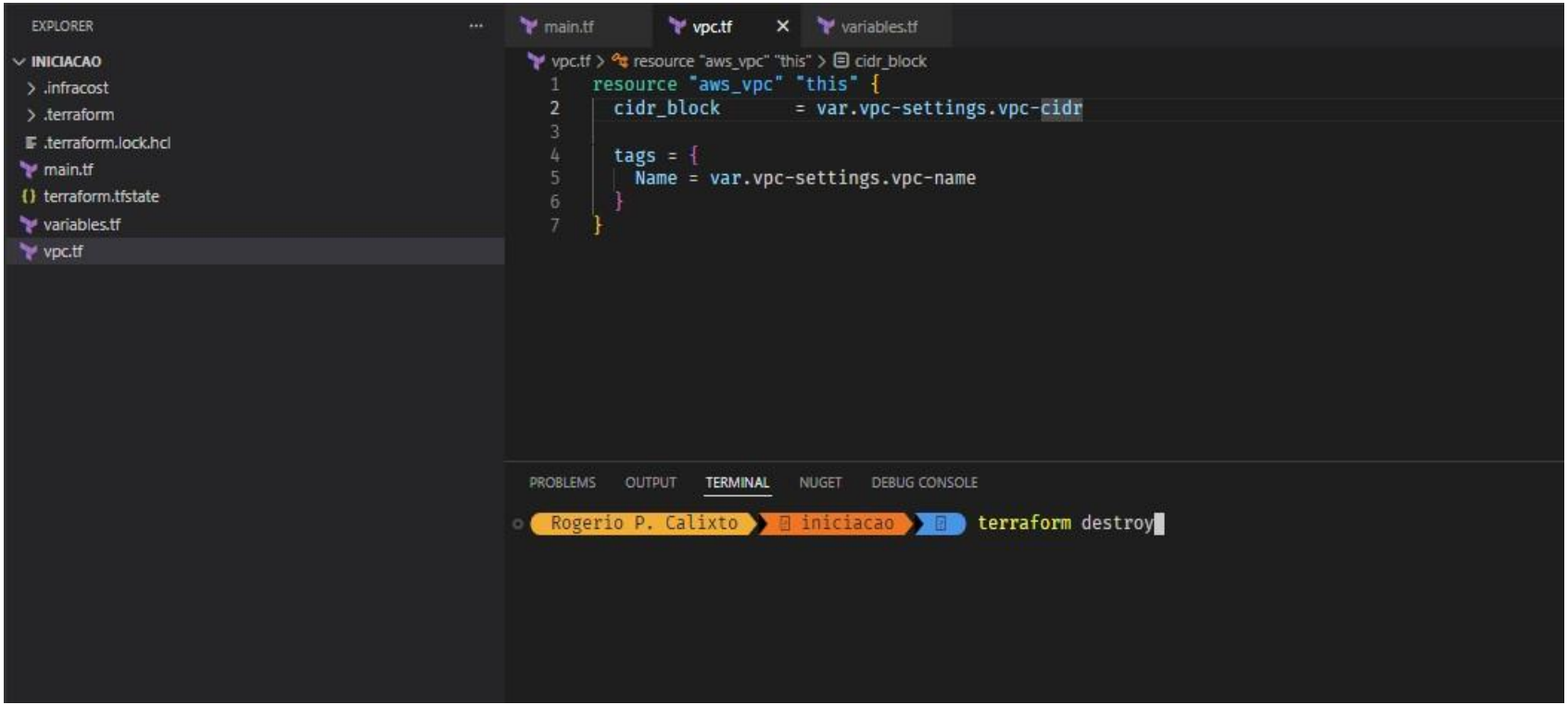
Infraestrutura como Código (IaC)



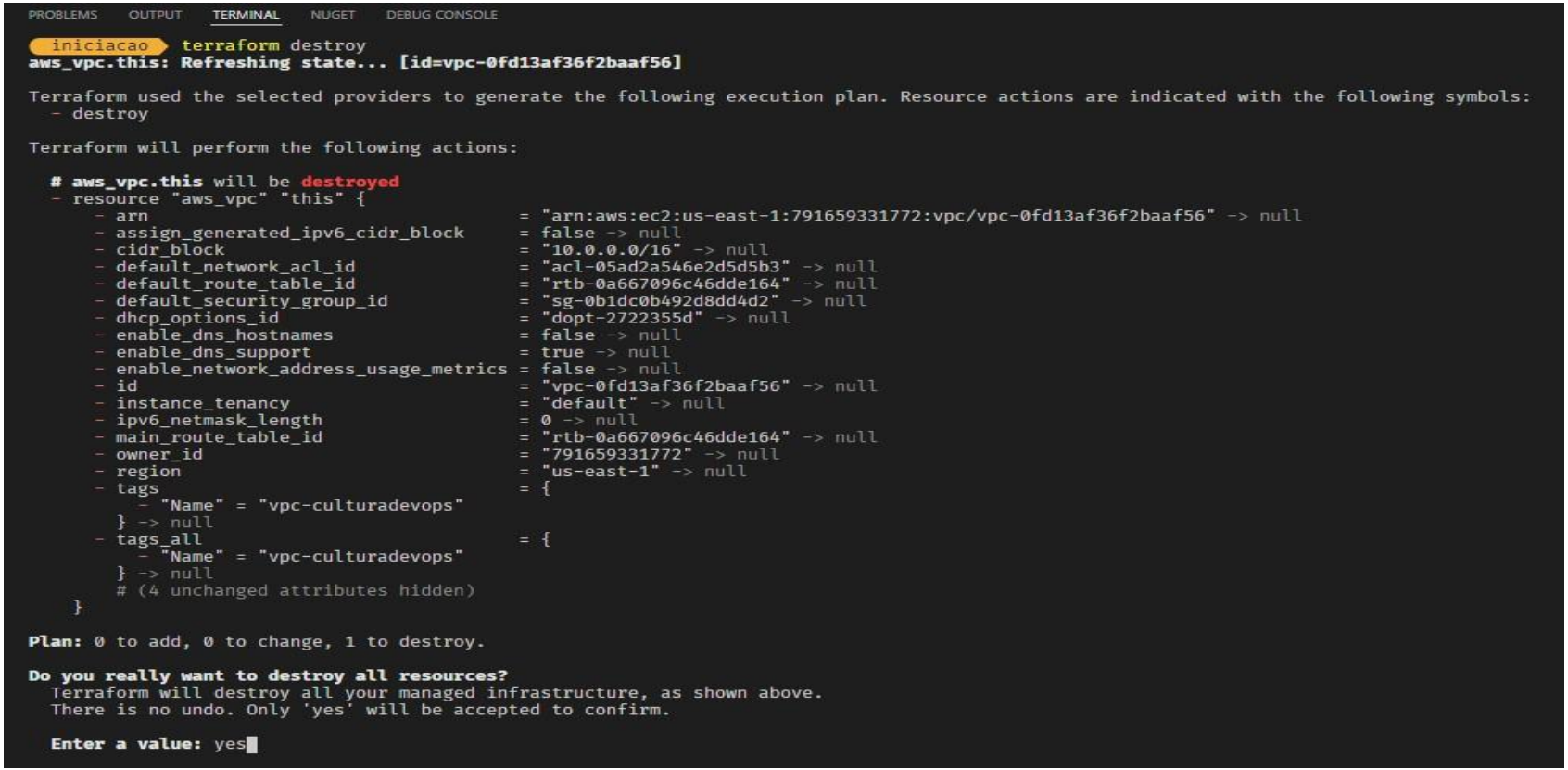
Infraestrutura como Código (IaC)



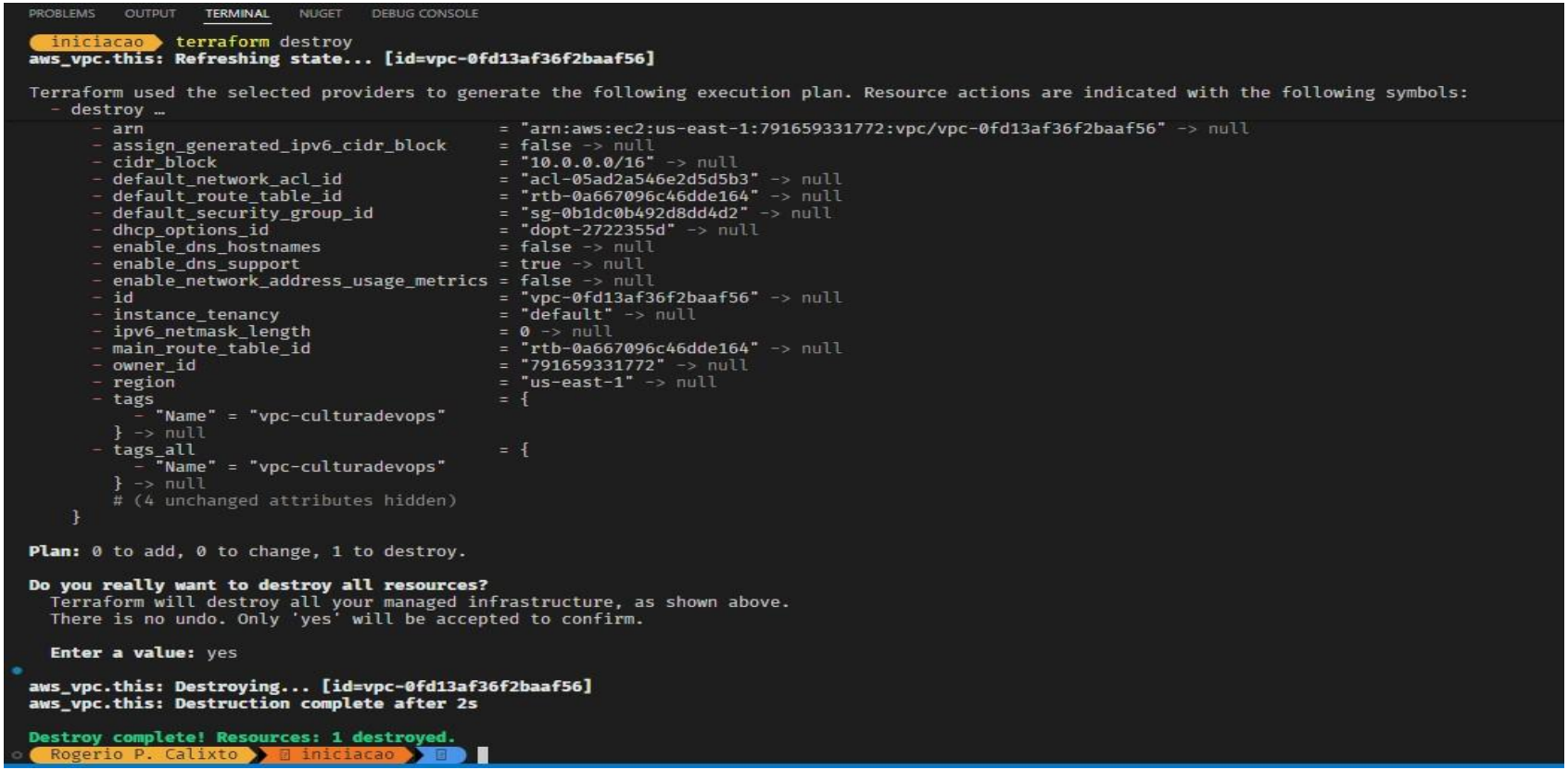
Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)



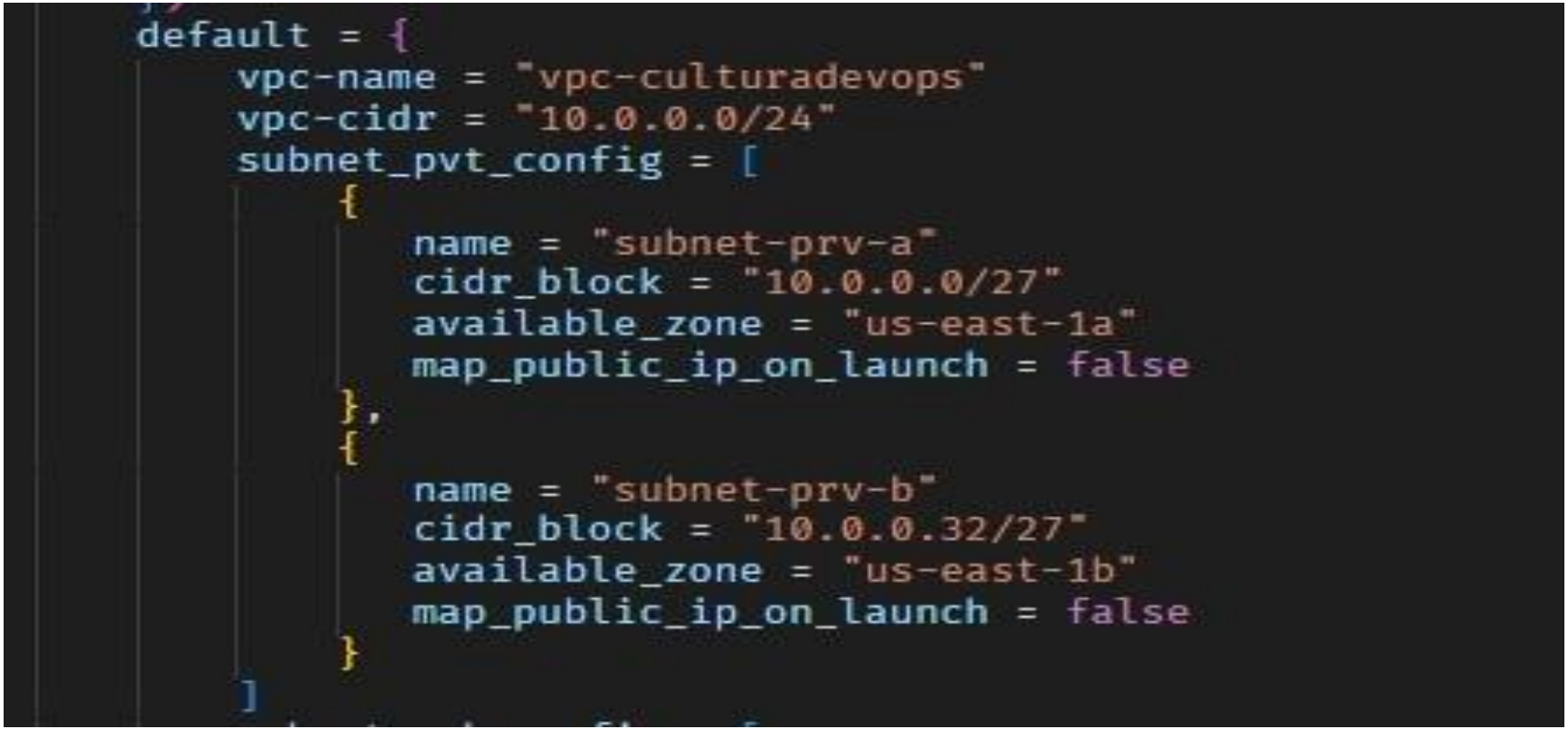
Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)

```
variable "vpc-settings" {
    type = object ({
        vpc-name = string
        vpc-cidr = string
        subnet_pvt_config = list(object({
            name = string
            cidr_block = string
            available_zone = string
            map_public_ip_on_launch = bool
        }))
        subnet_pub_config = list(object({
            name = string
            cidr_block        = string
            available_zone = string
            map_public_ip_on_launch = bool
        }))
    })
```

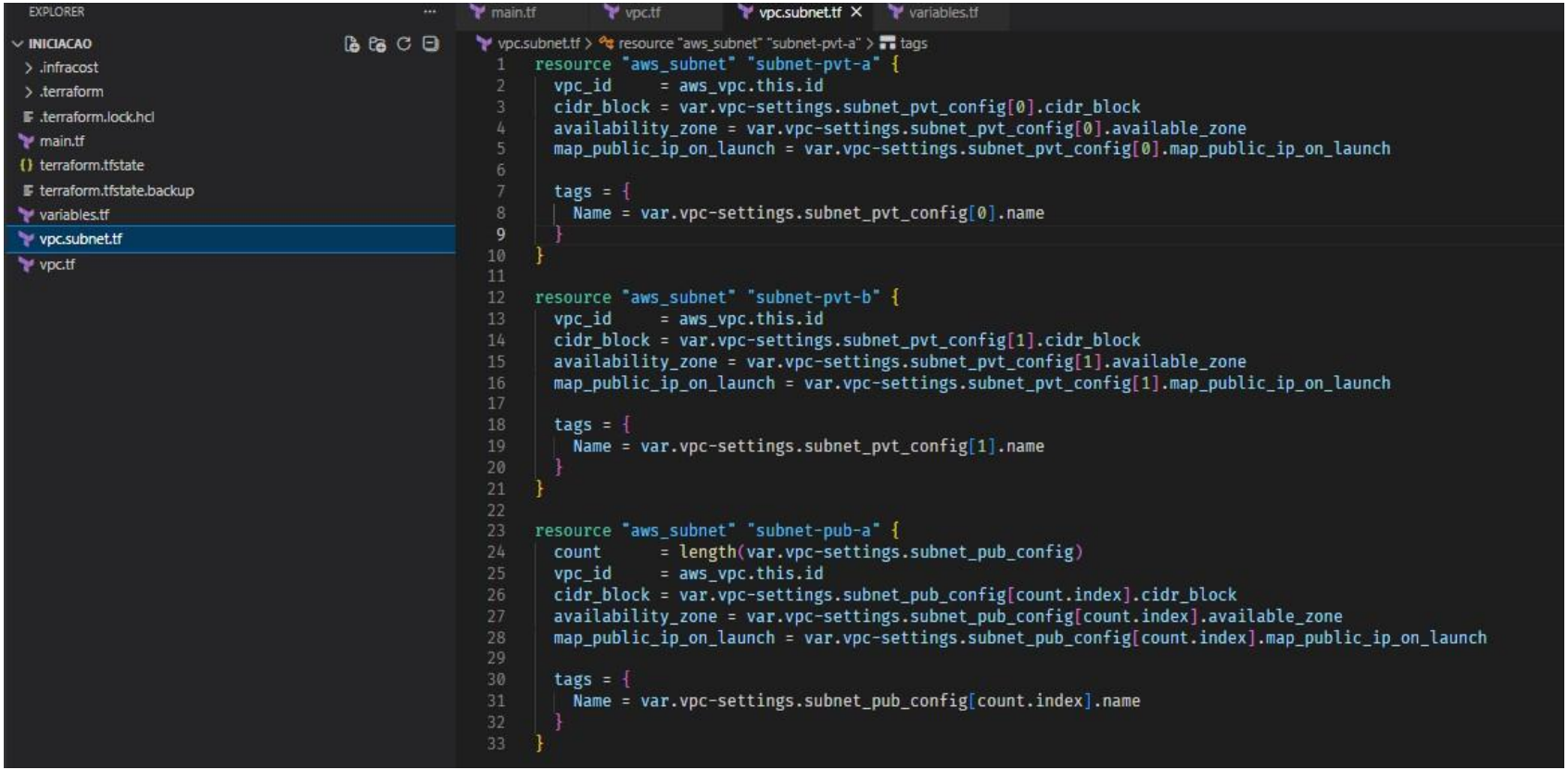
Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)

```
subnet_pub_config = [
    {
        name = "subnet-pub-a"
        cidr_block = "10.0.0.64/27"
        available_zone = "us-east-1a"
        map_public_ip_on_launch = true
    },
    {
        name = "subnet-pub-b"
        cidr_block = "10.0.0.96/27"
        available_zone = "us-east-1b"
        map_public_ip_on_launch = true
    }
]
```

Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)

```
# aws_subnet.subnet-pvt-a will be created
+ resource "aws_subnet" "subnet-pvt-a" {
    + arn                                            = (known after apply)
    + assign_ipv6_address_on_creation                = false
    + availability_zone                              = "us-east-1a"
    + availability_zone_id                           = (known after apply)
    + cidr_block                                     = "10.0.0.0/27"
    + enable_dns64                                   = false
    + enable_resource_name_dns_a_record_on_launch    = false
    + enable_resource_name_dns_aaaa_record_on_launch = false
    + id                                             = (known after apply)
    + ipv6_cidr_block_association_id                 = (known after apply)
    + ipv6_native                                    = false
    + map_public_ip_on_launch                        = false
    + owner_id                                       = (known after apply)
    + private_dns_hostname_type_on_launch            = (known after apply)
    + region                                         = "us-east-1"
    + tags                                           = {
        + "Name" = "subnet-prv-a"
      }
    + tags_all                                       = {
        + "Name" = "subnet-prv-a"
      }
    + vpc_id                                         = (known after apply)
  }

# aws_subnet.subnet-pvt-b will be created
+ resource "aws_subnet" "subnet-pvt-b" {
    + arn                                            = (known after apply)
    + assign_ipv6_address_on_creation                = false
    + availability_zone                              = "us-east-1b"
    + availability_zone_id                           = (known after apply)
    + cidr_block                                     = "10.0.0.32/27"
    + enable_dns64                                   = false
    + enable_resource_name_dns_a_record_on_launch    = false
    + enable_resource_name_dns_aaaa_record_on_launch = false
    + id                                             = (known after apply)
    + ipv6_cidr_block_association_id                 = (known after apply)
    + ipv6_native                                    = false
    + map_public_ip_on_launch                        = false
    + owner_id                                       = (known after apply)
    + private_dns_hostname_type_on_launch            = (known after apply)
    + region                                         = "us-east-1"
    + tags                                           = {
        + "Name" = "subnet-prv-b"
      }
    + tags_all                                       = {
        + "Name" = "subnet-prv-b"
      }
    + vpc_id                                         = (known after apply)
  }
```

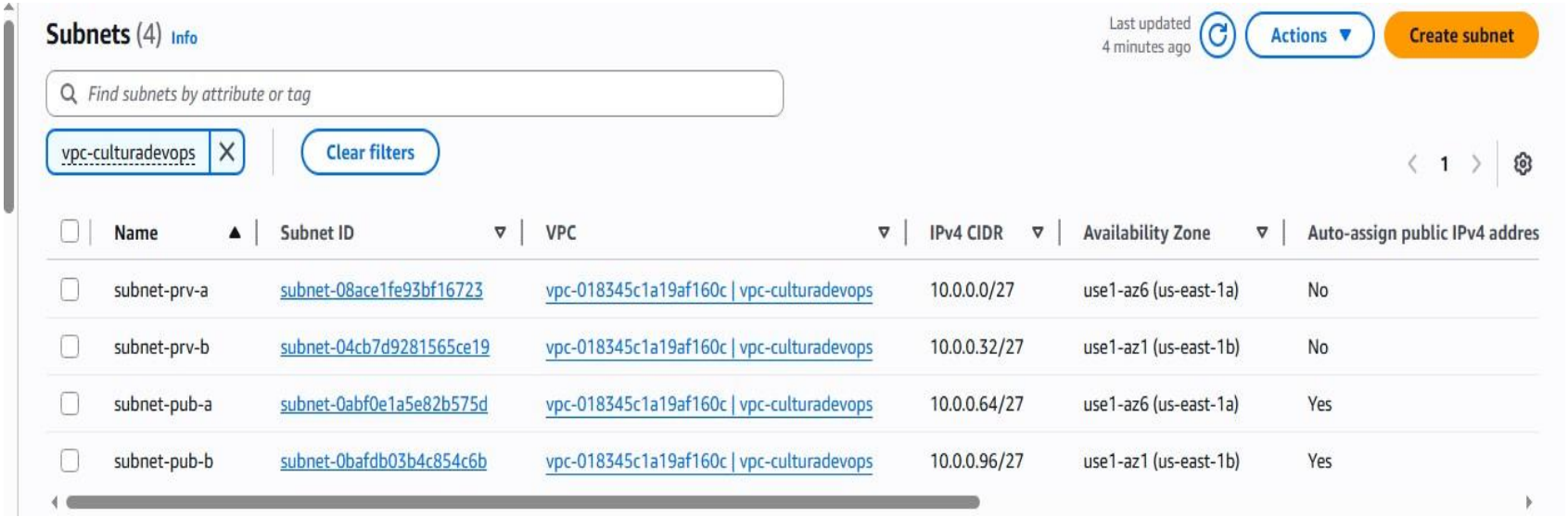
Infraestrutura como Código (IaC)

```
# aws_subnet.subnet-pub-a[0] will be created
+ resource "aws_subnet" "subnet-pub-a" {
    + arn                                            = (known after apply)
    + assign_ipv6_address_on_creation                = false
    + availability_zone                              = "us-east-1a"
    + availability_zone_id                           = (known after apply)
    + cidr_block                                     = "10.0.0.64/27"
    + enable_dns64                                   = false
    + enable_resource_name_dns_a_record_on_launch    = false
    + enable_resource_name_dns_aaaa_record_on_launch = false
    + id                                             = (known after apply)
    + ipv6_cidr_block_association_id                 = (known after apply)
    + ipv6_native                                    = false
    + map_public_ip_on_launch                        = true
    + owner_id                                       = (known after apply)
    + private_dns_hostname_type_on_launch            = (known after apply)
    + region                                         = "us-east-1"
    + tags                                           = {
        + "Name" = "subnet-pub-a"
      }
    + tags_all                                       = {
        + "Name" = "subnet-pub-a"
      }
    + vpc_id                                         = (known after apply)
  }

# aws_subnet.subnet-pub-a[1] will be created
+ resource "aws_subnet" "subnet-pub-a" {
    + arn                                            = (known after apply)
    + assign_ipv6_address_on_creation                = false
    + availability_zone                              = "us-east-1b"
    + availability_zone_id                           = (known after apply)
    + cidr_block                                     = "10.0.0.96/27"
    + enable_dns64                                   = false
    + enable_resource_name_dns_a_record_on_launch    = false
    + enable_resource_name_dns_aaaa_record_on_launch = false
    + id                                             = (known after apply)
    + ipv6_cidr_block_association_id                 = (known after apply)
    + ipv6_native                                    = false
    + map_public_ip_on_launch                        = true
    + owner_id                                       = (known after apply)
    + private_dns_hostname_type_on_launch            = (known after apply)
    + region                                         = "us-east-1"
    + tags                                           = {
        + "Name" = "subnet-pub-b"
      }
    + tags_all                                       = {
        + "Name" = "subnet-pub-b"
      }
    + vpc_id                                         = (known after apply)
  }
```

Infraestrutura como Código (IaC)

```
Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

aws_vpc.this: Creating...
aws_vpc.this: Creation complete after 4s [id=vpc-018345c1a19af160c]
aws_subnet.subnet-pvt-b: Creating...
aws_subnet.subnet-pub-a[1]: Creating...
aws_subnet.subnet-pub-a[0]: Creating...
aws_subnet.subnet-pvt-a: Creating...
aws_subnet.subnet-pvt-b: Creation complete after 1s [id=subnet-04cb7d9281565ce19]
aws_subnet.subnet-pvt-a: Creation complete after 1s [id=subnet-08ace1fe93bf16723]
aws_subnet.subnet-pub-a[1]: Still creating... [00m10s elapsed]
aws_subnet.subnet-pub-a[0]: Still creating... [00m10s elapsed]
aws_subnet.subnet-pub-a[1]: Creation complete after 11s [id=subnet-0bafdb03b4c854c6b]
aws_subnet.subnet-pub-a[0]: Creation complete after 12s [id=subnet-0abf0e1a5e82b575d]

Apply complete! Resources: 5 added, 0 changed, 0 destroyed.
 Rogerio P. Calixto  iniciacao
```

Infraestrutura como Código (IaC)



Infraestrutura como Código (IaC)

```
module "vpc" {
  source                = "git::https://github.com/meu-repositorio/template-network.git"
  profile               = local.profile
  arn_assumerole        = var.arn_assumerole
  regiao                = var.regiao
  projeto               = local.projeto
  ambiente              = var.ambiente
  tipo_criacao          = local.tipo_criacao
  cidr_block            = local.cidr_block
  subnet_privada_config = local.subnet_privada_config
  subnet_publica_config = local.subnet_publica_config
}
```

```
You, 13 months ago | 2 authors (You and one other)
module "servidor" {
  source                = "git::https://github.com/meu-repositorio/template-instance.git"
  regiao                = var.regiao
  projeto               = local.projeto
  ambiente              = var.ambiente
  tipo_criacao          = local.tipo_criacao
  ami                   = lookup(var.amis, var.regiao)
  instance_type         = var.instance_type
  keypair_name          = var.keypair_projetobillingtags
  vpc_id                = module.vpc.vpc_id
  subnet_id             = module.vpc.subnet_publica_ids[0]
  instance_name         = "Servidor 1"
  disable_api_termination = true
  root_block_device_size  = var.root-block-device-size      You, 13 months ago • Uncommitted changes
  associate_public_ip   = true
}
```

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