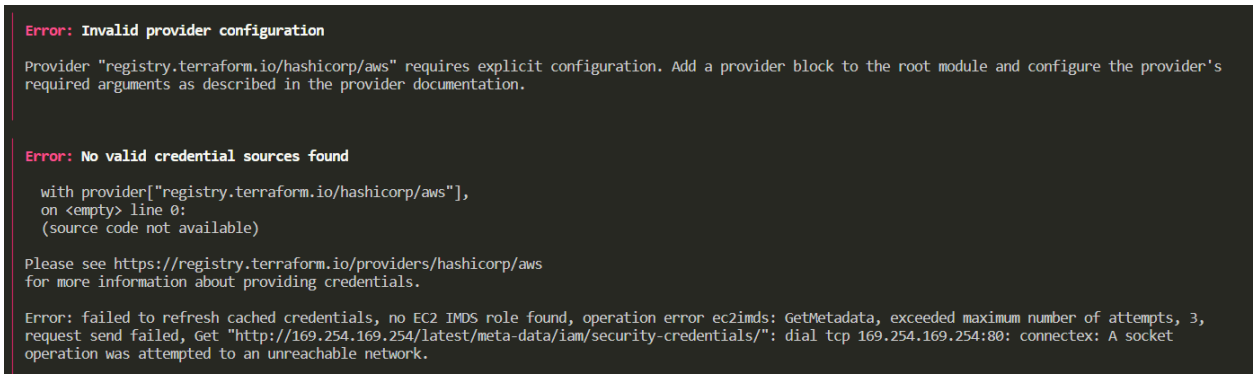
Error analysis:

This error analysis report's objective is to analyze possible error in the infrastructure.

Goal: 2 ec2 creation(minimum networking)

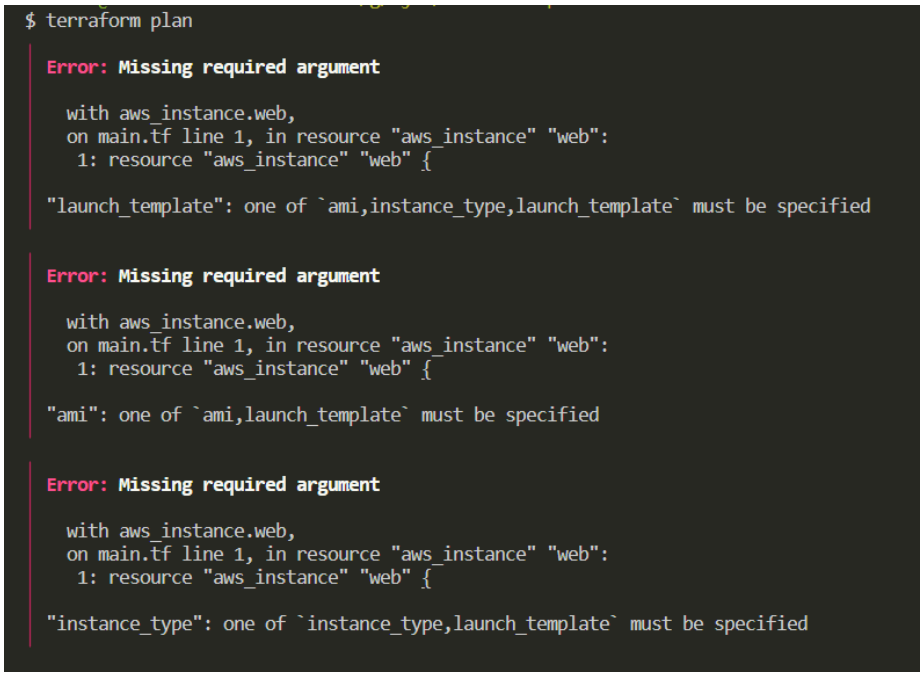
1. Without provider:



Reason:

In Terraform, the provider is the service that interacts with the resources, in this case, AWS. You need to provide the credentials that Terraform will use to interact with AWS, defining the AWS provider block.

2. Blank ec2:



Terraform is expecting at least two out of three parameters (ami, instance_type, launch_template) to be specified for the aws_instance resource in your Terraform configuration.

Here's a brief explanation of what these parameters mean:

- ami: This is required for defining which Amazon Machine Image (AMI) should be used to launch the instance.
- instance_type: This is the type of instance to be launched.

  Or

- launch_template: This defines the template that describes the instance configuration.

3. Error after inserting ami in the EC2 resource block.

```
$ terraform plan

Error: Missing required argument

  with aws_instance.web,
  on main.tf line 1, in resource "aws_instance" "web":
   1: resource "aws_instance" "web" {

"instance_type": one of `instance_type,launch_template` must be specified
```

That means I need anyone of these: Either instance_type or launch_template.

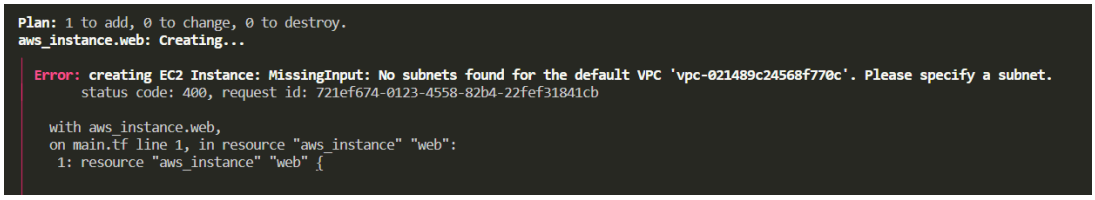
Alternative example with launch template:

Alternately, if you use a launch_template, the instance_type is defined within that launch template, like so:

```
resource "aws_launch_template" "example" {
  name = "example"

  block_device_mappings {
    device_name = "/dev/sda1"

    ebs {
      volume_size = 50
    }
  }
```

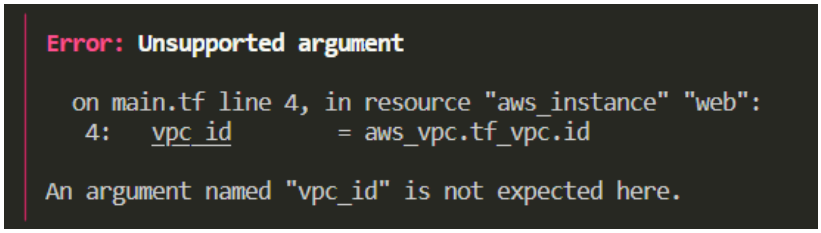
```
  instance_type = "t2.micro"
  image_id      = "ami-0c94855ba95c71c99" # replace with your AMI ID.
}

resource "aws_instance" "web" {
  launch_template {
    id = aws_launch_template.example.id
  }
}
```

4. No subnets found for the default VPC 'vpc-021489c24568f770c'. Please specify a subnet.



   This error indicates that the default vpc don't have subnet associated with it. So whether we need to assign a subnet to that vpc or create a vpc with subnet associated with it.

5. Inserting vpc into ec2 instance



When declaring an EC2 instance in your Terraform configuration, specifying the VPC ID directly in the EC2 resource block is invalid. This is because the relationship between the VPC and the EC2 instance is not direct but managed through the subnet.

Here's a brief explanation of how they are related:

- A VPC (Virtual Private Cloud) is a logically isolated section of the AWS Cloud where AWS resources run.
- A subnet is a range of IP addresses in your VPC. When you launch an instance, you must select a subnet to launch that instance into.
- An EC2 instance in the launched state is always associated with a particular subnet, and therefore a particular VPC.

Based on the design, an EC2 instance is not directly associated with a VPC but rather with a subnet. The subnet, in turn, is associated with the VPC, forming an indirect relationship between the EC2 instance and the VPC.