Lab 13: Terraform Custom Module Creation (Basic Level)

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Level: Beginner
Platform: Ubuntu Linux + Microsoft Azure
Prerequisite: Lab 1 to Lab 12

Learning Objective

Participants will learn:

- What a custom module is
- How to create a basic custom module
- Folder structure of a module
- How to call a local module
- How modules connect with root module

Learning Outcome

After completing this lab, participants will:

- Understand custom module structure
- Create a reusable module
- Use local modules
- Build modular Terraform code

Concept Explanation

A **custom module** is a module that we create ourselves.

Instead of downloading from Terraform Registry, we: - Create our own folder - Write Terraform code - Reuse it using `module` block

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Lab Architecture

We will create:

- One basic module for **Resource Group**
- Root project will call this module

Folder Structure

```
terraform-custom-module-lab/
│
├── main.tf
└── modules/
    └── resource_group/
        ├── main.tf
        ├── variables.tf
        └── outputs.tf
```

Hands-On Lab

Step 1: Create Project Folder

```
mkdir terraform-custom-module-lab
cd terraform-custom-module-lab
```

Step 2: Create Module Folder Structure

```
mkdir -p modules/resource_group
```

Step 3: Create Root main.tf

```
touch main.tf
nano main.tf
```

Add:

```
provider "azurerm" {
  features {}
}

module "rg_module" {
  source = "./modules/resource_group"

  rg_name = "rg-custom-module-basic"
  location = "East US"
}
```

Module Code

Step 4: Create Module Files

```
cd modules/resource_group

touch main.tf variables.tf outputs.tf
```

Step 5: Module variables.tf

```
variable "rg_name" {
  type = string
}

variable "location" {
  type = string
}
```

Step 6: Module main.tf

```
resource "azurerm_resource_group" "rg" {
  name     = var.rg_name
```

```
  location = var.location
}
```

Step 7: Module outputs.tf

```
output "rg_name" {
  value = azurerm_resource_group.rg.name
}
```

Execution

Step 8: Go Back to Root Folder

```
cd ../../
```

Step 9: Initialize Terraform

```
terraform init
```

Step 10: Plan

```
terraform plan
```

Step 11: Apply

```
terraform apply
```

Type:

```
yes
```

Verification

Azure Portal:

- Resource Group Name: `rg-custom-module-basic`

Understanding Flow

```
Root main.tf
   ↓
Module block
   ↓
Local module folder
   ↓
Module main.tf
   ↓
Azure Resource Group
```

Cleanup

```
terraform destroy
```

Type:

```
yes
```