

Lab Exercise 7– Terraform Variables with Command Line Arguments

Objective:

Learn how to pass values to Terraform variables using command line arguments.

Prerequisites:

- Terraform installed on your machine.
- Basic knowledge of Terraform variables.

Steps:

1. Create a Terraform Directory:

```
mkdir terraform-cli-variables
```

```
cd terraform-cli-variables
```

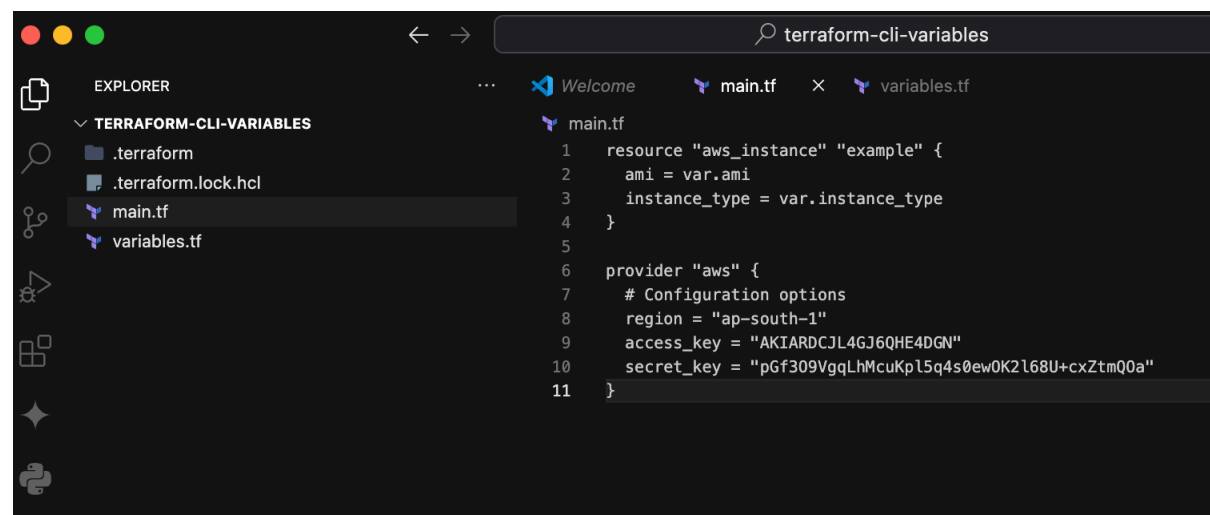
```
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-variables % cd ..  
(base) aryanbansal@Aryans-MacBook-Air-10 Terraform-Lab % mkdir terraform-cli-variables  
(base) aryanbansal@Aryans-MacBook-Air-10 Terraform-Lab % cd terraform-cli-variables
```

2. Create Terraform Configuration Files:

- Create a file named main.tf:

instance.tf

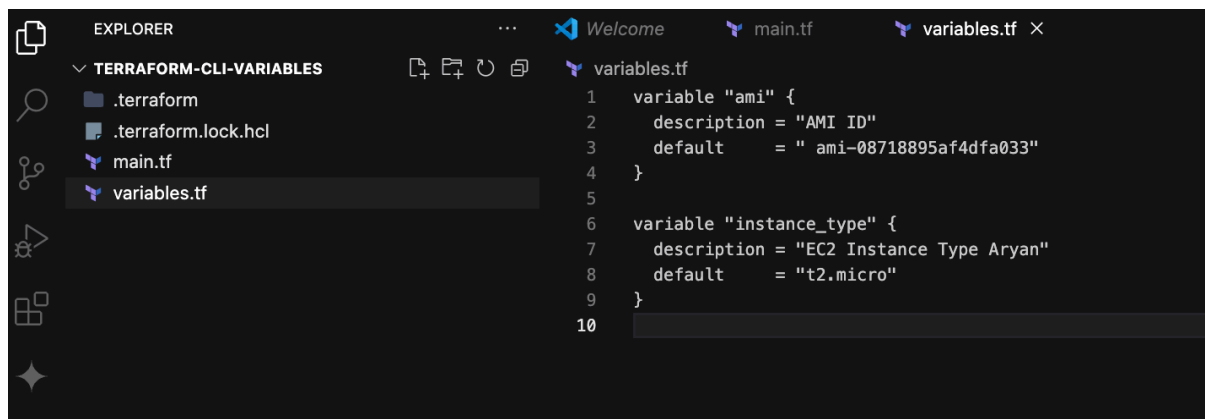
```
resource "aws_instance" "example" {  
  ami      = var.ami  
  instance_type = var.instance_type
```



- Create a file named variables.tf:

variables.tf

```
variable "ami" {  
  description = "AMI ID"  
  default    = "ami-08718895af4dfa033"  
}  
  
variable "instance_type" {  
  description = "EC2 Instance Type"  
  default    = "t2.micro"  
}
```



3. Use Command Line Arguments:

- Open a terminal and navigate to your Terraform project directory.
- Run the terraform init command:

terraform init

```
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-cli-variables % terraform init  
Initializing the backend..  
Initializing provider plugins..  
- Finding latest version of hashicorp/aws...  
- Installing hashicorp/aws v5.84.0...  
- Installed hashicorp/aws v5.84.0 (signed by HashiCorp)  
Terraform has created a lock file .terraform.lock.hcl to record the provider  
selections it made above. Include this file in your version control repository  
so that Terraform can guarantee to make the same selections by default when  
you run "terraform init" in the future.  
  
Terraform has been successfully initialized!  
  
You may now begin working with Terraform. Try running "terraform plan" to see  
any changes that are required for your infrastructure. All Terraform commands  
should now work.  
  
If you ever set or change modules or backend configuration for Terraform,  
rerun this command to reinitialize your working directory. If you forget, other  
commands will detect it and remind you to do so if necessary.
```

- Run the terraform apply command with command line arguments to set variable values:

```
terraform plan -var="ami=ami-0522ab6e1ddcc7055" -var="instance_type=t3.micro"
```

- Adjust the values based on your preferences.

```
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-cli-variables % terraform plan -var="ami=ami-0522ab6e1ddcc7055" -var="instance_type=t3.micro"

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_instance.example will be created
+ resource "aws_instance" "example" {
  + ami                    = "ami-0522ab6e1ddcc7055"
  + arn                   = (known after apply)
  + associate_public_ip_address = (known after apply)
  + availability_zone      = (known after apply)
  + cpu_core_count         = (known after apply)
  + cpu_threads_per_core   = (known after apply)
  + disable_api_stop       = (known after apply)
  + disable_api_termination = (known after apply)
  + ebs_optimized          = (known after apply)
  + enable_primary_ipv6    = (known after apply)
  + get_password_data      = false
  + host_id                = (known after apply)
  + host_resource_group_arn = (known after apply)
  + iam_instance_profile   = (known after apply)
  + id                     = (known after apply)
  + instance_initiated_shutdown_behavior = (known after apply)
  + instance_lifecycle     = (known after apply)
  + instance_state         = (known after apply)
  + instance_type          = "t3.micro"
  + ipv6_address_count     = (known after apply)
  + ipv6_addresses         = (known after apply)
  + key_name               = (known after apply)
  + monitoring             = (known after apply)
  + outpost_arn            = (known after apply)
  + password_data          = (known after apply)
  + placement_group        = (known after apply)
  + placement_partition_number = (known after apply)
  + primary_network_interface_id = (known after apply)
  + private_dns            = (known after apply)
  + private_ip             = (known after apply)
  + subnet_id              = (known after apply)
  + tags                   = {}
  + vpc_id                 = (known after apply)
}
```

```
+ instance_market_options (known after apply)
+ maintenance_options (known after apply)
+ metadata_options (known after apply)
+ network_interface (known after apply)
+ private_dns_name_options (known after apply)
+ root_block_device (known after apply)
}

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
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-cli-variables %
```

4. Test and Verify:

- Observe how the command line arguments dynamically set the variable values during the apply process.
- Access the AWS Management Console or use the AWS CLI to verify the creation of resources in the specified region.

```
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-cli-variables % terraform apply -auto-approve

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_instance.example will be created
+ resource "aws_instance" "example" {
  + ami                      = "ami-08718895af4dfa033"
  + arn                     = (known after apply)
  + associate_public_ip_address = (known after apply)
  + availability_zone        = (known after apply)
  + cpu_core_count           = (known after apply)
  + cpu_threads_per_core     = (known after apply)
  + disable_api_stop         = (known after apply)
  + disable_api_termination  = (known after apply)
  + ebs_optimized            = (known after apply)
  + enable_primary_ipv6      = (known after apply)
  + get_password_data        = false
  + host_id                  = (known after apply)

  + instance_market_options (known after apply)

  + maintenance_options (known after apply)

  + metadata_options (known after apply)

  + network_interface (known after apply)

  + private_dns_name_options (known after apply)

  + root_block_device (known after apply)
}

Plan: 1 to add, 0 to change, 0 to destroy.
aws_instance.example: Creating...
aws_instance.example: Still creating... [10s elapsed]
aws_instance.example: Creation complete after 15s [id=i-040465b6dbfae2206]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-cli-variables %
```

Instances (6) Info									
Last updated less than a minute ago Refresh Connect Instance state Actions Launch instances									
<input type="text" value="Find Instance by attribute or tag (case-sensitive)"/> All states < 1 > Settings									
<input type="checkbox"/>	Name ↗	Instance ID	Instance state ▼	Instance type ▼	Status check	Alarm status	Availability Zone ▼	Pub	
<input type="checkbox"/>	My Instance Ar...	i-01de72e85d6869434	Terminated 🔗 🔗	t2.micro	–	View alarms +	ap-south-1b	–	
<input type="checkbox"/>	My Instance Ar...	i-05ae5b124c8ceaf6c	Terminated 🔗 🔗	t2.micro	–	View alarms +	ap-south-1b	–	
<input type="checkbox"/>	My Instance Ar...	i-07391a5aa75de9560	Terminated 🔗 🔗	t2.micro	–	View alarms +	ap-south-1b	–	
<input type="checkbox"/>		i-040465b6dbfae2206	Running 🔗 🔗	t2.micro	⌚ Initializing	View alarms +	ap-south-1b	ec2-	
<input type="checkbox"/>	My Instance Ar...	i-0cfaed9399fa65a36	Terminated 🔗 🔗	t2.micro	–	View alarms +	ap-south-1b	–	
<input type="checkbox"/>	My Instance Ar...	i-0143d49945aa7af36	Terminated 🔗 🔗	t2.micro	–	View alarms +	ap-south-1b	–	

5. Clean Up:

After testing, you can clean up resources:

```
terraform destroy
```

Confirm the destruction by typing yes.

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

Do you really want to destroy all resources?
  Terraform will destroy all your managed infrastructure, as shown above.
  There is no undo. Only 'yes' will be accepted to confirm.

Enter a value: yes

aws_instance.example: Destroying... [id=i-040465b6dbfae2206]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 10s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 20s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 30s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 40s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 50s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 1m0s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 1m10s elapsed]
aws_instance.example: Still destroying... [id=i-040465b6dbfae2206, 1m20s elapsed]
aws_instance.example: Destruction complete after 1m26s

Destroy complete! Resources: 1 destroyed.
(base) aryanbansal@Aryans-MacBook-Air-10 terraform-cli-variables %
```

6. Conclusion:

This lab exercise demonstrates how to use command line arguments to set variable values dynamically during the terraform apply process. It allows you to customize your Terraform deployments without modifying the configuration files directly. Experiment with different variable values and observe how command line arguments impact the infrastructure provisioning process.