

## My Terraform-Azure Project Steps

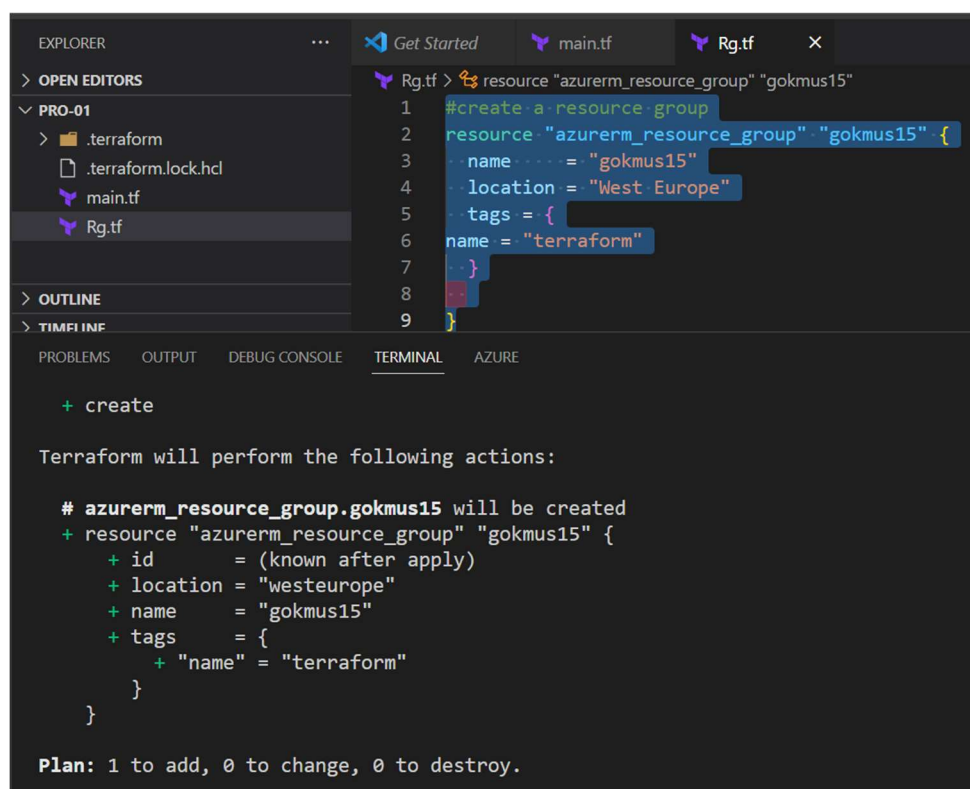
### 1. Resource Group

- I opened VS Code editor and I created new folder and new file “main.tf”
- In this project, I use always Example Usage scripts from Website [https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs/resources/resource\\_group](https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs/resources/resource_group)
- I put the script an “main.tf” file from Terraform as below;

```
• terraform {  
•   required_providers {  
•     azurerm = {  
•       source = "hashicorp/azurerm"  
•       version = "3.35.0"  
•     }  
•   }  
• }  
•  
• provider "azurerm" {  
•   # Configuration options  
• }
```

Then I use the following commands respectively in VS Code Terminal

- ✓ Terraform init
- ✓ I login my Azure portal with “az login” command
- ✓ I created “rg.tf” file for provisioning resource group
- ✓ Terraform plan
- ✓ Terraform apply : I created resource group in Azure portal as shown below.



```
1 #create a resource group  
2 resource "azurerm_resource_group" "gokmus15" {  
3   name = "gokmus15"  
4   location = "West Europe"  
5   tags = {  
6     name = "terraform"  
7   }  
8 }  
9
```

+ create

Terraform will perform the following actions:

```
# azurerm_resource_group.gokmus15 will be created  
+ resource "azurerm_resource_group" "gokmus15" {  
  + id          = (known after apply)  
  + location    = "westeurope"  
  + name        = "gokmus15"  
  + tags        = {  
    + "name" = "terraform"  
  }  
}
```

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

Microsoft Azure

Search resources, services, and docs (G+/J)

Home >

Resource groups ✨ ...

deop.ca (deop.ca)

+ Create Manage view Refresh Export to CSV Open query Assign tags

Filter for any field... Subscription equals all Location equals all Add filter

0 Unsecure resources 0 Recommendations No grouping

| Name ↑↓          | Subscription ↑↓      | Location ↑↓ |
|------------------|----------------------|-------------|
| gokmus15         | Azure subscription 1 | West Europe |
| NetworkWatcherRG | Azure subscription 1 | East US     |

## 2. VM (Virtual Machine)

- ✓ I created "VM.tf" file at VS Code Editor
- ✓ I took the Example Usage script for the VM provisioning from Terraform
- ✓ [https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs/resources/windows\\_virtual\\_machine](https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs/resources/windows_virtual_machine)
- ✓ for creating VM, we should create also Vnet, Subnet, NIC, IP, User ID and password and Operation System (OS)
- ✓ I modified the following blocks on this template scripts.
  - **Azurerm Vnet, Subnet, network interface (NIC), IP configuration and Virtual machine**

```

✓ resource "azurerm_resource_group" "example" {
✓   name     = "example-resources"
✓   location = "West Europe"
✓ }
✓
✓ resource "azurerm_virtual_network" "example" {
✓   name                = "example-network"
✓   address_space       = ["10.0.0.0/16"]
✓   location             = azurerm_resource_group.example.location
✓   resource_group_name = azurerm_resource_group.example.name
✓ }
✓
✓ resource "azurerm_subnet" "example" {
✓   name                = "internal"
✓   resource_group_name = azurerm_resource_group.example.name
✓   virtual_network_name = azurerm_virtual_network.example.name
✓   address_prefixes     = ["10.0.2.0/24"]
✓ }
✓
✓ resource "azurerm_network_interface" "example" {
✓   name                = "example-nic"
✓   location             = azurerm_resource_group.example.location
✓   resource_group_name = azurerm_resource_group.example.name
✓
✓   ip_configuration {
✓     name                = "internal"
✓     subnet_id           = azurerm_subnet.example.id
✓     private_ip_address_allocation = "Dynamic"
✓   }
✓ }
✓

```

```

✓ resource "azurerm_windows_virtual_machine" "example" {
✓   name                = "example-machine"
✓   resource_group_name = azurerm_resource_group.example.name
✓   location             = azurerm_resource_group.example.location
✓   size                 = "Standard_F2"
✓   admin_username      = "adminuser"
✓   admin_password      = "P@$$w0rd1234!"
✓   network_interface_ids = [
✓     azurerm_network_interface.example.id,
✓   ]
✓
✓   os_disk {
✓     caching          = "ReadWrite"
✓     storage_account_type = "Standard_LRS"
✓   }
✓
✓   source_image_reference {
✓     publisher = "MicrosoftWindowsServer"
✓     offer     = "WindowsServer"
✓     sku       = "2016-Datacenter"
✓     version   = "latest"
✓   }
✓ }

```

The screenshot shows the Visual Studio Code interface with a Terraform configuration file open. The Explorer pane on the left shows the project structure, including a .terraform directory and several .tf files. The main editor displays the configuration for the 'azurerm\_windows\_virtual\_machine' resource. The terminal pane at the bottom shows the output of a 'terraform plan' command, which lists the changes to be made and asks for confirmation to proceed.

```

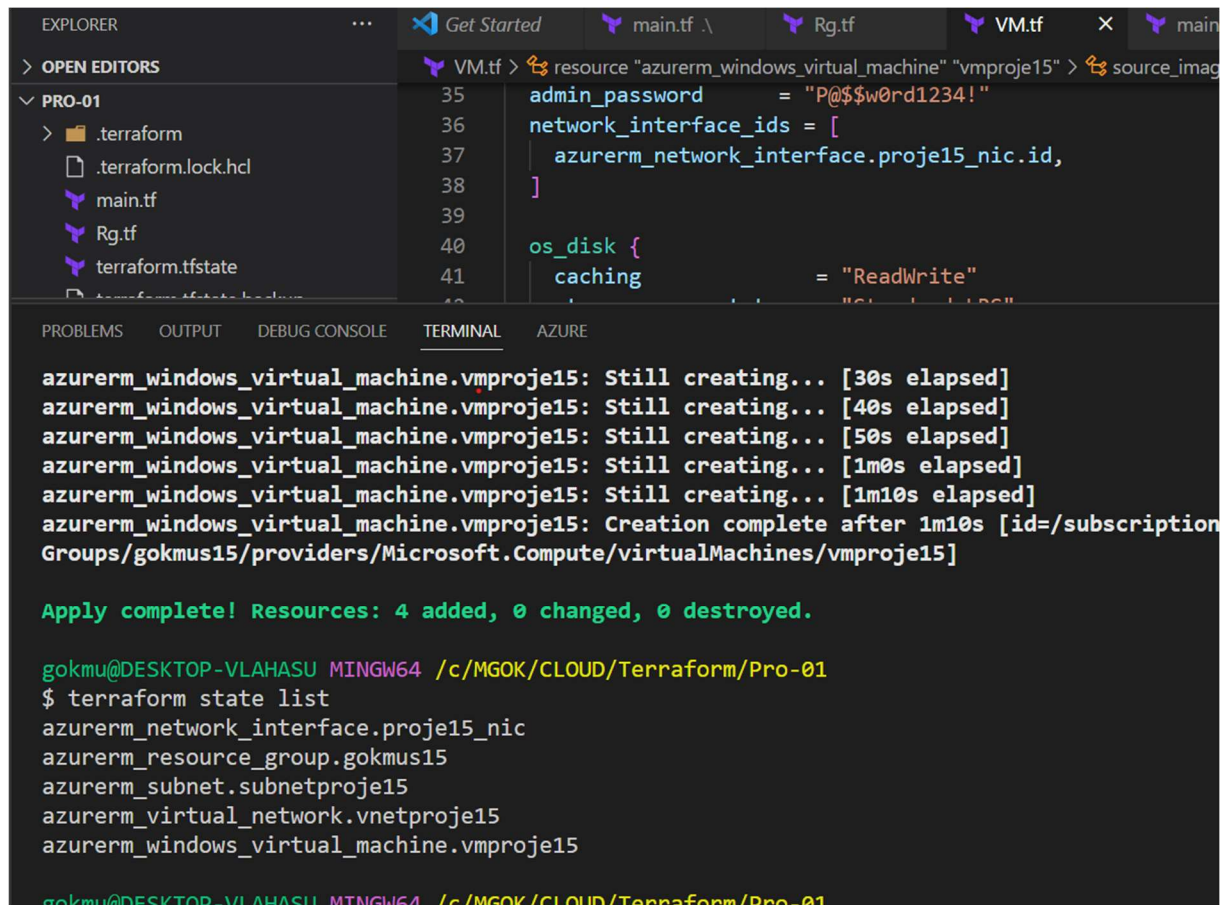
File Edit Selection View Go Run Terminal Help
EXPLORER
  > OPEN EDITORS
    > PRO-01
      > .terraform
        .terraform.lock.hcl
        .terraform.tfstate.lock.info
        main.tf
        Rg.tf
        terraform.tfstate
  VM.tf > resource "azurerm_windows_virtual_machine" "vmproj15" > source_image_
35   admin_password      = "P@$$w0rd1234!"
36   network_interface_ids = [
37     azurerm_network_interface.proje15_nic.id,
38   ]
39
40   os_disk {
41     caching          = "ReadWrite"
42     storage_account_type = "Standard_LRS"
43   }
44
45   source_image_reference {
46     publisher = "MicrosoftWindowsServer"
47     offer     = "WindowsServer"
48     sku       = "2016-Datacenter"
49     version   = "latest"
50   }
51
52   termination_notification {
53     enabled = (known after apply)
54     timeout = (known after apply)
55   }
56 }
57
Plan: 4 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:

```

After deployment, we can see our instances on Terraform and on the Azure Portal as shown below;



```
EXPLORER
> OPEN EDITORS
  VM.tf
  main.tf
  Rg.tf
  terraform.tfstate

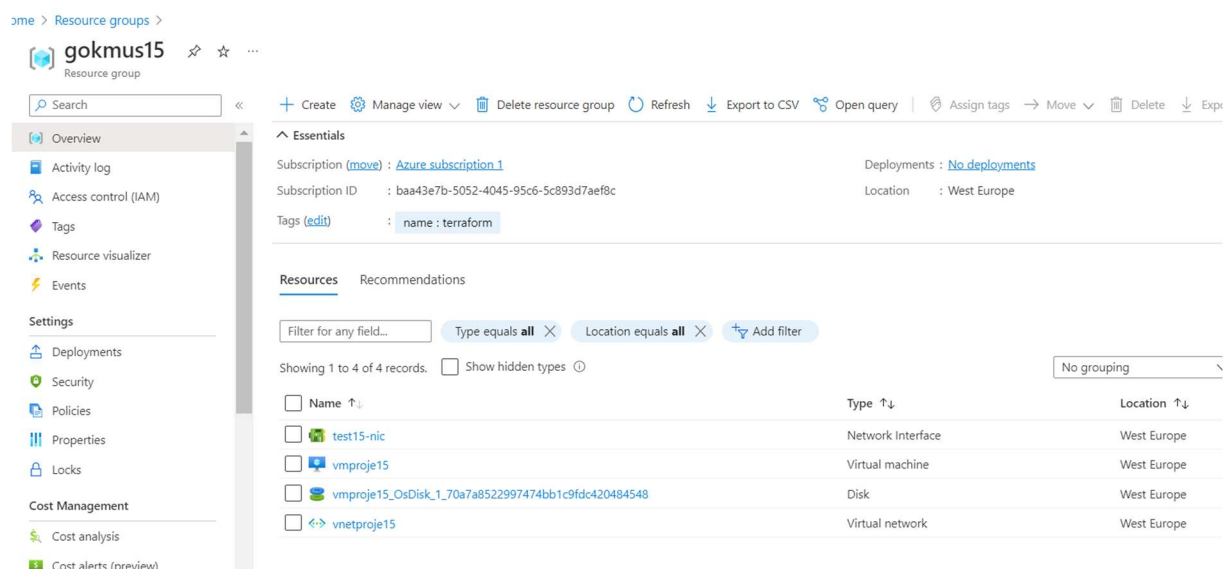
PRO-01
├── .terraform
├── .terraform.lock.hcl
├── main.tf
├── Rg.tf
└── terraform.tfstate

main.tf
35 admin_password = "P@$w0rd1234!"
36 network_interface_ids = [
37   azurerm_network_interface.proje15_nic.id,
38 ]
39
40 os_disk {
41   caching = "ReadWrite"
42 }
```

```
azurerm_windows_virtual_machine.vmproje15: Still creating... [30s elapsed]
azurerm_windows_virtual_machine.vmproje15: Still creating... [40s elapsed]
azurerm_windows_virtual_machine.vmproje15: Still creating... [50s elapsed]
azurerm_windows_virtual_machine.vmproje15: Still creating... [1m0s elapsed]
azurerm_windows_virtual_machine.vmproje15: Still creating... [1m10s elapsed]
azurerm_windows_virtual_machine.vmproje15: Creation complete after 1m10s [id=/subscriptions/gokmus15/providers/Microsoft.Compute/virtualMachines/vmproje15]

Apply complete! Resources: 4 added, 0 changed, 0 destroyed.

gokmu@DESKTOP-VLAHASU MINGW64 /c/MGOK/CLOUD/Terraform/Pro-01
$ terraform state list
azurerm_network_interface.proje15_nic
azurerm_resource_group.gokmus15
azurerm_subnet.subnetproje15
azurerm_virtual_network.vnetproje15
azurerm_windows_virtual_machine.vmproje15
```



Finally, I created storage account named “mustafa15” below. All resources of us are created.

Microsoft Azure

Search resources, services, and docs (G+/)

Home > Resource groups >

**gokmus15**  
Resource group

Search

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export to CSV

**Essentials**

Subscription (move): [Azure subscription 1](#) Deployments: [No deployments](#)

Subscription ID: baa43e7b-5052-4045-95c6-5c893d7ae8c Location: West Europe

Tags (edit): name: terraform

**Resources** Recommendations

Filter for any field... Type equals all Location equals all Add filter

Showing 1 to 5 of 5 records. Show hidden types No grouping

| Name   | Type              | Location    |
|--|-------------------|-------------|
| mustafa15  | Storage account   | West Europe |
| test15-nic   | Network Interface | West Europe |
| vmproj15   | Virtual machine   | West Europe |
| vmproj15_OsDisk_1_70a7a8522997474bb1c9fdc420484548 | Disk              | West Europe |
| vnetproj15   | Virtual network   | West Europe |

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EXPLORER

Get Started main.tf \ Rg.tf VM.tf storageAccount.tf

OPEN EDITORS

PRO-01

- .terraform
- .terraform.lock.hcl
- main.tf
- Rg.tf
- storageAccount.tf
- terraform.tfstate
- terraform.tfstate.backup

OUTLINE

TIMELINE

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL AZURE

```
storageAccount.tf > resource "azurerm_storage_account" "storage_account_proj15" {
1 resource "azurerm_storage_account" "storage_account_proj15" {
2   name = "mustafa15"
3   resource_group_name = azurerm_resource_group.gokmus15.name
4   location = azurerm_resource_group.gokmus15.location
5   account_tier = "Standard"
6   account_replication_type = "LRS"
7 }
8 }
```

azurerm\_storage\_account.storage\_account\_proj15: Creation complete after 25s [id=/subscriptions/baa43e7b-5052-4045-95c6-5c893d7ae8c/resourceGroups/gokmus15/providers/Microsoft.Storage/storageAccounts/mustafa15]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.

gokmu@DESKTOP-VLAHASU MINGW64 /c/MGOK/CLOUD/Terraform/Pro-01

```
$ terraform state list
azurerm_network_interface.proj15_nic
azurerm_resource_group.gokmus15
azurerm_storage_account.storage_account_proj15
azurerm_subnet.subnetproj15
azurerm_virtual_network.vnetproj15
azurerm_windows_virtual_machine.vmproj15
```

gokmu@DESKTOP-VLAHASU MINGW64 /c/MGOK/CLOUD/Terraform/Pro-01