TASKS ON TERRAFORM

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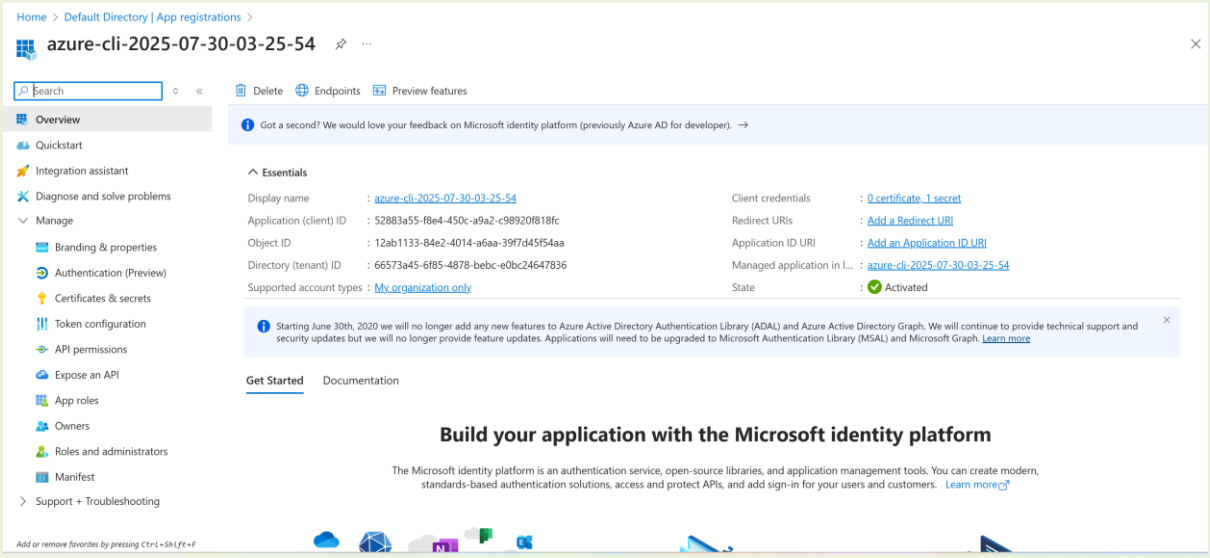
- **DATE: 30/07/2025**
- **BATCH: 11**
- **NO.OF TASKS: 1**

Task 1: Create a Virtual machine using terraform

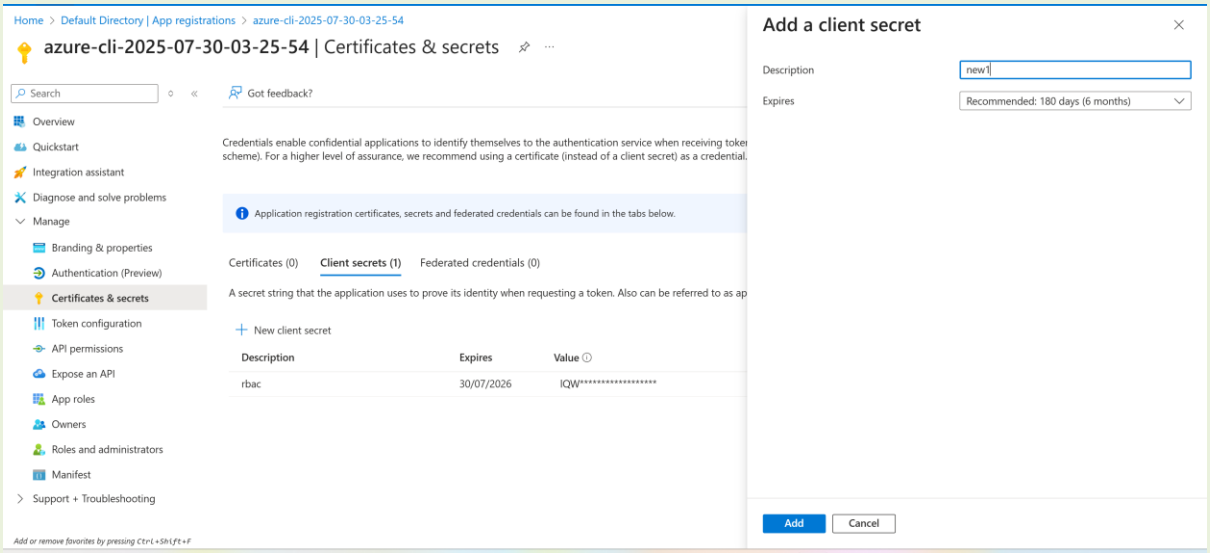
Connect to azure CLI and create an app registration

```
[Tenant and subscription selection]

No     Subscription name     Subscription ID                       Tenant
-----  --------------------  ------------------------------------  -----------------
[1]    Azure subscription 1  6b09f008-6934-4533-97f5-79266f544b0b  Default Directory
[2] *  Azure subscription 1  5d1b700e-5c37-4a48-a430-e148b56e5404  Default Directory

The default is marked with an *; the default tenant is 'Default Directory' and subscription is 'Azure subscription 1' (5d1b700e-5c37-4a48-a430-e148b56e5404).

Select a subscription and tenant (Type a number or Enter for no changes):

Tenant: Default Directory
Subscription: Azure subscription 1 (5d1b700e-5c37-4a48-a430-e148b56e5404)

[Announcements]
With the new Azure CLI login experience, you can select the subscription you want to use more easily. Learn more about it and its configuration at https://go.microsoft.com/fwlink/?
linkid=2271236

If you encounter any problem, please open an issue at https://aka.ms/azclibug

[Warning] The login output has been updated. Please be aware that it no longer displays the full list of available subscriptions by default.

hussain [ ~ ]$ az ad sp create-for-rbac --role="Contributor" --scopes="/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404"
Creating 'Contributor' role assignment under scope '/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404'
The output includes credentials that you must protect. Be sure that you do not include these credentials in your code or check the credentials into your source control. For more in
formation, see https://aka.ms/azadsp-cli
{
  "appId": "52883a55-f8e4-450c-a9a2-c98920f818fc",
  "displayName": "azure-cli-2025-07-30-03-25-54",
  "password": "1QW8Q~.gXFJENmeasGVObyn-c3oZY5vytU0Peaug",
  "tenant": "66573a45-6f85-4878-bebc-e0bc24647836"
}
hussain [ ~ ]$
```

The details of App registration is as follows



Click on **Certificates & secrets,** Click on **New Client Secret**



Save the following

Value= z1v8Q~Hv7~QBbbb9Akoew9lbauFR5b74oCOmGalC

Secret ID= e200391f-a972-457c-b869-92fb374a253a

Add the **environment variables** as follows

export ARM_CLIENT_ID="52883a55-f8e4-450c-a9a2-c98920f818fc"

export ARM_CLIENT_SECRET="z1v8Q~Hv7~QBbbb9Akoew9lbauFR5b74oCOmGalC"

export ARM_TENANT_ID="66573a45-6f85-4878-bebc-e0bc24647836"

export ARM_SUBSCRIPTION_ID="5d1b700e-5c37-4a48-a430-e148b56e5404"

```
hussain [ ~ ]$ export ARM_CLIENT_ID="52883a55-f8e4-450c-a9a2-c98920f818fc"
export ARM_CLIENT_SECRET="z1v8Q~Hv7~QBbbb9Akoew9lbauFR5b74oCOmGalC"
export ARM_TENANT_ID=" 66573a45-6f85-4878-bebc-e0bc24647836 "
export ARM_SUBSCRIPTION_ID=" 5d1b700e-5c37-4a48-a430-e148b56e5404"
hussain [ ~ ]$
```

Create VNet

Create a file named **vnet.tf** using **vi vnet.tf** and enter the configuration as follows

```
variable vnetname{
        default = "vanettf"
        }
variable addressspace{
        default = ["10.1.0.0/16"]
        type = list(string)
        }
```

resource "azurerm_virtual_network" "example" {

name = var.vnetname

resource_group_name = var.rgname

location = var.location

address_space = var.addressspace

}

```
variable vnetname{
              default = "vanettf"
              }
variable addressspace{
              default = ["10.1.0.0/16"]
              type = list(string)
              }
resource "azurerm_virtual_network" "example" {
              name  = var.vnetname
              resource_group_name = var.rgname
              location = var.location
              address_space  = var.addressspace
              }
```

Create Resource Group

Create a file named **rg.tf** using **vi rg.tf** and enter the configuration as follows

variable rgname{

default = "terraformrg"

}

variable location{

default = "West US 2"

}

resource "azurerm_resource_group" "example" {

name   = var.rgname

location = var.location

}

```
variable rgname{
             default = "terraformrg"
             }
variable location{
              default = "West US 2"
              }
resource "azurerm_resource_group" "example" {
                name     = var.rgname
                location = var.location
              }
```

Add Providers

Create a file named providers.tf using vi providers.tf and enter the configuration as follows

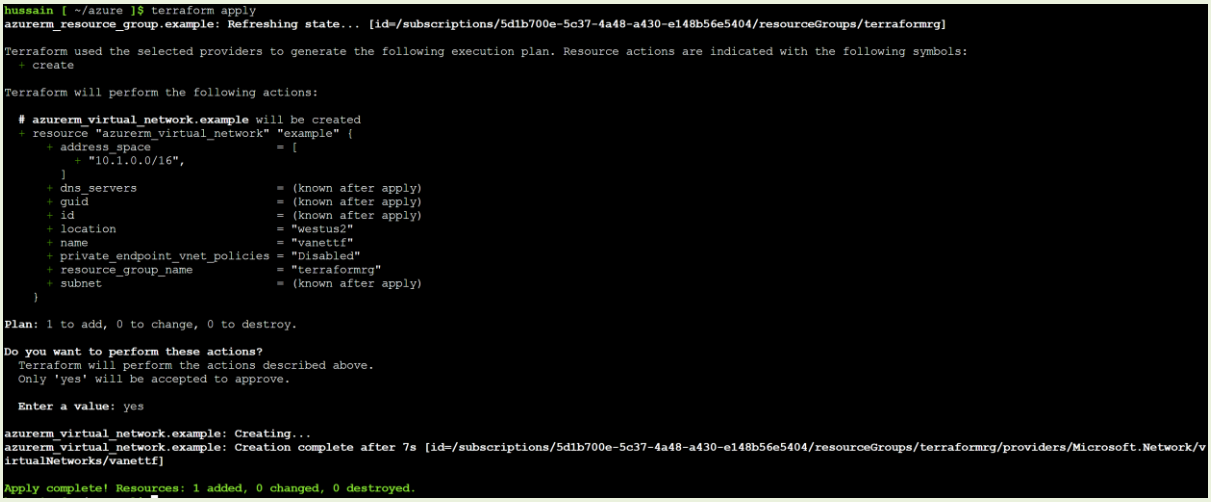
```
terraform {
  required_providers {
    azurerm = {
      source = "hashicorp/azurerm"
      version = "4.37.0"
    }
  }
}


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

```
terraform {
  required_providers {
    azurerm = {
      source  = "hashicorp/azurerm"
      version = "4.37.0"
    }
  }
}

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

Run the commands **terraform init** and **terraform apply**

```
hussain [ ~/azure ]$ terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of hashicorp/azurerm from the dependency lock file
- Using previously-installed hashicorp/azurerm v4.37.0

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.
```

```
hussain [ ~/azure ]$ terraform apply

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:

  # azurerm_resource_group.example will be created
  + resource "azurerm_resource_group" "example" {
      + id       = (known after apply)
      + location = "westus2"
      + name     = "terraformrg"
    }

  # azurerm_virtual_network.example will be created
  + resource "azurerm_virtual_network" "example" {
      + address_space                  = [
          + "10.1.0.0/16",
        ]
      + dns_servers                    = (known after apply)
      + guid                           = (known after apply)
      + id                             = (known after apply)
      + location                       = "westus2"
      + name                           = "vanettf"
      + private_endpoint_vnet_policies = "Disabled"
      + resource_group_name            = "terraformrg"
      + subnet                         = (known after apply)
    }

Plan: 2 to add, 0 to change, 0 to destroy.
```



Provide Implicit Dependency

Modify file named **vnet.tf** using **vi vnet.tf** and enter the configuration as follows

Implicit dependency in our Terraform configuration

- In our **azurerm_virtual_network** resource block, we set

  resource_group_name = azurerm_resource_group.example.name.

- This reference to **azurerm_resource_group.example.name** creates an implicit dependency on the resource group.

- Terraform will automatically know it must create the resource group before creating the virtual network because the virtual network depends on the resource group's name.

```
variable "vnetname" {
  default = "vanettf"
}
variable "addressapce" {
  default = ["10.1.0.0/16"]
  type    = list(string)
}
resource "azurerm_virtual_network" "example" {
  name                = var.vnetname
  resource_group_name = azurerm_resource_group.example.name
  location            = var.location
  address_space       = var.addressspace
}
```

```
variable vnetname{
                default = "vanettf"
                }
variable addressspace{
                default = ["10.1.0.0/16"]
                type = list(string)
                }
resource "azurerm_virtual_network" "example" {
                name  = var.vnetname
                resource_group_name = azurerm_resource_group.example.name
                location = var.location
                address_space  = var.addressspace
                }
```

No need to apply

Create subnet

Create a file named **snet.tf** using **vi snet.tf** and enter the configuration as follows

variable "snetname" {

default = "snettf"

}

variable "saddressspace" {

default = ["10.1.1.0/24"]

type = list(string)

}

resource "azurerm_subnet" "example" {

name = var.snetname

resource_group_name = azurerm_resource_group.example.name

virtual_network_name = azurerm_virtual_network.example.name

address_prefixes = var.saddressspace

}

```
variable "snetname" {
                default = "snettf"
                }
variable "saddressspace" {
                default = ["10.1.1.0/24"]
                type    = list(string)
                }
resource "azurerm_subnet" "example" {
  name                 = var.snetname
  resource_group_name  = azurerm_resource_group.example.name
  virtual_network_name = azurerm_virtual_network.example.name
  address_prefixes     = var.saddressspace
}
```

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]

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:

  # azurerm_subnet.example will be created
  + resource "azurerm_subnet" "example" {
      + address_prefixes                          = [
          + "10.1.1.0/24",
        ]
      + default_outbound_access_enabled           = true
      + id                                        = (known after apply)
      + name                                      = "snettf"
      + private_endpoint_network_policies         = "Disabled"
      + private_link_service_network_policies_enabled = true
      + resource_group_name                       = "terraformrg"
      + virtual_network_name                      = "vanettf"
    }

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

azurerm_subnet.example: Creating...
azurerm_subnet.example: Creation complete after 8s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNet
works/vanettf/subnets/snettf]

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

Create a file named **pip.tf** using **vi pip.tf** and enter the configuration as follows

variable "pip" {

default = "pipname"

}

resource "azurerm_public_ip" "example" {

name = var.pip

resource_group_name = azurerm_resource_group.example.name

location = azurerm_resource_group.example.location

allocation_method = "Static"

}

```
variable "pip" {
  default = "pipname"
}
resource "azurerm_public_ip" "example" {
  name                = var.pip
  resource_group_name = azurerm_resource_group.example.name
  location            = azurerm_resource_group.example.location
  allocation_method   = "Static"
}
```

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/v
anettf/subnets/snettf]

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:

  # azurerm_public_ip.example will be created
  + resource "azurerm_public_ip" "example" {
      + allocation_method       = "Static"
      + ddos_protection_mode    = "VirtualNetworkInherited"
      + fqdn                    = (known after apply)
      + id                      = (known after apply)
      + idle_timeout_in_minutes = 4
      + ip_address              = (known after apply)
      + ip_version              = "IPv4"
      + location                = "westus2"
      + name                    = "pipname"
      + resource_group_name     = "terraformrg"
      + sku                     = "Standard"
      + sku_tier                = "Regional"
    }

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

azurerm_public_ip.example: Creating...
```

```
azurerm_public_ip.example: Creation complete after 3s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddresses/pipname]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Create NSG

Create a file named **nsg.tf** using **vi nsg.tf** and enter the configuration as follows

```
variable "nsg" {
  default = "nsgname"
}
resource "azurerm_network_security_group" "example" {
  name                = var.nsg
  location            = azurerm_resource_group.example.location
  resource_group_name = azurerm_resource_group.example.name


  security_rule {
    name                       = "test456"
    priority                   = 100
    direction                  = "Inbound"
    access                     = "Allow"
    protocol                   = "Tcp"
    source_port_range          = "*"
    destination_port_range     = "22"
    source_address_prefix      = "*"
    destination_address_prefix = "*"
  }
}
```

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/vanettf]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddresses/pipname]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/vanettf/subnets/snettf]

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:

  # azurerm_network_security_group.example will be created
  + resource "azurerm_network_security_group" "example" {
      + id                  = (known after apply)
      + location            = "westus2"
      + name                = "nsgname"
      + resource_group_name = "terraformrg"
      + security_rule       = [
          + {
              + access                                     = "Allow"
              + destination_address_prefix                 = "*"
              + destination_address_prefixes               = []
              + destination_application_security_group_ids = []
              + destination_port_range                     = "22"
              + destination_port_ranges                    = []
              + direction                                  = "Inbound"
              + name                                       = "test456"
              + priority                                   = 100
              + protocol                                   = "Tcp"
              + source_address_prefix                      = "*"
              + source_address_prefixes                    = []
              + source_application_security_group_ids      = []
              + source_port_range                          = "*"
              + source_port_ranges                         = []
```

```
          },
      ]
    }

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

azurerm_network_security_group.example: Creating...
azurerm_network_security_group.example: Creation complete after 6s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGroups/nsgname]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Create NIC

Create a file named **nic.tf** using **vi nic.tf** and enter the configuration as follows

```
variable "nic" {
  default = "nicname"
}
variable "ipconfigname" {
  default = "ipname"
}
resource "azurerm_network_interface" "example" {
  name                = var.nic
  location            = azurerm_resource_group.example.location
  resource_group_name = azurerm_resource_group.example.name

  ip_configuration {
    name                          = var.ipconfigname
    subnet_id                     = azurerm_subnet.example.id
    private_ip_address_allocation = "Dynamic"
```

}

}

```
variable "nic" {
  default = "nicname"
}
variable "ipconfigname" {
  default = "ipname"
}
resource "azurerm_network_interface" "example" {
  name                = var.nic
  location            = azurerm_resource_group.example.location
  resource_group_name = azurerm_resource_group.example.name

  ip_configuration {
    name                          = var.ipconfigname
    subnet_id                     = azurerm_subnet.example.id
    private_ip_address_allocation = "Dynamic"
  }
}
```

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddres
ses/pipname]
azurerm_network_security_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/n
etworkSecurityGroups/nsgname]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/v
anettf/subnets/snettf]

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:

  # azurerm_network_interface.example will be created
  + resource "azurerm_network_interface" "example" {
      + accelerated_networking_enabled = false
      + applied_dns_servers            = (known after apply)
      + id                             = (known after apply)
      + internal_domain_name_suffix    = (known after apply)
      + ip_forwarding_enabled          = false
      + location                       = "westus2"
      + mac_address                    = (known after apply)
      + name                           = "nicname"
      + private_ip_address             = (known after apply)
      + private_ip_addresses           = (known after apply)
      + resource_group_name            = "terraformrg"
      + virtual_machine_id             = (known after apply)

      + ip_configuration {
          + gateway_load_balancer_frontend_ip_configuration_id = (known after apply)
          + name                                               = "ipname"
          + primary                                            = (known after apply)
          + private_ip_address                                 = (known after apply)
          + private_ip_address_allocation                      = "Dynamic"
          + private_ip_address_version                         = "IPv4"
          + subnet_id                                          = "/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network
/virtualNetworks/vanettf/subnets/snettf"
        }
    }

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

azurerm_network_interface.example: Creating...
azurerm_network_interface.example: Still creating... [00m10s elapsed]
azurerm_network_interface.example: Creation complete after 16s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Networ
k/networkInterfaces/nicname]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Connecting NIC and NSG

Create a file named **nicnsg.tf** using **vi nicnsg.tf** and enter the configuration as follows

(connecting **NIC** and **NSG**)

resource "azurerm_network_interface_security_group_association" "example" {

network_interface_id = azurerm_network_interface.example.id

network_security_group_id = azurerm_network_security_group.example.id

}

```
resource "azurerm_network_interface_security_group_association" "example" {
  network_interface_id      = azurerm_network_interface.example.id
  network_security_group_id = azurerm_network_security_group.example.id
}
```

- The **network_interface_id** argument takes the ID of our Azure network interface resource (should be defined elsewhere as **azurerm_network_interface.example**).

- The **network_security_group_id** argument takes the ID of your Azure network security group resource (should be defined elsewhere as azurerm_network_security_group.example).
- This block creates an association between the specific **NIC** and the **NSG** so that the security group's rules apply to any traffic handled by the interface.

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddres
ses/pipname]
azurerm_network_security_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/n
etworkSecurityGroups/nsgname]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/v
anettf/subnets/snettf]
azurerm_network_interface.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networ
kInterfaces/nicname]

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:

  # azurerm_network_interface_security_group_association.example will be created
  + resource "azurerm_network_interface_security_group_association" "example" {
      + id                        = (known after apply)
      + network_interface_id      = "/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkInterfaces/nicname"
      + network_security_group_id = "/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGroups/nsgnam
e"
    }

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

azurerm_network_interface_security_group_association.example: Creating...
azurerm_network_interface_security_group_association.example: Still creating... [00m10s elapsed]
azurerm_network_interface_security_group_association.example: Creation complete after 14s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg
```

```
/providers/Microsoft.Network/networkInterfaces/nicname|/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSec
urityGroups/nsgname]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Generate SSH key

Generate **SSH key** using **ssh-keygen -t rsa**

To check the contents of key

cd ../.ssh/

cat id_rsa

```
hussain [ ~/azure ]$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/home/hussain/.ssh/id_rsa):
Created directory '/home/hussain/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/hussain/.ssh/id_rsa
Your public key has been saved in /home/hussain/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:r55GQ0oDbYrFyz9mRYDGZIE/KBEMdGpLr93SDQeOGMo hussain@SandboxHost-638894390210435046
The key's randomart image is:
+---[RSA 3072]----+
|*o *++..         |
|..+.B o .        |
| * B * .         |
|* B O + o        |
|.E o * *S        |
|  o o X o.       |
| . o = + ..      |
|     .   .o      |
|       o+        |
+----[SHA256]-----+
hussain [ ~/azure ]$ cd ../.ssh/
hussain [ ~/.ssh ]$ cat id_rsa
-----BEGIN OPENSSH PRIVATE KEY-----
b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAABAAABlwAAAAdzc2gtcn
NhAAAAAwEAAQAAAYEAxRRzs9QhuN3OCmKWNxKHMJqmgAQ2Oz8lJZFvM2SOoKL0j0OaXOVN
uCOwXk6wFlLTVdoTvP7/aSZkYtiuAO/iMqgPoATxV8qlz2lb4HCVCmJqP7zcDNsTJymRT3
DiHVSTrWMeqBg0p3PKERc66bLuhKHThH4Zispjtb6TpoJ77jqdIMuPF+7IGLxkdVKLGbDL
BirSqYc+hllZSOzunIjd9ntU4azSRlBCx8rE5r10RKDLWKuf9H7/7B3+g971M+XL6c7crl
Q5TZcEunMU5gXlHBiTLEmqIe0dvppJg7Jox6Tw7FeE+6ze06dsoEooi2LT5R2Z87c2Yxvj
j22hBF6lUV3UdvTrC+qlv51fKET4NRyhHdW+2JcCMNOLCCy/g4k+lMGTiQvGAM9p7HGLnU
NlW4/kKgHLmoIbeIOgW0Enqq40E7g/bkdK4ZybglJFHCy+slvkB7hmd9rRqyT3d/s7mCtd
5dPijdo6GRMS8x5kd+BmYyXRvTWzuMA9iNzO7uVpAAAFoPTfPQD03z0AAAAAB3NzaC1yc2
EAAAGBAMUUc7PUIbjdzgpiljcShzCapoAEGTs/JSWRbzNkjqCi9I9DmlzlTbgjsF5OsBdS
01XaE7z+/2kmZGLYrgDv4jKoD6AE8VfKpc2ZW+BwlQpiaj+83AzbEycpkU9w4hlUk61jHq
```

Add the SSH key

Create a file named **ssh.tf** using **vi ssh.tf** and enter the configuration as follows

```
variable sshname{
                default = "sshkey"
                }
resource "azurerm_ssh_public_key" "example" {
                  name                = var.sshname
                  location            = azurerm_resource_group.example.location
                  resource_group_name = azurerm_resource_group.example.name
                  public_key          = file("~/.ssh/id_rsa.pub")
}
```

Run **terraform apply**

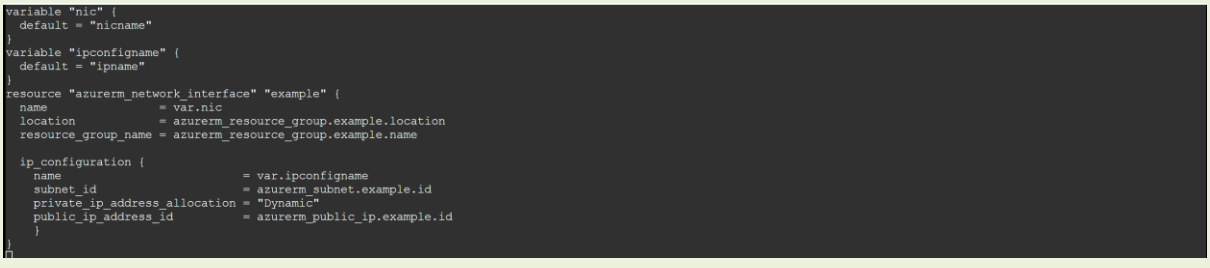
```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]
azurerm_network_security_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/n
etworkSecurityGroups/nsgname]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddres
ses/pipname]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/v
anettf/subnets/snettf]
azurerm_network_interface.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networ
kInterfaces/nicname]
azurerm_network_interface_security_group_association.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/provide
rs/Microsoft.Network/networkInterfaces/nicname|/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGro
ups/nsgname]

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:

  # azurerm_ssh_public_key.example will be created
  + resource "azurerm_ssh_public_key" "example" {
      + id                  = (known after apply)
      + location            = "westus2"
      + name                = "sshkey"
      + public_key          = <<-EOT
            ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDFFHOz1CG43c4KYpY3EocwmqaABBk7PyUlkW8zZI6govSPQ5pc5U24I7BeTrAXUtNV2hO8/v9pJmRi2K4A7+IyqA+gBPFXyqXNmVvgcJUKYmo/vNwM2xMnKZFP
cOIdVJOtYx6oSDSnc8oRFzrpsu6EodOEfhmKymO1vpOmgnvuOpQgy48X7sgYvGR1UosZsMsGKtKphz6HWVlI7O6ciN32e1ThrNJGUELHysTmvXREoMtYq5/0fv/sHf6D3vUz5cvpztyuVDlNlwS6cxTmBfUcGJMsSaoh7R2+mkmD
smjHpPDsV4T7rN7Tp2ygSiiLYtPlHZnztzZjG+OPbaEEXrVRXdR29OsL6rW/nV8oRPg1HKEd1b7YlwIw04sILL+DiT7UwZOJC8YAz2nscYudQ2Vbj+Qqocuaght4g6BbQSeqrjQTuD9uR0rhnJuDUkUcLL6yW+QHuGZ32tGrJPd3
+zuYK1310+KN2joZExLzHmR34GZjJdG9NbO4wD2I3M7u5Wk= hussain@SandboxHost-638894390210435046
        EOT
      + resource_group_name = "terraformrg"
    }

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

azurerm_ssh_public_key.example: Creating...
azurerm_ssh_public_key.example: Creation complete after 5s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Compute/ss
hPublicKeys/sshkey]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Modify NIC configuration (Add dependency)

Modify **nic.tf** using **vi nic.tf**

```
variable "nic" {
  default = "nicname"
}
variable "ipconfigname" {
  default = "ipname"
}
resource "azurerm_network_interface" "example" {
  name                = var.nic
  location            = azurerm_resource_group.example.location
  resource_group_name = azurerm_resource_group.example.name

  ip_configuration {
    name                          = var.ipconfigname
    subnet_id                     = azurerm_subnet.example.id
    private_ip_address_allocation = "Dynamic"
    public_ip_address_id          = azurerm_public_ip.example.id
  }
}
```



Dependencies:

The references to **azurerm_resource_group.example, azurerm_subnet.example,** and **azurerm_public_ip.example** create **implicit dependencies**, so Terraform will ensure those resources are created before this network interface**.**

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_ssh_public_key.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Compute/sshPublic
Keys/sshkey]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddres
ses/pipname]
azurerm_network_security_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/n
etworkSecurityGroups/nsgname]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/v
anettf/subnets/snettf]
azurerm_network_interface.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networ
kInterfaces/nicname]
azurerm_network_interface_security_group_association.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/provide
rs/Microsoft.Network/networkInterfaces/nicname|/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGro
ups/nsgname]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
  ~ update in-place

Terraform will perform the following actions:

  # azurerm_network_interface.example will be updated in-place
  ~ resource "azurerm_network_interface" "example" {
        id                            = "/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkInterfaces/nicna
me"
        name                          = "nicname"
        tags                          = {}
        # (15 unchanged attributes hidden)

      ~ ip_configuration {
            name                                     = "ipname"
          + public_ip_address_id                     = "/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network
/publicIPAddresses/pipname"
            # (6 unchanged attributes hidden)
```

```
        }
    }

Plan: 0 to add, 1 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

azurerm_network_interface.example: Modifying... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkInterf
aces/nicname]
azurerm_network_interface.example: Modifications complete after 4s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Ne
twork/networkInterfaces/nicname]

Apply complete! Resources: 0 added, 1 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Creating VM

Create a file named **vm.tf** using **vi vm.tf** and enter the configuration as follows

```
variable "vmname" {
  default = "vmname"
}
variable "size" {
  default = "Standard_D2ls_v5"
}
variable "username" {
  default = "mujju"
}
variable "image" {
  default = {
    publisher = "Canonical"
    offer     = "0001-com-ubuntu-server-jammy"
    sku       = "22_04-lts-gen2"
    version   = "latest"
```

```
  }
  type = object({
    publisher = string
    offer     = string
    sku       = string
    version   = string
  })
}
resource "azurerm_linux_virtual_machine" "example" {
  name                = var.vmname
  resource_group_name = azurerm_resource_group.example.name
  location            = azurerm_resource_group.example.location
  size                = var.size
  admin_username      = var.username
  network_interface_ids = [
    azurerm_network_interface.example.id,
  ]

  admin_ssh_key {
    username   = var.username
    public_key = azurerm_ssh_public_key.example.public_key
  }

  os_disk {
    caching              = "ReadWrite"
    storage_account_type = "Standard_LRS"
  }

  source_image_reference {
    publisher = var.image.publisher
```

offer = var.image.offer

sku = var.image.sku

version = var.image.version

}

}

```
variable "vmname" {
  default = "vmname"
}
variable "size" {
  default = "Standard_D2ls_v5"
}
variable "username" {
  default = "mujju"
}
variable "image" {
  default = {
    publisher = "Canonical"
    offer     = "0001-com-ubuntu-server-jammy"
    sku       = "22_04-lts-gen2"
    version   = "latest"
  }
  type = object({
    publisher = string
    offer     = string
    sku       = string
    version   = string
  })
}
resource "azurerm_linux_virtual_machine" "example" {
  name                = var.vmname
  resource_group_name = azurerm_resource_group.example.name
  location            = azurerm_resource_group.example.location
  size                = var.size
  admin_username      = var.username
  network_interface_ids = [
    azurerm_network_interface.example.id,
  ]

  admin_ssh_key {
    username   = var.username
    public_key = azurerm_ssh_public_key.example.public_key
                                                                    1,19          Top
```

```
  }

  os_disk {
    caching              = "ReadWrite"
    storage_account_type = "Standard_LRS"
  }

  source_image_reference {
    publisher = var.image.publisher
    offer     = var.image.offer
    sku       = var.image.sku
    version   = var.image.version
  }
}
```

Run the command **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddresses/pipname]
azurerm_network_security_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGroups/nsgname]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/vanettf]
azurerm_ssh_public_key.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Compute/sshPublicKeys/sshkey]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/vanettf/subnets/snettf]
azurerm_network_interface.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkInterfaces/nicname]
azurerm_network_interface_security_group_association.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkInterfaces/nicname|/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGroups/nsgname]

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:

  # azurerm_linux_virtual_machine.example will be created
  + resource "azurerm_linux_virtual_machine" "example" {
      + admin_username                                         = "mujju"
      + allow_extension_operations                             = true
      + bypass_platform_safety_checks_on_user_schedule_enabled = false
      + computer_name                                          = (known after apply)
      + disable_password_authentication                        = true
      + disk_controller_type                                   = (known after apply)
      + extensions_time_budget                                 = "PT1H30M"
      + id                                                     = (known after apply)
      + location                                               = "westus2"
      + max_bid_price                                          = -1
      + name                                                   = "vmname"
      + network_interface_ids                                  = [
```

```
        + "/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkInterfaces/nicname",
      ]
    + patch_assessment_mode                                 = "ImageDefault"
    + patch_mode                                            = "ImageDefault"
    + platform_fault_domain                                 = -1
    + priority                                              = "Regular"
    + private_ip_address                                    = (known after apply)
    + private_ip_addresses                                  = (known after apply)
    + provision_vm_agent                                    = true
    + public_ip_address                                     = (known after apply)
    + public_ip_addresses                                   = (known after apply)
    + resource_group_name                                   = "terraformrg"
    + size                                                  = "Standard_D2ls_v5"
    + virtual_machine_id                                    = (known after apply)
    + vm_agent_platform_updates_enabled                     = (known after apply)

    + admin_ssh_key {
        + public_key = <<-EOT
            ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABgQDFFHOz1CG43c4KYpY3EocwmqaABBk7PyUlkW8zZI6govSPQ5pc5U24I7BeTrAXUtNV2hO8/v9pJmRi2K4A7+IyqA+gBPFXyqXNmVvqcJUKYmo/vNwM2xMs
KZFPcOIdVJOtYx6oSDSnc8oRFzrpsu6EodOEfhmKymOlvpOmgnvuOp0gy48X7sgYvGRlUosZsMsGKtKphz6HWVl7O6ciN32elThrNJGUELHysTmvXREoMtYq5/0fv/sHf6D3vUz5cvpztyuVDlNlwS6cxTmBfUcGJMsSaoh7R2+
mkmDsmjHpPDsV4T7rN7Tp2ygSiiLYtPlHZnztzZjG+OPbaEEXrVRXdR29OsL6rW/nV8oRPglHKEd1b7YlwIw04sILL+DiT7UwZOJC8YAz2nscYudQ2Vbj+Qqocuaght4g6BbQSeqrjQTuD9uR0rhnJuDUkUcLL6yW+QHuGZ32tGs
JPd3+zuYK1310+KN2joZExLzHmR34GZjJdG9NbO4wD2I3M7u5Wk= hussain@SandboxHost-6388943902104350 46
            EOT
        + username   = "mujju"
      }

    + os_disk {
        + caching                   = "ReadWrite"
        + disk_size_gb              = (known after apply)
        + id                        = (known after apply)
        + name                      = (known after apply)
        + storage_account_type      = "Standard_LRS"
        + write_accelerator_enabled = false
      }
```

```
    + source_image_reference {
        + offer     = "0001-com-ubuntu-server-jammy"
        + publisher = "Canonical"
        + sku       = "22_04-lts-gen2"
        + version   = "latest"
      }

    + termination_notification (known after apply)
  }

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

azurerm_linux_virtual_machine.example: Creating...
azurerm_linux_virtual_machine.example: Still creating... [00m10s elapsed]
azurerm_linux_virtual_machine.example: Creation complete after 19s [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Co
mpute/virtualMachines/vmname]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
hussain [ ~/azure ]$
```

Add outputs.tf

Create a file named **outputs.tf** using **vi outputs.tf** and enter the configuration as follows

output "pip" {

value = azurerm_public_ip.example.ip_address

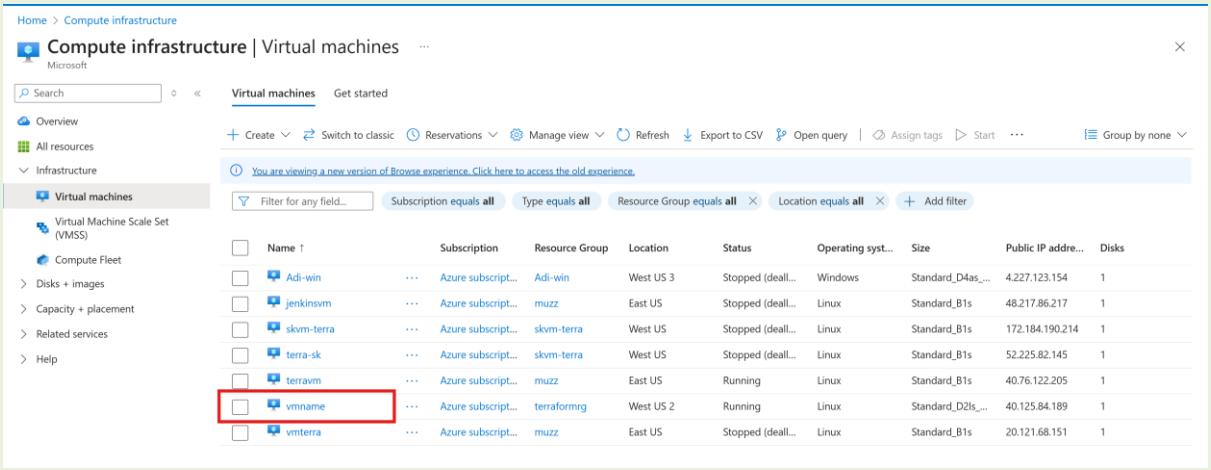
}

```
output "pip" {
  value = azurerm_public_ip.example.ip_address
}
```

Run **terraform apply**

```
hussain [ ~/azure ]$ terraform apply
azurerm_resource_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg]
azurerm_ssh_public_key.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Compute/sshPublic
Keys/sshkey]
azurerm_network_security_group.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/n
etworkSecurityGroups/nsgname]
azurerm_public_ip.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/publicIPAddres
ses/pipname]
azurerm_virtual_network.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualN
etworks/vanettf]
azurerm_subnet.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/virtualNetworks/v
anettf/subnets/snettf]
azurerm_network_interface.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networ
kInterfaces/nicname]
azurerm_network_interface_security_group_association.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/provide
rs/Microsoft.Network/networkInterfaces/nicname|/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Network/networkSecurityGro
ups/nsgname]
azurerm_linux_virtual_machine.example: Refreshing state... [id=/subscriptions/5d1b700e-5c37-4a48-a430-e148b56e5404/resourceGroups/terraformrg/providers/Microsoft.Compute/vi
rtualMachines/vmname]

Changes to Outputs:
  + pip = "40.125.84.189"

You can apply this plan to save these new output values to the Terraform state, without changing any real infrastructure.

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


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

Outputs:

pip = "40.125.84.189"
```

The VM is created



Connect to VM

Connect to VM using

ssh mujju@40.125.84.189

```
hussain [ ~/azure ]$ ssh mujju@40.125.84.189
The authenticity of host '40.125.84.189 (40.125.84.189)' can't be established.
ED25519 key fingerprint is SHA256:J+DivAy2ZTBqitcTwRS5ZBH23051MQfs0rm6njj9mUY.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '40.125.84.189' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.8.0-1031-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Wed Jul 30 06:10:45 UTC 2025

  System load:  0.0               Processes:             124
  Usage of /:   5.4% of 28.89GB   Users logged in:       0
  Memory usage: 8%                IPv4 address for eth0: 10.1.1.4
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


The list of available updates is more than a week old.
To check for new updates run: sudo apt update
```

```
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

mujju@vmname:~$
```