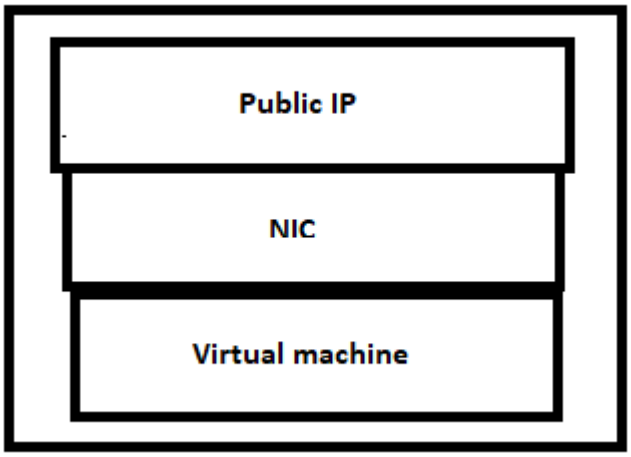
10 August 2024

1) NIC – In VM, all communication happens by this network interface card. This nic will be connected to public ip and also with vm, then by this we can enter inside the machine network. So 3 components are important

a) Public ip – By public ip we do SSH and can run all linux and windows command by rdp

b) NIC

c) Virtual machine



2) In monolithic application, our frontend application is react one, so for this we will create a machine of linux by using terraform's for each and map object.

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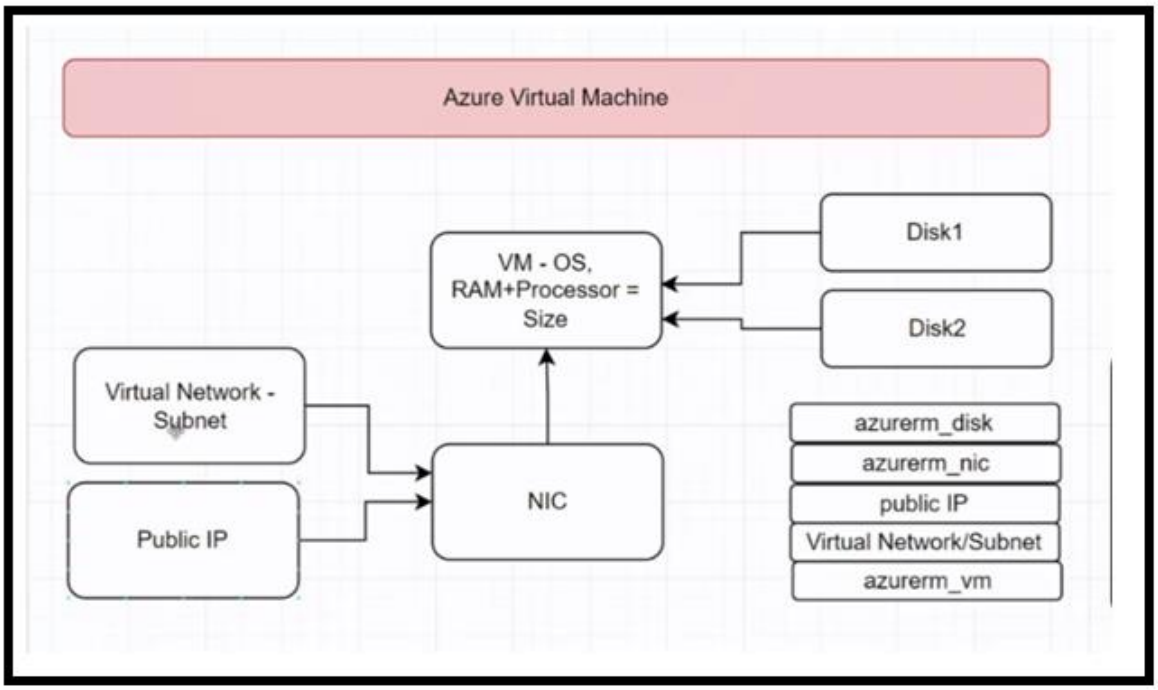
AGENDA - In monolithic application, our frontend application is react one, so for this we will create a machine of linux by using terraform's for each and map object.

AGENDA – Firstly doing by hardcode without variable one method, then for looping we will use Map concept by using variable

1)



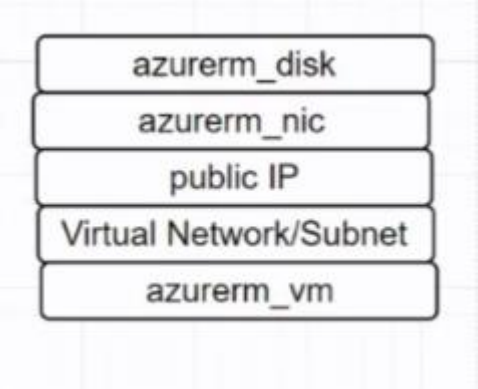
2) SEARCH – azurerm vnet terraform

https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs/resources/virtual_network

```
resource "azurerm_virtual_network" "example" {
  name                = "example-network"
  location            = azurerm_resource_group.example.location
  resource_group_name = azurerm_resource_group.example.name
  address_space       = ["10.0.0.0/16"]
  dns_servers         = ["10.0.0.4", "10.0.0.5"]

  subnet {
    name           = "subnet1"
    address_prefix = "10.0.1.0/24"
  }

  subnet {
    name           = "subnet2"
    address_prefix = "10.0.2.0/24"
    security_group = azurerm_network_security_group.example.id
  }

  tags = {
    environment = "Production"
  }
}
```

3) As we go to shop and assemble computer, similarly we are assembling our VM using code

4) Since everything like vm and all are interlinked to each other so in that case implicit dependency is used in code.



5) Lets start creating or assembling from nic

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AGENDA – CREATE NIC

SEARCH – azurerm terraform nic

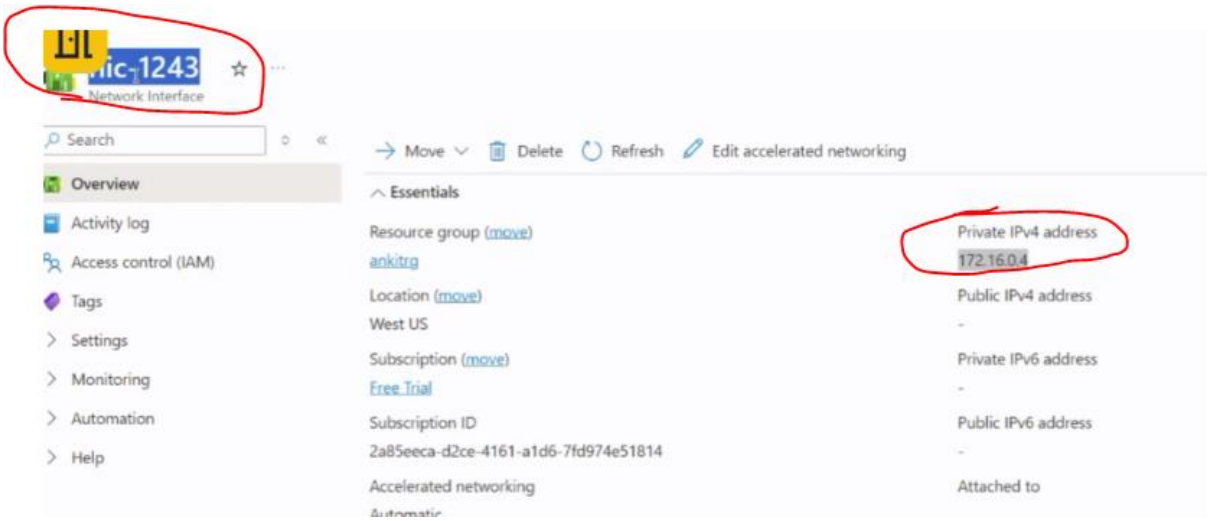
https://registry.terraform.io/providers/hashicorp/azurerm/latest/docs/resources/network_interface

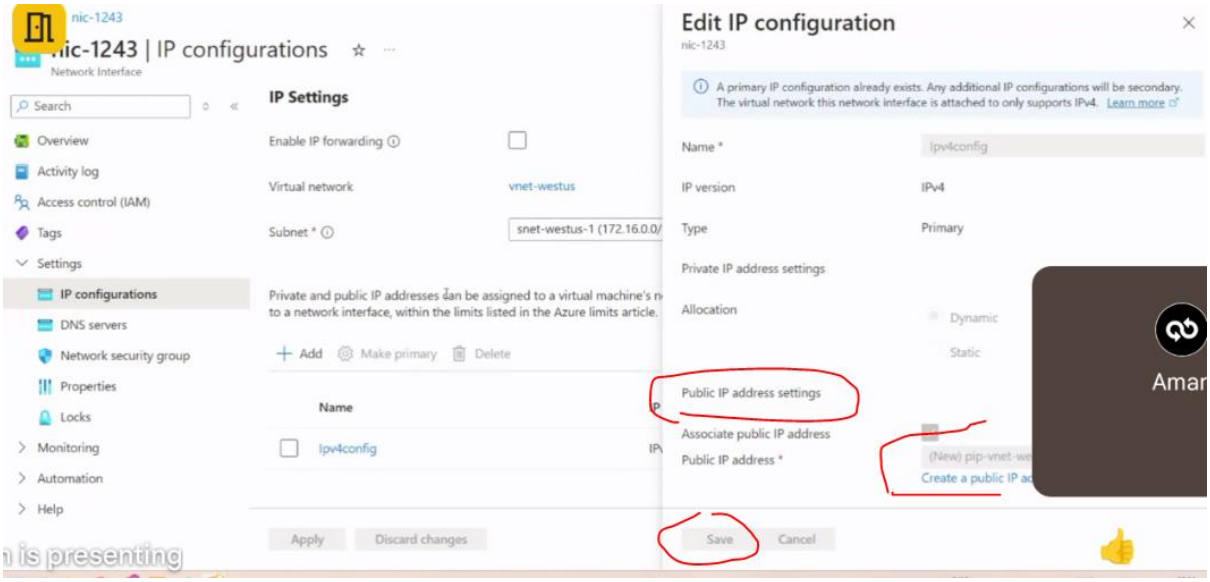
6) MANUAL NIC CREATION – Now creating nic manually in azure portal

7) DYNAMIC IP and STATIC IP – Whenever VM and NIC network will be disconnected and again they will be connected then

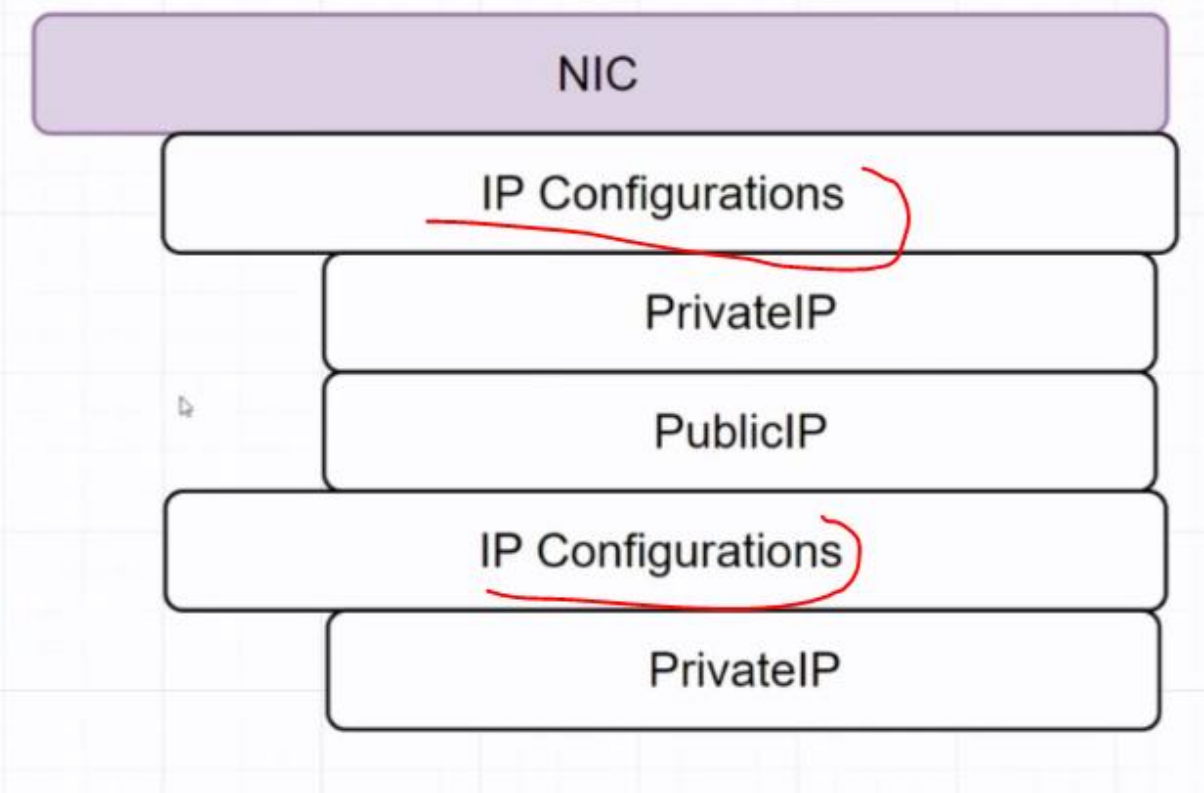
i) if they reconnects with same ip then its static ip

ii) if they reconnects with different ip then its dynamic ip





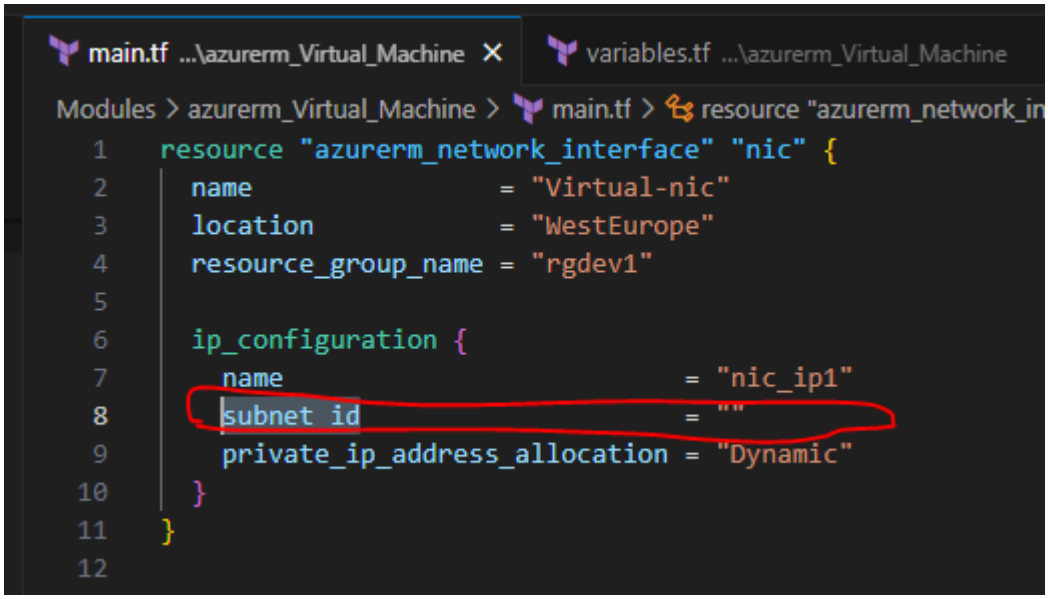
iii) Now as per above we can create and assign public ip as well to nic so nic will have 2 ips i.e. one public and one private

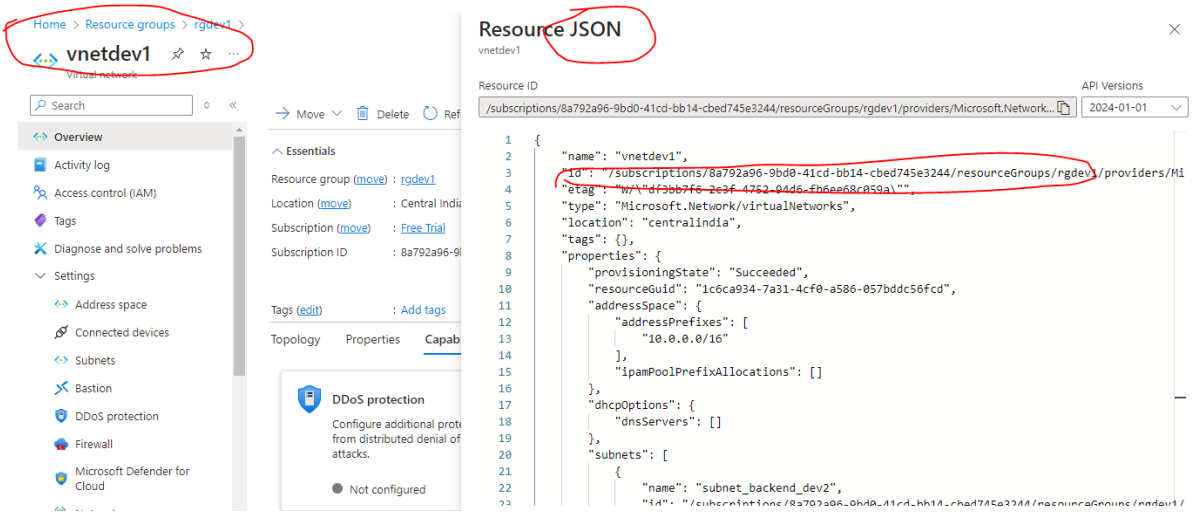


iv) So basically we can create and assign multiple public and private ips to a single nic.

8) Can we assign public IP and private IP both on NIC card – Yes

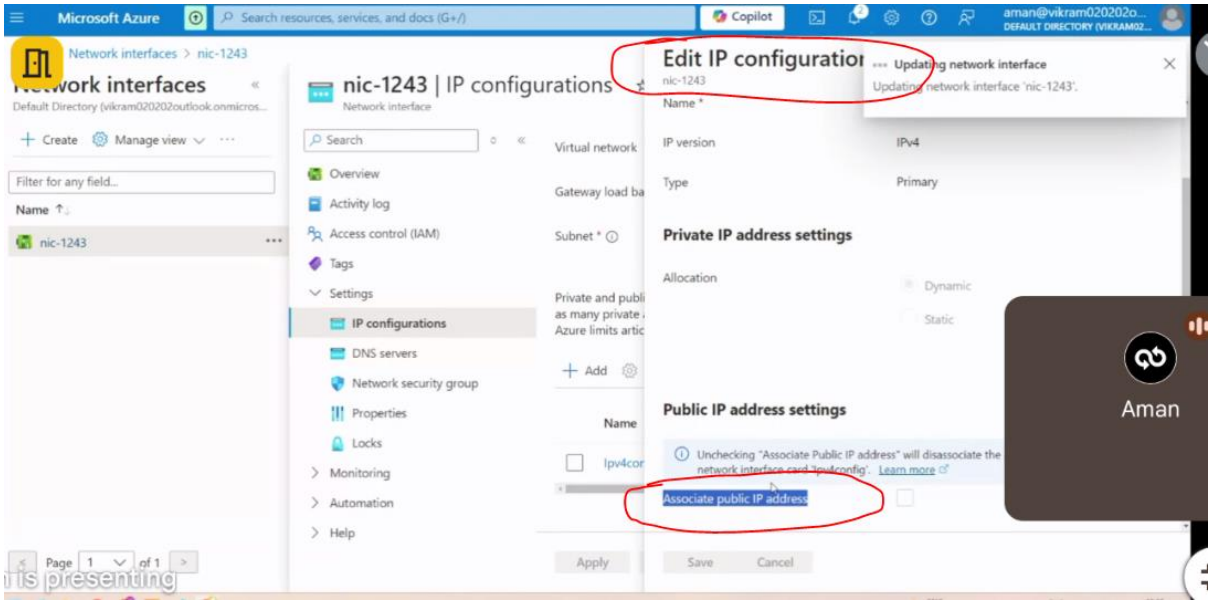
9) To put and find subnet_id in code we will go to portal and vnet page go to json view to get it





10) Can one NIC have multiple public IP – Yes

11) We can associate and disassociate "Public IP" in "Edit IP Configuration".



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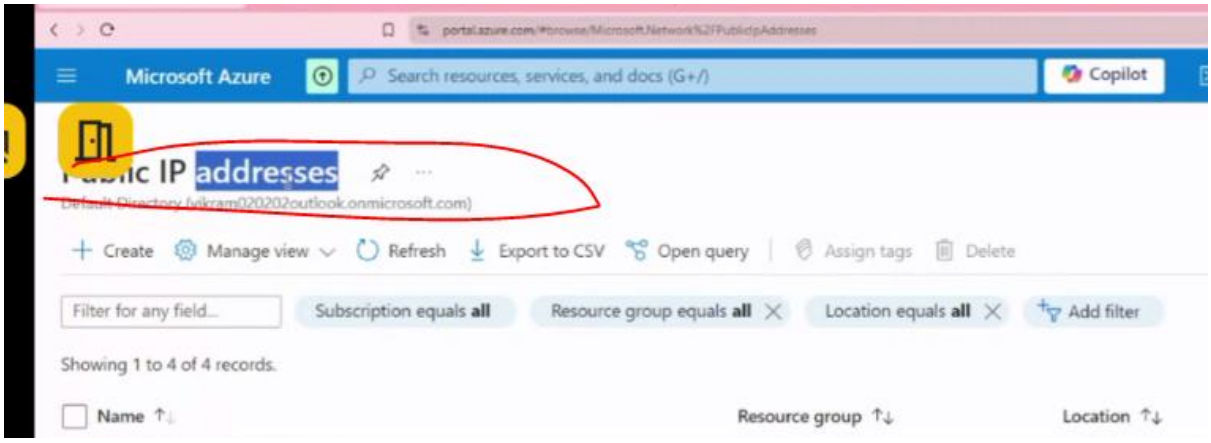
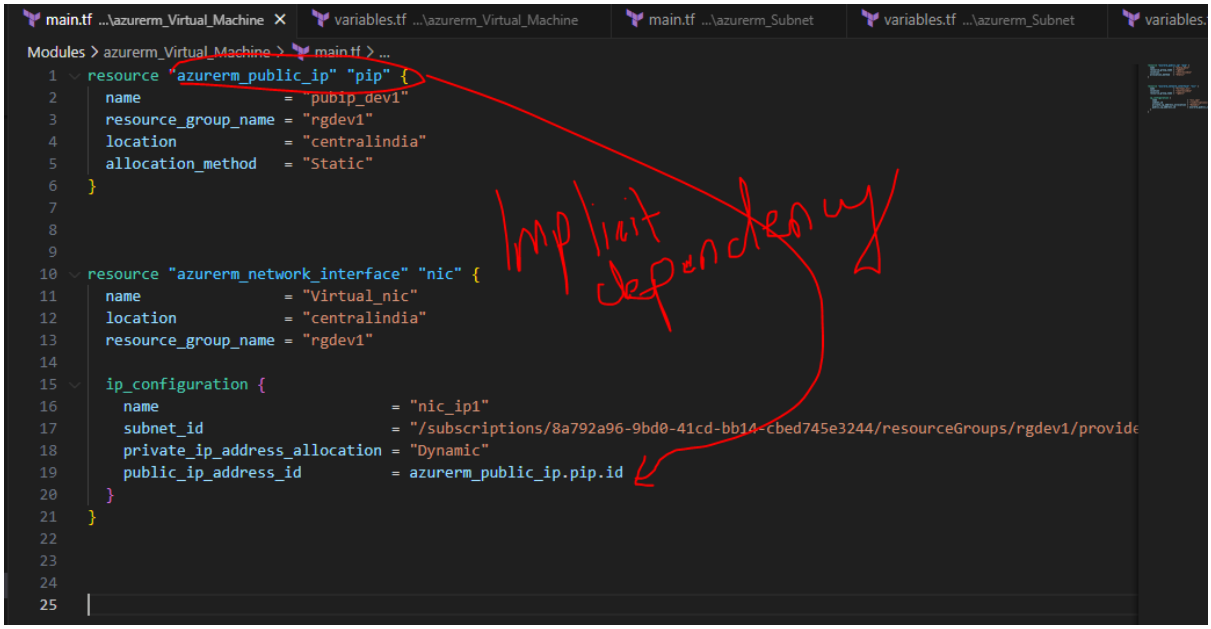
AGENDA – CREATE PUBLIC IP

1) Creating public IP from portal



2) **SEARCH –** azurerm terraform public ip

3) To put public ip id into nic code set implicit dependency as below



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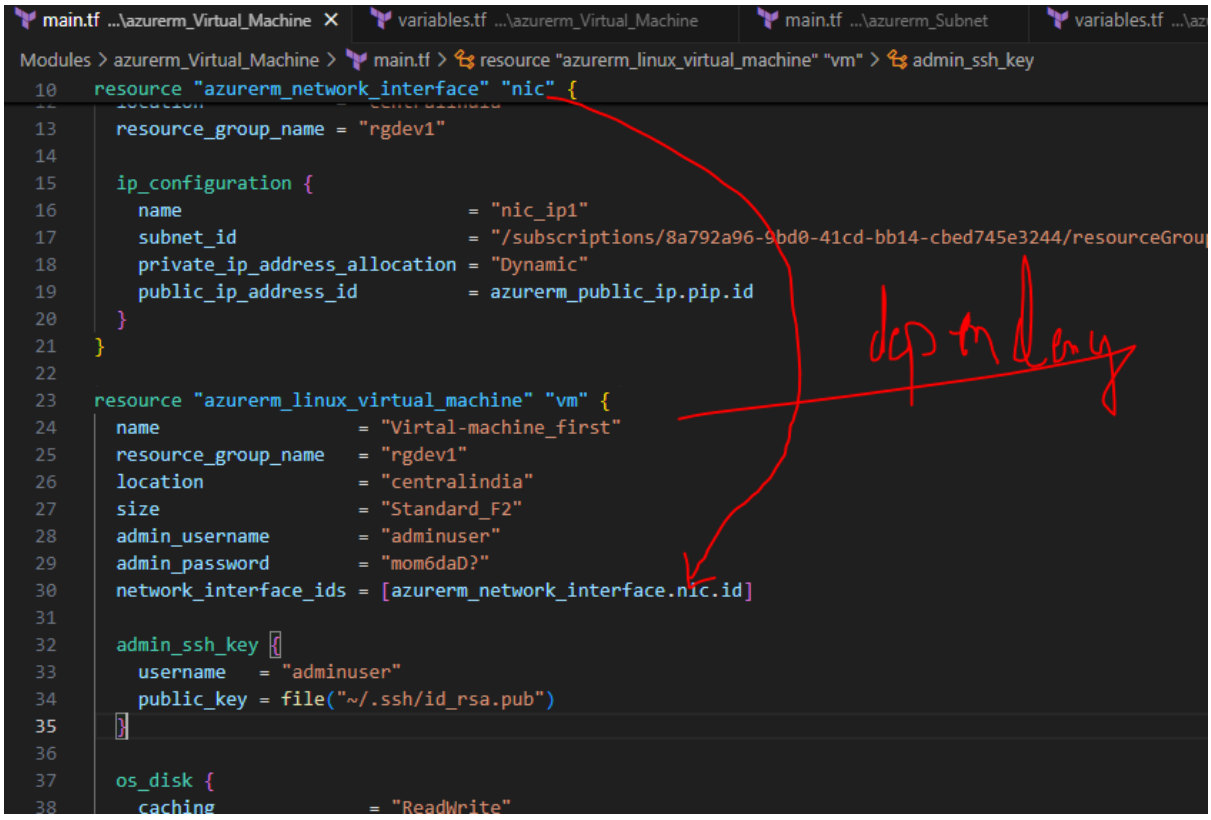
AGENDA – CREATE VIRTUAL MACHINE

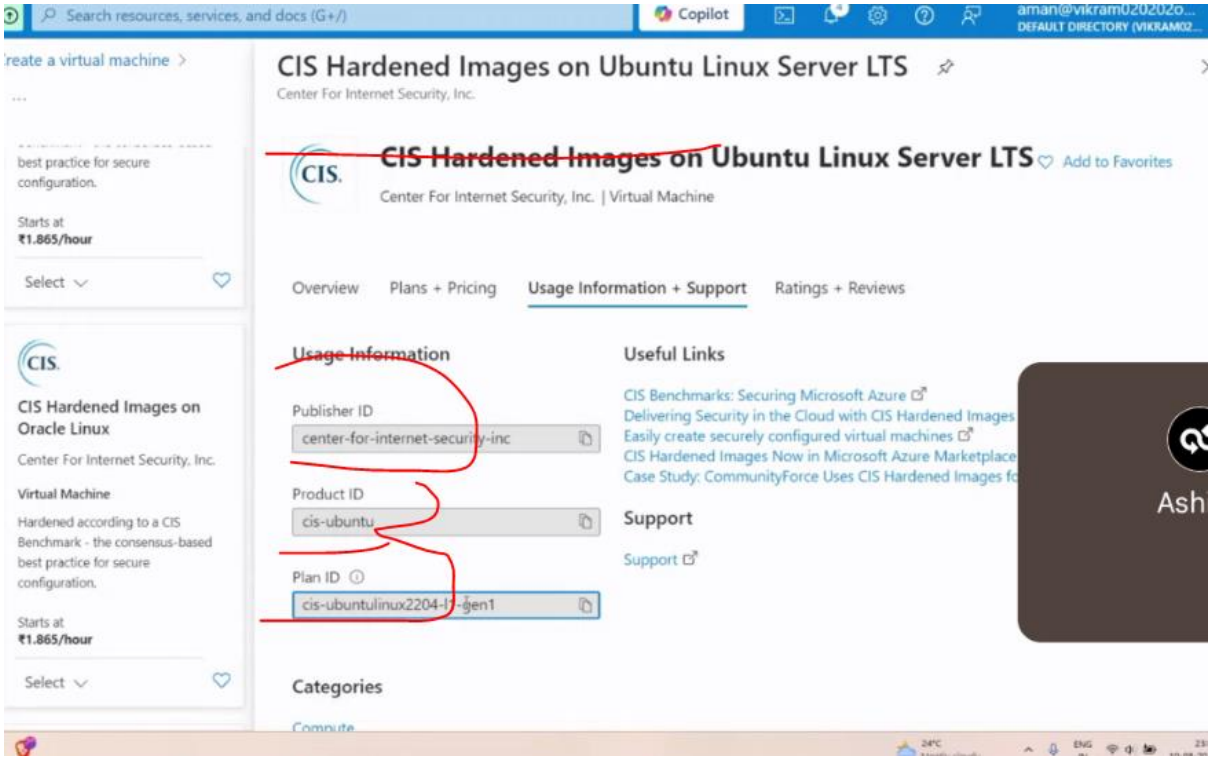
1) SEARCH – azurerm virtual machine

> **Note:**
>
> The `azurerm_virtual_machine` resource has been superseded by the `azurerm_linux_virtual_machine` and `azurerm_windows_virtual_machine` resources. The existing `azurerm_virtual_machine` resource will continue to be available throughout the 3.x releases however is in a feature-frozen state to maintain compatibility - new functionality will instead be added to the `azurerm_linux_virtual_machine` and `azurerm_windows_virtual_machine` resources.

2) We will use nic block name for dependency as below



3) CIS image - most safest image



4) Custom Image creation manually of vscode and terraform installation of windows

5) Now vm made after running terraform commands

6) In power shell login to vm – ssh

7) install nginx - sudo apt install nginx

8)

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AGENDA – CODE KE DUKH

Code ke Dukh -

HardCoded Subnet ID - iska solution lana pdega?

```
    subnet_id                     = "/subscriptions/
2a85eeca-d2ce-4161-a1d6-7fd974e51814/
resourceGroups/rg-dev-zelectric/providers/
Microsoft.Network/virtualNetworks/
vnet-zelectric/subnets/frontend-subnet"
```

Hardcoded Password - Iska bhi solution lana pdega ? - BAHUT BADA PAAP

```
admin_password                = "P@ssw01rd@123"
```

Public IP khud hi bahut bada paap hai... isko bhi hatana pdega...

```
resource "azurerm_public_ip" "pip" {
  name                = "zelectric-vm-pip"
  resource_group_name = "rg-zelectric"
  location            = "westeurope"
  allocation_method   = "Static"
}
```