

TERRAFORM INSTALLATIONS

First of all download the terraform on your virtual machine.

```
sudo apt-get update && sudo apt-get install -y gnupg software-properties-common curl
```

```
root@terraform:~# ls
root@terraform:~# sudo apt-get update && sudo apt-get install -y gnupg software-properties-common curl
Hit:1 http://azure.archive.ubuntu.com/ubuntu bionic InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:4 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:5 http://azure.archive.ubuntu.com/ubuntu bionic/universe amd64 Packages [8570 kB]
Get:6 http://azure.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]
Get:7 http://azure.archive.ubuntu.com/ubuntu bionic/multiverse amd64 Packages [151 kB]
Get:8 http://azure.archive.ubuntu.com/ubuntu bionic/multiverse Translation-en [108 kB]
Get:9 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [2068 kB]
Get:10 http://azure.archive.ubuntu.com/ubuntu bionic-updates/main Translation-en [413 kB]
Get:11 http://azure.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [344 kB]
Get:12 http://azure.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [46.8 kB]
Get:13 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1735 kB]
Get:14 http://azure.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [369 kB]
Get:15 http://azure.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 Packages [25.0 kB]
Get:16 http://azure.archive.ubuntu.com/ubuntu bionic-updates/multiverse Translation-en [6464 B]
Get:17 http://azure.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [10.0 kB]
Get:18 http://azure.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [4764 B]
Get:19 http://azure.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [10.3 kB]
Get:20 http://azure.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [4588 B]
Get:21 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [1723 kB]
Get:22 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [321 kB]
Get:23 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [321 kB]
Get:24 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [43.2 kB]
Get:25 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1125 kB]
Get:26 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [253 kB]
Get:27 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [19.2 kB]
Get:28 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [4412 B]
Fetched 22.9 MB in 5s (4719 kB/s)
```

Add the HashiCorp [GPG key](#).

```
curl -fsSL https://apt.releases.hashicorp.com/gpg | sudo apt-key add -
```

```
root@terraform:~# curl -fsSL https://apt.releases.hashicorp.com/gpg | sudo apt-key add -
OK
root@terraform:~#
```

```
sudo apt-add-repository "deb [arch=amd64] https://apt.releases.hashicorp.com $(lsb_release -cs) main"
```

```
root@terraform:~# sudo apt-add-repository "deb [arch=amd64] https://apt.releases.hashicorp.com $(lsb_release -cs) main"
Hit:1 http://azure.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://azure.archive.ubuntu.com/ubuntu bionic-backports InRelease
Get:4 https://apt.releases.hashicorp.com bionic InRelease [4421 B]
Hit:5 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:6 https://apt.releases.hashicorp.com bionic/main amd64 Packages [23.1 kB]
Fetched 27.5 kB in 1s (52.2 kB/s)
Reading package lists... Done
root@terraform:~#
```

```
sudo apt-get update && sudo apt-get install terraform
```

```

Reading package lists... Done
root@terraform:~# sudo apt-get update && sudo apt-get install terraform
Hit:1 http://azure.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://azure.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://azure.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:4 https://apt.releases.hashicorp.com bionic InRelease
Hit:5 http://security.ubuntu.com/ubuntu bionic-security InRelease
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-142
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  terraform
0 upgraded, 1 newly installed, 0 to remove and 7 not upgraded.
Need to get 32.7 MB of archives.
After this operation, 80.0 MB of additional disk space will be used.
Get:1 https://apt.releases.hashicorp.com bionic/main amd64 terraform amd64 0.15.3 [32.7 MB]
Fetched 32.7 MB in 2s (19.5 MB/s)
Selecting previously unselected package terraform.
(Reading database ... 76860 files and directories currently installed.)
Preparing to unpack .../terraform_0.15.3_amd64.deb ...
Unpacking terraform (0.15.3) ...
Setting up terraform (0.15.3) ...
root@terraform:~# █

```

Whether is it installed or not to check `terraform -version`

```

root@terraform:~# terraform -version
Terraform v0.15.3
on linux_amd64
root@terraform:~# █

```

Create one directory inside your root directory as a name `terraform-docker-demo` and create a file `main.tf` and inside the main.tf I wrote like download `nginx` from docker hub.

```

root@terraform:~# mkdir terraform-docker-demo
root@terraform:~# cd terraform-docker-demo
root@terraform:~/terraform-docker-demo# vi main.tf
root@terraform:~/terraform-docker-demo# █

```

```
terraform {
  required_providers {
    docker = {
      source = "kreuzwerker/docker"
    }
  }
}

provider "docker" {}

resource "docker_image" "nginx" {
  name          = "nginx:latest"
  keep_locally = false
}

resource "docker_container" "nginx" {
  image = docker_image.nginx.latest
  name  = "tutorial"
  ports {
    internal = 80
    external = 8000
  }
}
```

After saving the `main.tf` file then when we are using first time first of all `initialize the terraform`
`terraform init`

```

root@terraform:~/terraform-docker-demo# terraform init

Initializing the backend...

Initializing provider plugins...
- Finding latest version of kreuzwerker/docker...
- Installing kreuzwerker/docker v2.11.0...
- Installed kreuzwerker/docker v2.11.0 (self-signed, key ID 24E54F214569A8A5)

Partner and community providers are signed by their developers.
If you'd like to know more about provider signing, you can read about it here:
https://www.terraform.io/docs/cli/plugins/signing.html

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.

```

After we can init and we can check validate with help of **terraform validate**

```

root@terraform:~/terraform-docker-demo# terraform validate
Success! The configuration is valid.

root@terraform:~/terraform-docker-demo#

```

Then after successfully we can check **plan** like dry run **terraform plan**

```

root@terraform:~/terraform-docker-demo# terraform plan

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:

# docker_container.nginx will be created
+ resource "docker_container" "nginx" {
+   attach      = false
+   bridge      = (known after apply)
+   command     = (known after apply)
+   container_logs = (known after apply)
+   entrypoint  = (known after apply)
+   env         = (known after apply)
+   exit_code   = (known after apply)
+   gateway     = (known after apply)
+   hostname    = (known after apply)
+   id          = (known after apply)
+   image       = (known after apply)
+   init        = (known after apply)
+   ip_address  = (known after apply)
+   ip_prefix_length = (known after apply)
+   ipc_mode    = (known after apply)
+   log_driver  = "json-file"

```

Then finally we can fire terraform apply then it will give the output and apply all the updates.

Terraform apply

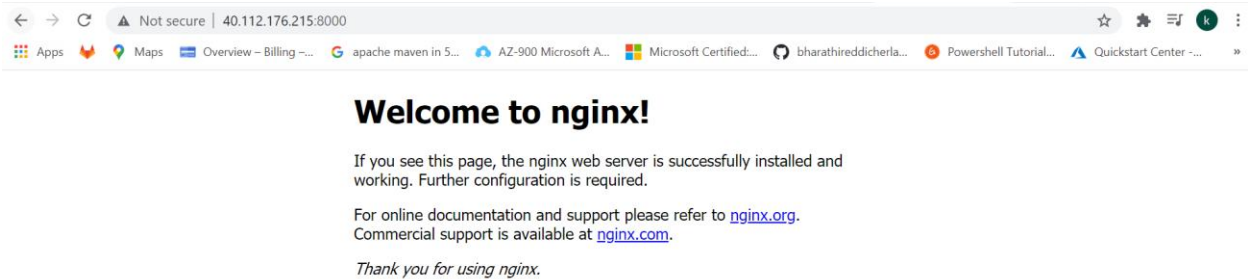
```
Plan: 2 to add, 0 to change, 0 to destroy.
```

```
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
```

```
Enter a value: yes  
docker_image.nginx: Creating...  
docker_image.nginx: Creation complete after 8s [id=sha256:f0b8a9a541369db503ff3b9d4fa6de561b300f7363920c2bff4577c6c24c5cf6nginx:latest]  
docker_container.nginx: Creating...  
docker_container.nginx: Creation complete after 1s [id=09e6dd6ae8d28d1ddd15f334820652539259a5864ca77f94f9677babeff09f5e]  
Apply complete! Resources: 2 added, 0 changed, 0 destroyed.  
root@terraform:~/terraform-docker-demo#
```

Then we can access the nginx in the browser by the help of **40.1121.76.215:8000**



Then we need to install azure-cli by using below caommand

Azure-cli install

sudo apt-get update

sudo apt-get install ca-certificates curl apt-transport-https lsb-release gnupg

```
curl -sL https://packages.microsoft.com/keys/microsoft.asc |
```

```
gpg --dearmor |
```

```
sudo tee /etc/apt/trusted.gpg.d/microsoft.gpg > /dev/null
```

```
Reading package lists... Done
root@terraform:~# sudo apt-get install ca-certificates curl apt-transport-https lsb-release gnupg
Reading package lists... Done
Building dependency tree
Reading state information... Done
lsb-release is already the newest version (9.20170808ubuntu1).
ca-certificates is already the newest version (20210119~18.04.1).
curl is already the newest version (7.58.0-2ubuntu3.13).
gnupg is already the newest version (2.2.4-1ubuntu1.4).
apt-transport-https is already the newest version (1.6.13).
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-142
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
root@terraform:~#
```

```
AZ_REPO=$(lsb_release -cs)
```

```
echo "deb [arch=amd64] https://packages.microsoft.com/repos/azure-cli/ $AZ_REPO main" |
```

```
sudo tee /etc/apt/sources.list.d/azure-cli.list
```

```
root@terraform:~# curl -sL https://packages.microsoft.com/keys/microsoft.asc |
> gpg --dearmor |
> sudo tee /etc/apt/trusted.gpg.d/microsoft.gpg > /dev/null
root@terraform:~#
```

```
sudo apt-get update
```

```
root@terraform:~# AZ_REPO=$(lsb_release -cs)
root@terraform:~# echo "deb [arch=amd64] https://packages.microsoft.com/repos/azure-cli/ $AZ_REPO main" |
> sudo tee /etc/apt/sources.list.d/azure-cli.list
deb [arch=amd64] https://packages.microsoft.com/repos/azure-cli/ bionic main
root@terraform:~#
```

```
sudo apt-get install azure-cli
```

```
root@terraform:~# sudo apt-get install azure-cli
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-142
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  azure-cli
0 upgraded, 1 newly installed, 0 to remove and 7 not upgraded.
Need to get 59.9 MB of archives.
After this operation, 852 MB of additional disk space will be used.
Get:1 https://packages.microsoft.com/repos/azure-cli bionic/main amd64 azure-cli all 2.23.0-1~bionic [59.9 MB]
```

```

Reading package lists... Done
root@terraform:~# sudo apt-get install azure-cli
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-headers-4.15.0-142
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  azure-cli
0 upgraded, 1 newly installed, 0 to remove and 7 not upgraded.
Need to get 59.9 MB of archives.
After this operation, 852 MB of additional disk space will be used.
Get:1 https://packages.microsoft.com/repos/azure-cli bionic/main amd64 azure-cli all 2.23.0-1~bionic [59.9 MB]
Fetched 59.9 MB in 2s (27.7 MB/s)
Selecting previously unselected package azure-cli.
(Reading database ... 77124 files and directories currently installed.)
Preparing to unpack .../azure-cli_2.23.0-1~bionic_all.deb ...
Unpacking azure-cli (2.23.0-1~bionic) ...
Setting up azure-cli (2.23.0-1~bionic) ...
root@terraform:~#

```

az login when you fire this one it will show like this

browser window will open and you will be prompted to enter your Azure login credentials.
After successful authentication, your terminal will display your subscription information

```

root@terraform:~# az login
To sign in, use a web browser to open the page https://microsoft.com/devicelogin and enter the code E49M3WG9Y to authenticate.
[
  {
    "cloudName": "AzureCloud",
    "homeTenantId": "b15e958d-cafa-43b4-aa18-d4f77df55010",
    "id": "d12aea3b-e4ef-4f97-8aa5-544fa9c81d62",
    "isDefault": true,
    "managedByTenants": [],
    "name": "Free Trial",
    "state": "Enabled",
    "tenantId": "b15e958d-cafa-43b4-aa18-d4f77df55010",
    "user": {
      "name": "kasirajugudla@outlook.com",
      "type": "user"
    }
  }
]
root@terraform:~#

```

New resource group in azure: we can add the resource group name and location

```

resource "azurerm_resource_group" "rg" {

  name      = "Azurecli"
  location  = "North Europe"
}

```

```

root@terraform:~/learn-terraform-azure# terraform show
# azurerm_resource_group.rg:
resource "azurerm_resource_group" "rg" {
  id      = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli"
  location = "northeurope"
  name     = "Azurecli"
}
root@terraform:~/learn-terraform-azure#

```

terraform init

terraform plan

terraform apply

The screenshot shows the Microsoft Azure portal interface. The browser tabs include 'Resource groups - Microsoft Azure', 'Build Infrastructure | Terraform', and 'New-AzureRmResourceGroup'. The URL is 'portal.azure.com/?quickstart=true#blade/HubsExtension/BrowseResourceGroups'. The page title is 'Resource groups' with a 'Default Directory' link. Below the title are links for '+ Create', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', and 'Feedback'. A filter bar shows 'Subscription == all' and 'Location == all'. The table displays 7 records of resource groups. The 'Azurecli' resource group is highlighted with a red circle. The table columns are 'Name', 'Subscription', and 'Location'. The 'Azurecli' resource group is located in 'North Europe' and is associated with the 'Free Trial' subscription.

Name	Subscription	Location
Ansible	Free Trial	East US
Azurecli	Free Trial	North Europe
cloud-shell-storage-centralindia	Free Trial	Central India
myrepo1-rg	Free Trial	South Central US
NetworkWatcherRG	Free Trial	South Central US
VstsRG-myrepo1-f375	Free Trial	Central US
window	Free Trial	South Central US

Change Infrastructure:

Your plan output indicates that the resource will be updated in place with the ~ symbol beside the resource group. Your new resource attributes, indicated with the + symbol, will be added to the resource group.


```

azurerm_resource_group.rg: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli]

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_resource_group.rg will be updated in-place
~ resource "azurerm_resource_group" "rg" {
  id      = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli"
  name    = "Azurecli"
  tags    = {
    "Environment" = "Terraform Getting Started"
    "Team"        = "DevOps"
  }
  # (1 unchanged attribute hidden)
}

Plan: 0 to add, 1 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.

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_resource_group.rg: Modifying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli]
azurerm_resource_group.rg: Modifications complete after 2s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli]

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

```

```

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_resource_group.rg: Modifying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli]
azurerm_resource_group.rg: Modifications complete after 2s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli]

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

```

```

Apply complete! Resources: 0 added, 1 changed, 0 destroyed.
root@terraform:~/learn-terraform-azure# terraform show
# azurerm_resource_group.rg:
resource "azurerm_resource_group" "rg" {
  id      = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli"
  location = "northeurope"
  name    = "Azurecli"
  tags    = {
    "Environment" = "Terraform Getting Started"
    "Team"        = "DevOps"
  }
}
root@terraform:~/learn-terraform-azure#

```

```
resource "azurerm_resource_group" "rg" {  
  name      = "Azurecli"  
  location  = "North Europe"  
  tags = {  
    Environment = "Terraform Getting Started"  
    Team        = "DevOps"  
  }  
}
```

Create resource dependencies:

Azure requires the following underlying resources before you can deploy a virtual machine:

Resource group

- Virtual network
- Subnet
- Network security group
- Network interface

Your deployment will also include a public IP address as well as an explicitly opened port 22 for SSH access.

In your main.tf file, add the resource block below, which creates a virtual network for your virtual machine.

Virtual network: if we want to create new virtual network we can use this script

```
# Create a virtual network
resource "azurerm_virtual_network" "vnet" {
  name                = "myTFVnet"
  address_space       = ["10.0.0.0/16"]
  location            = "westus2"
  resource_group_name = azurerm_resource_group.rg.name
}
```

```
root@terraform:~/learn-terraform-azure# terraform show
# azurerm_resource_group.rg:
resource "azurerm_resource_group" "rg" {
  id      = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli"
  location = "northeurope"
  name     = "Azurecli"
  tags     = {
    "Environment" = "Terraform Getting Started"
    "Team"        = "DevOps"
  }
}

# azurerm_virtual_network.vnet:
resource "azurerm_virtual_network" "vnet" {
  address_space = [
    "10.0.0.0/16",
  ]
  guid          = "fc25b0d3-d646-4a3b-b2c0-bec83e7a2216"
  id            = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/virtualNetworks/myTFVnet"
  location      = "westus2"
  name          = "myTFVnet"
  resource_group_name = "Azurecli"
  subnet        = []
  vm_protection_enabled = false
}
root@terraform:~/learn-terraform-azure#
```

The screenshot shows the Microsoft Azure portal interface. The browser address bar displays the URL: `portal.azure.com/?quickstart=true#@kasirajugudlaoutlook.onmicrosoft.com/resource/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/...`. The page title is "myTFVnet - Microsoft Azure". The left sidebar shows the "Overview" tab selected. The main content area displays the "Essentials" section for the virtual network "myTFVnet".

Property	Value
Resource group	Azurecli22
Location	West US 2
Subscription	(change)
Subscription ID	d12aea3b-e4ef-4f97-8aa5-544fa9c81d62
Tags	(change)

Below the Essentials section, there is a "Connected devices" section with a search bar and a table of connected devices.

Device	Type	IP Address	Subnet
myNIC	Network interface	10.0.1.4	myTFSubnet

```
# Create public IP
resource "publicip" {
  name = "myTFPublicIP"
  location = "westus2"
  resource_group_name = azurerm_resource_group.rg.name
  allocation_method = "Static"
}
```

Home >

myTFPublicIP ✕ ...

Public IP address

Search (Ctrl+/) << Associate ✕ Dissociate → Move ▾ Delete Refresh

Upgrade to Standard SKU - Microsoft recommends Standard SKU public IP address for production workloads →

^ Essentials JSON View

Resource group (change)	SKU
Azurecli	Basic
Location	Tier
West US 2	Regional
Subscription (change)	IP address
Free Trial	20.94.252.242
Subscription ID	DNS name
d12aea3b-e4ef-4f97-8aa5-544fa9c81d62	-
	Associated to
	-

Overview

- Activity log
- Access control (IAM)
- Tags
- Settings
 - Configuration
 - Properties
 - Locks
- Monitoring

Create Network Security Group and rule

```
resource "azurerm_network_security_group" "nsg" {
  name      = "myTFNSG"
  location  = "westus2"
  resource_group_name = azurerm_resource_group.rg.name

  security_rule {
    name      = "SSH"
    priority  = 1001
    direction = "Inbound"
    access    = "Allow"
    protocol  = "Tcp"
    source_port_range = "*"
    destination_port_range = "22"
    source_address_prefix = "*"
  }
}
```

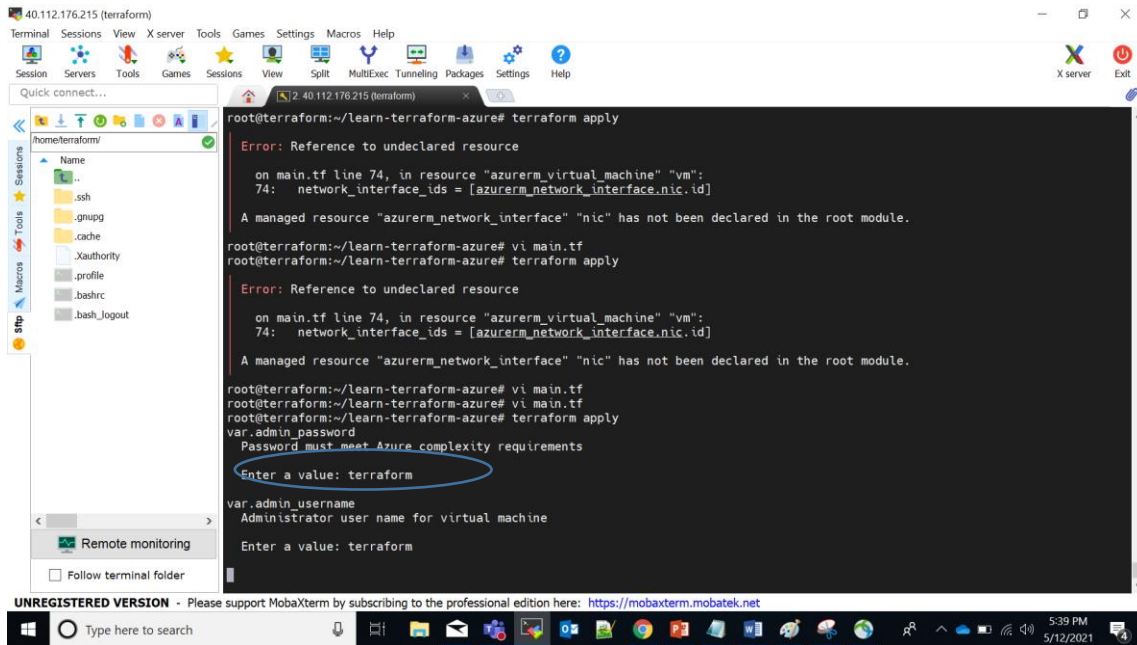
```
destination_address_prefix = "*" }
```

The screenshot shows the Azure portal interface for a Network Security Group named 'myTFNSG'. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and Settings. The main content area displays a table of security rules. The table has columns for Priority, Name, Port, Protocol, Source, Destination, and Action. The rules are categorized into Inbound Security Rules and Outbound Security Rules.

Priority	Name	Port	Protocol	Source	Destination	Action
Inbound Security Rules						
1001	SSH	22	Tcp	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalanc...	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
Outbound Security Rules						
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow

////////////////////////////////////

Passing username and value



/////

If we want to add Azure network interface

```

+ private_ip_address          = (known after apply)
+ private_ip_address_allocation = "dynamic"
+ private_ip_address_version  = "IPv4"
+ public_ip_address_id        = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/publicIPAddresses/myTFPublicIP"
+ subnet_id                   = "/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/virtualNetworks/myTFVnet/subnets/myTFSubnet"
}
}

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.nic: Creating...
azurerm_network_interface.nic: Creation complete after 6s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/networkInterfaces/myNIC]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
root@terraform:~/learn-terraform-azure#

```

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Resource groups > Azurecli >

myNIC Network interface

Search (Ctrl+/) << → Move Delete Refresh ✓ Enable accelerated networking

Overview

- Activity log
- Access control (IAM)
- Tags

Settings

- IP configurations
- DNS servers
- Network security group
- Properties
- Locks

Essentials

Resource group (change)	Private IP address
Azurecli	10.0.14
Location	Public IP address
West US 2	20.94.252.242 (myTFPublicIP)
Subscription (change)	Private IP address (IPv6)
Free Trial	-
Subscription ID	Public IP address (IPv6)
d12aea3b-e4ef-4f97-8aa5-544fa9c81d62	-
Accelerated networking	Attached to
Disabled	-
Tags (change)	
Click here to add tags	
See more	

////////////////////////////////////

If we want to create vm we can use above all networks in only one **main.tf** file

40.112.176.215 (terraform)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

home/terraform/

```

+ storage_os_disk {
+   caching               = "ReadWrite"
+   create_option          = "FromImage"
+   disk_size_gb          = (known after apply)
+   managed_disk_id       = (known after apply)
+   managed_disk_type     = "Premium_LRS"
+   name                  = "myOsDisk"
+   os_type                = (known after apply)
+   write_accelerator_enabled = false
}

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

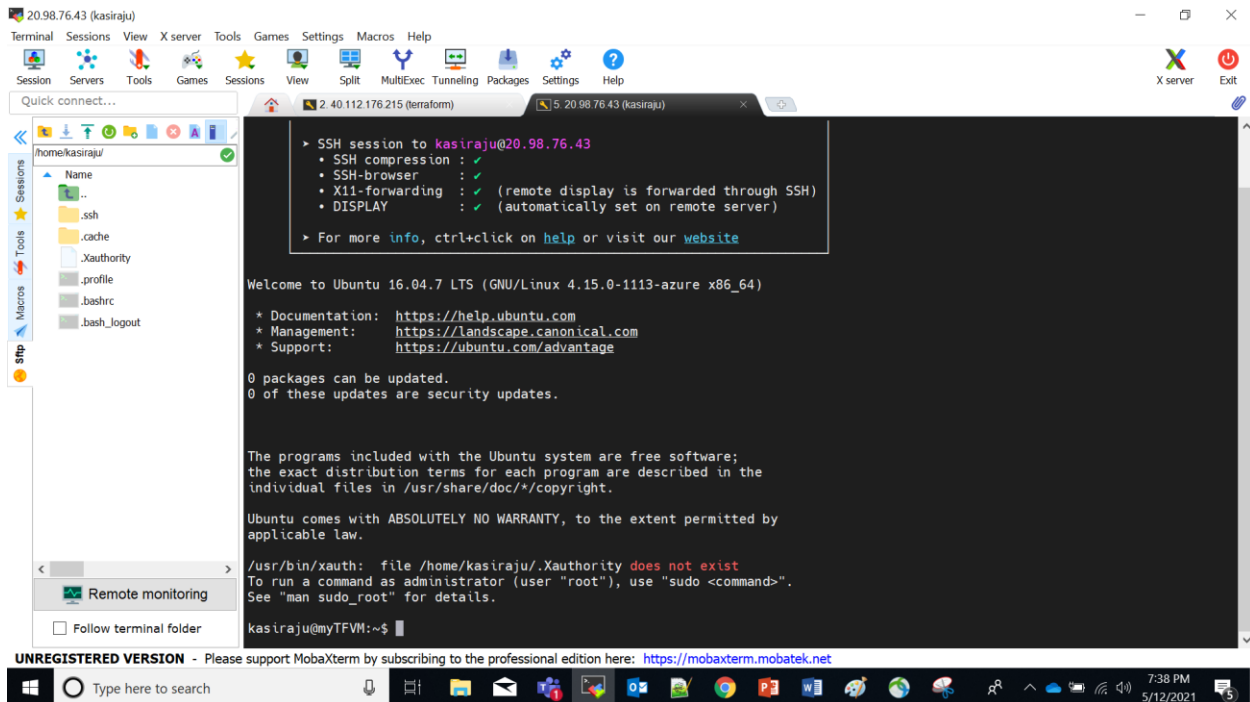
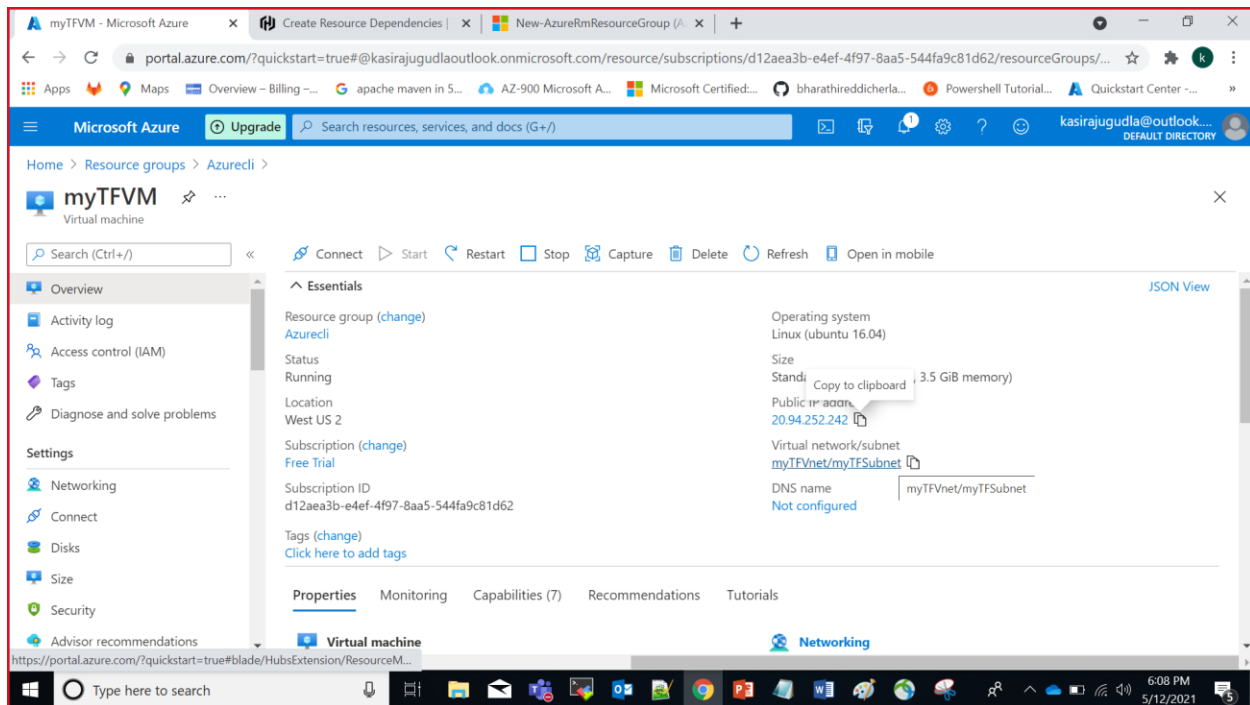
azurerm_virtual_machine.vm: Creating...
azurerm_virtual_machine.vm: Still creating... [10s elapsed]
azurerm_virtual_machine.vm: Still creating... [20s elapsed]
azurerm_virtual_machine.vm: Creation complete after 30s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Compute/virtualMachines/myTFVM]
data.azurem_public_ip.ip: Reading...
data.azurem_public_ip.ip: Read complete after 0s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/publicIPAddresses/myTFPublicIP]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
root@terraform:~/learn-terraform-azure#
  
```

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6:09 PM 5/12/2021



Query data with output variables:

output "public_ip_address" {

value = data.azure_rm_public_ip.ip_address

}

```
root@terraform:~/learn-terraform-azure# vi main.tf
root@terraform:~/learn-terraform-azure# terraform apply -var 'admin_username=kasiraju' -var 'admin_password=Ubuntu@12345'
azurerm_resource_group.rg: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli]
azurerm_virtual_network.vnet: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/virtualNetworks/myTFVnet]
azurerm_public_ip.publicip: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/publicIPAddresses/myTFPublicIP]
azurerm_network_security_group.nsg: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/networkSecurityGroups/myTFNSG]
azurerm_subnet.subnet: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/virtualNetworks/myTFVnet/subnets/myTFSubnet]
azurerm_network_interface.nic: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Network/networkInterfaces/myNIC]
azurerm_virtual_machine.vm: Refreshing state... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli/providers/Microsoft.Compute/virtualMachines/myTFVM]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the
following symbols:

Terraform will perform the following actions:

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

Changes to Outputs:
```

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

Changes to Outputs:

+ public_ip_address = "20.94.252.242"

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:

public_ip_address = "20.94.252.242"

root@terraform:~/learn-terraform-azure#

And finally I was done destroying the all networks again I was create all network with resource group call **Azurecli22**

40.112.176.215 (terraform)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

home/terraform/

Name

- ..
- .ssh
- .gnupg
- .cache
- .Xauthority
- .profile
- .bashrc
- .bash_logout

Remote monitoring

Follow terminal folder

```
providers/Microsoft.Network/virtualNetworks/myTFVnet]
azurerm_public_ip.publicip: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/publicIPAddresses/myTFPublicIP, 20s elapsed]
azurerm_virtual_network.vnet: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/virtualNetworks/myTFVnet, 10s elapsed]
azurerm_public_ip.publicip: Destruction complete after 21s
azurerm_virtual_network.vnet: Destruction complete after 11s
azurerm_resource_group.rg: Destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 10s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 20s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 30s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 40s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 50s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 1m0s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 1m20s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 1m30s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 1m40s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 1m50s elapsed]
azurerm_resource_group.rg: Destruction complete after 1m50s
azurerm_resource_group.rg: Creating...
azurerm_resource_group.rg: Creation complete after 2s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22]
```

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40.112.176.215 (terraform)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

home/terraform/

Name

- ..
- .ssh
- .gnupg
- .cache
- .Xauthority
- .profile
- .bashrc
- .bash_logout

Remote monitoring

Follow terminal folder

```
, 1m40s elapsed]
azurerm_resource_group.rg: Still destroying... [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22, 1m50s elapsed]
azurerm_resource_group.rg: Destruction complete after 1m50s
azurerm_resource_group.rg: Creating...
azurerm_resource_group.rg: Creation complete after 2s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22]
azurerm_public_ip.publicip: Creating...
azurerm_virtual_network.vnet: Creating...
azurerm_network_security_group.nsg: Creating...
azurerm_public_ip.publicip: Creation complete after 8s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/publicIPAddresses/myTFPublicIP]
azurerm_network_security_group.nsg: Creation complete after 8s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/networkSecurityGroups/myTFNSG]
azurerm_virtual_network.vnet: Creation complete after 9s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/virtualNetworks/myTFVnet]
azurerm_subnet.subnet: Creating...
azurerm_subnet.subnet: Creation complete after 3s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/virtualNetworks/myTFVnet/subnets/myTFSubnet]
azurerm_network_interface.nic: Creating...
azurerm_network_interface.nic: Creation complete after 6s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/networkInterfaces/myNIC]
azurerm_virtual_machine.vm: Creating...
azurerm_virtual_machine.vm: Still creating... [10s elapsed]
azurerm_virtual_machine.vm: Still creating... [20s elapsed]
azurerm_virtual_machine.vm: Creation complete after 27s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Compute/virtualMachines/myTFVM]
data.azure_public_ip.ip: Read complete after 0s [id=/subscriptions/d12aea3b-e4ef-4f97-8aa5-544fa9c81d62/resourceGroups/Azurecli22/providers/Microsoft.Network/publicIPAddresses/myTFPublicIP]

Apply complete! Resources: 7 added, 0 changed, 6 destroyed.
```

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The screenshot shows the Azure portal interface. The top navigation bar includes the Microsoft Azure logo and a search bar. The left sidebar displays a list of resource groups, with 'Azurecli22' selected. The main content area shows the details for the 'Azurecli22' resource group, including a table of resources. A blue box highlights the 'myTFVnet' resource in the table.

Name	Type	Location
cloud-shell-storage-centralindia	Storage	West US 2
myrepo1-rg	Resource Group	West US 2
NetworkWatcherRG	Resource Group	West US 2
VstsRG-myrepo1-f375	Resource Group	West US 2
window	Resource Group	West US 2
myNIC	Network interface	West US 2
myOsDisk	Disk	West US 2
myTFNSG	Network security group	West US 2
myTFPublicIP	Public IP address	West US 2
myTFVM	Virtual machine	West US 2
myTFVnet	Virtual network	West US 2