

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

### Objective :

Use variables, output values, implicit & explicit dependencies

**Provider.tf (sets the provider)**

```
provider "google" {  
  project = "qwiklabs-gcp-01-1cafc15cf0b8"  
  region = "us-east1"  
  zone   = "us-east1-b"  
}
```

### **Create IMPLICIT Resource Dependency**

**(Implicit dependencies: Dependencies known to Terraform)**

**Instance.tf (sets the instance)**

**A static IP is assigned to the VM instance using the vm\_static\_ip**

**Update the network\_interface configuration for the instance by adding -**  
nat\_ip = google\_compute\_address.vm\_static\_ip.address

```
resource google_compute_instance "vm_instance" {  
  name     = "${var.instance_name}"  
  zone     = "${var.instance_zone}"  
  machine_type = "${var.instance_type}"  
  boot_disk {  
    initialize_params {  
      image = "1ebian-cloud/1ebian-10"  
    }  
  }  
}  
  
resource google_compute_instance "vm_instance" {  
  name           = "${var.instance_name}"  
  zone           = "${var.instance_zone}"  
  machine_type   = "${var.instance_type}"  
  boot_disk {  
    initialize_params {  
      image = "1ebian-cloud/1ebian-10"  
    }  
  }  
}  
  
network_interface {  
  network = "default"}
```

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

```
access_config {  
  # Allocate a one-to-one NAT IP to the instance  
  nat_ip = google_compute_address.vm_static_ip.address  
}  
}  
resource "google_compute_address" "vm_static_ip" {  
  name = "terraform-static-ip"  
}  
}
```

### Variables.tf (sets the variables-name/zone/instance\_type)

```
variable "instance_name" {  
  type    = string  
  description = "Name for the Google Compute instance"  
}  
variable "instance_zone" {  
  type    = string  
  description = "Zone for the Google Compute instance"  
}  
variable "instance_type" {  
  type    = string  
  description = "Disk type of the Google Compute instance"  
  default = "n1-standard-1"  
}
```

### Outputs.tf (sets the output values)

```
output "network_IP" {  
  value = google_compute_instance.vm_instance.instance_id  
  description = "The internal ip address of the instance"  
}  
output "instance_link" {  
  value = google_compute_instance.vm_instance.self_link  
  description = "The URI of the created resource."  
}
```

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

**Compute Engine**
VM instances
+ CREATE INSTANCE
+ IMPORT VM
⋮ OPERATIONS
📄 HELP ASSISTANT
🎓 LEARN
HIDE INFO PA

---

Manage Resources

Marketplace

Release Notes

Filter Enter property name or value

Status	Name ↑	Zone	Recommendati	Connect
<input type="checkbox"/>	cloudlearningservices	us-central1-f		SSH ▾ ⋮
<input checked="" type="checkbox"/>	myinstance	us-east1-b		SSH ▾ ⋮

### Select an instance

PERMISSIONS LABELS MONITORING

Please select at least one resource.

---

CLOUD SHELL

Terminal (qwklabs-gcp-01-1cafc15cf0b8) x + ▾

```
Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

google_compute_address.vm_static_ip: Creating...
google_compute_address.vm_static_ip: Still creating... [10s elapsed]
google_compute_address.vm_static_ip: Creation complete after 12s [id=projects/qwklabs-gcp-01-1cafc15cf0b8/regions/us-east1/addresses/terraform-static-ip]
google_compute_instance.vm_instance: Creating..
google_compute_instance.vm_instance: Still creating... [10s elapsed]
google_compute_instance.vm_instance: Creation complete after 13s [id=projects/qwklabs-gcp-01-1cafc15cf0b8/zones/us-east1-b/instances/myinstance]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:

instance_link = "https://www.googleapis.com/compute/v1/projects/qwklabs-gcp-01-1cafc15cf0b8/zones/us-east1-b/instances/myinstance"
network_IP = "3487698539127557101"
student_02_lcac72a9778f@cloudshell:~/tfinfra (qwklabs-gcp-01-1cafc15cf0b8) $
```

---

Buckets

Monitoring

Marketplace

Release Notes

### Cloud Storage Buckets

+ CREATE ↻ REFRESH

Filter Filter buckets

Name ↑	Created	Location type	Location	Default storage class ?	Last modified
myinstance-12aug	Aug 12, 2022, 11:40:49 AM	Multi-region	us	Standard	Aug 12, 2022, 1

---

CLOUD SHELL

Terminal (qwklabs-gcp-04-34b4a97198f0) x + ▾

```
Enter a value: yes

google_storage_bucket.example_bucket: Creating...
google_storage_bucket.example_bucket: Creation complete after 2s [id=myinstance-12aug]
google_compute_instance.another_instance: Creating...
google_compute_instance.another_instance: Still creating... [10s elapsed]
google_compute_instance.another_instance: Creation complete after 12s [id=projects/qwklabs-gcp-04-34b4a97198f0/zones/us-east1-b/instances/terraform-instance-2]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:

instance_link = "https://www.googleapis.com/compute/v1/projects/qwklabs-gcp-04-34b4a97198f0/zones/us-east1-b/instances/myinstance"
network_IP = "6124555223305014779"
student_04_f517405d082e@cloudshell:~/tfinfra (qwklabs-gcp-04-34b4a97198f0) $
```

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

### Create EXPLICIT Resource Dependency

#### (Explicit dependencies: Dependencies unknown to Terraform)

Explicit dependencies are used to inform dependencies between resources that are not visible to Terraform. In this example, consider that you will run on your instance that expects to use a specific Cloud Storage bucket, but that dependency is configured inside the application code and thus not visible to Terraform. In that case, you can use `depends_on` to explicitly declare the dependency.

#### Exp.tf

```
# Create a new instance that uses the bucket
resource "google_compute_instance" "another_instance" {
  name          = "terraform-instance-2"
  machine_type  = "f1-micro"
  boot_disk {
    initialize_params {
      image = "debian-cloud/debian-10"
    }
  }
  network_interface {
    network = "default"
    access_config {
    }
  }
}
# Tells Terraform that this VM instance must be created only after
the
# storage bucket has been created.
depends_on = [google_storage_bucket.example_bucket]
}
# New resource for the storage bucket our application will use.
resource "google_storage_bucket" "example_bucket" {
  name          = "myinstance-12aug"
  location      = "US"
  website {
    main_page_suffix = "index.html"
    not_found_page    = "404.html"
  }
}
```

Run –  
Terraform plan  
Terraform apply

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

**Compute Engine**

VM instances

[CREATE INSTANCE](#)
[IMPORT VM](#)

Manage Resources

Marketplace

Release Notes

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Zone	Recommendati	Connect
<input type="checkbox"/>	✓	cloudlearningservices	us-central1-f		SSH
<input type="checkbox"/>	✓	myinstance	us-east1-b		SSH

Select an instance

[PERMISSIONS](#)
[LABELS](#)
[MONITORING](#)

Please select at least one resource.

CLOUD SHELL

Terminal

[\(qwklabs-gcp-01-1cafc15cf0b8\)](#)

[Open Editor](#)

```

Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

google_compute_address.vm_static_ip: Creating...
google_compute_address.vm_static_ip: Still creating... [10s elapsed]
google_compute_address.vm_static_ip: Creation complete after 12s [id=projects/qwklabs-gcp-01-1cafc15cf0b8/regions/us-east1/addresses/terraform-static-ip]
google_compute_instance.vm_instance: Creating...
google_compute_instance.vm_instance: Still creating... [10s elapsed]
google_compute_instance.vm_instance: Creation complete after 13s [id=projects/qwklabs-gcp-01-1cafc15cf0b8/zones/us-east1-b/instances/myinstance]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:

instance_link = "https://www.googleapis.com/compute/v1/projects/qwklabs-gcp-01-1cafc15cf0b8/zones/us-east1-b/instances/myinstance"
network_IP = "3487698539127557101"
student_02_1cac72a9778f@cloudshell:~/tfinfra (qwklabs-gcp-01-1cafc15cf0b8) $

```

**Compute Engine**

VM instances

[CREATE INSTANCE](#)
[IMPORT VM](#)

Manage Resources

Marketplace

Release Notes

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Zone	Recommendati	Connect
<input type="checkbox"/>	✓	cloudlearningservices	us-central1-f		SSH
<input type="checkbox"/>	✓	myinstance	us-east1-b		SSH

Select an instance

[PERMISSIONS](#)
[LABELS](#)
[MONITORING](#)

Please select at least one resource.

CLOUD SHELL

Terminal

[\(qwklabs-gcp-01-1cafc15cf0b8\)](#)

[Open Editor](#)

```

Terraform will perform the actions described above.
Only 'yes' will be accepted to approve.

Enter a value: yes

google_compute_address.vm_static_ip: Creating...
google_compute_address.vm_static_ip: Still creating... [10s elapsed]
google_compute_address.vm_static_ip: Creation complete after 12s [id=projects/qwklabs-gcp-01-1cafc15cf0b8/regions/us-east1/addresses/terraform-static-ip]
google_compute_instance.vm_instance: Creating...
google_compute_instance.vm_instance: Still creating... [10s elapsed]
google_compute_instance.vm_instance: Creation complete after 13s [id=projects/qwklabs-gcp-01-1cafc15cf0b8/zones/us-east1-b/instances/myinstance]

Apply complete! Resources: 2 added, 0 changed, 0 destroyed.

Outputs:

instance_link = "https://www.googleapis.com/compute/v1/projects/qwklabs-gcp-01-1cafc15cf0b8/zones/us-east1-b/instances/myinstance"
network_IP = "3487698539127557101"
student_02_1cac72a9778f@cloudshell:~/tfinfra (qwklabs-gcp-01-1cafc15cf0b8) $

```

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

The screenshot displays the Google Cloud Platform (GCP) console interface, divided into two main sections: 'Compute Engine' and 'VPC network'.

**Compute Engine Section:**

- VM instances:** A table lists three instances: 'cloudlearningservices' (us-central1-f), 'myinstance' (us-east1-b), and 'terraform-instance-2' (us-east1-b). All instances are in a 'Running' state (green checkmark).
- Terminal:** Shows the output of Terraform commands. It indicates the successful creation of a storage bucket and two VM instances. The final output shows the network IP for 'myinstance' as '6124553223305014779'.

**VPC network Section:**

- IP addresses:** A table lists two external IP addresses: 'terraform-static-ip' (34.75.214.86) and an ephemeral IP (34.69.180.140). Both are in the 'us-east1' region.
- Terminal:** Shows the output of Terraform commands for creating a static IP and associating it with a VM instance. The final output shows the creation of the static IP 'terraform-static-ip'.

Dependency graph can be generated and viewed:  
Terraform graph | dot -Tsvg > graph.svg

## LAB 2 : GCP-Use variables, output values, implicit & explicit dependencies (Kavitha B)

