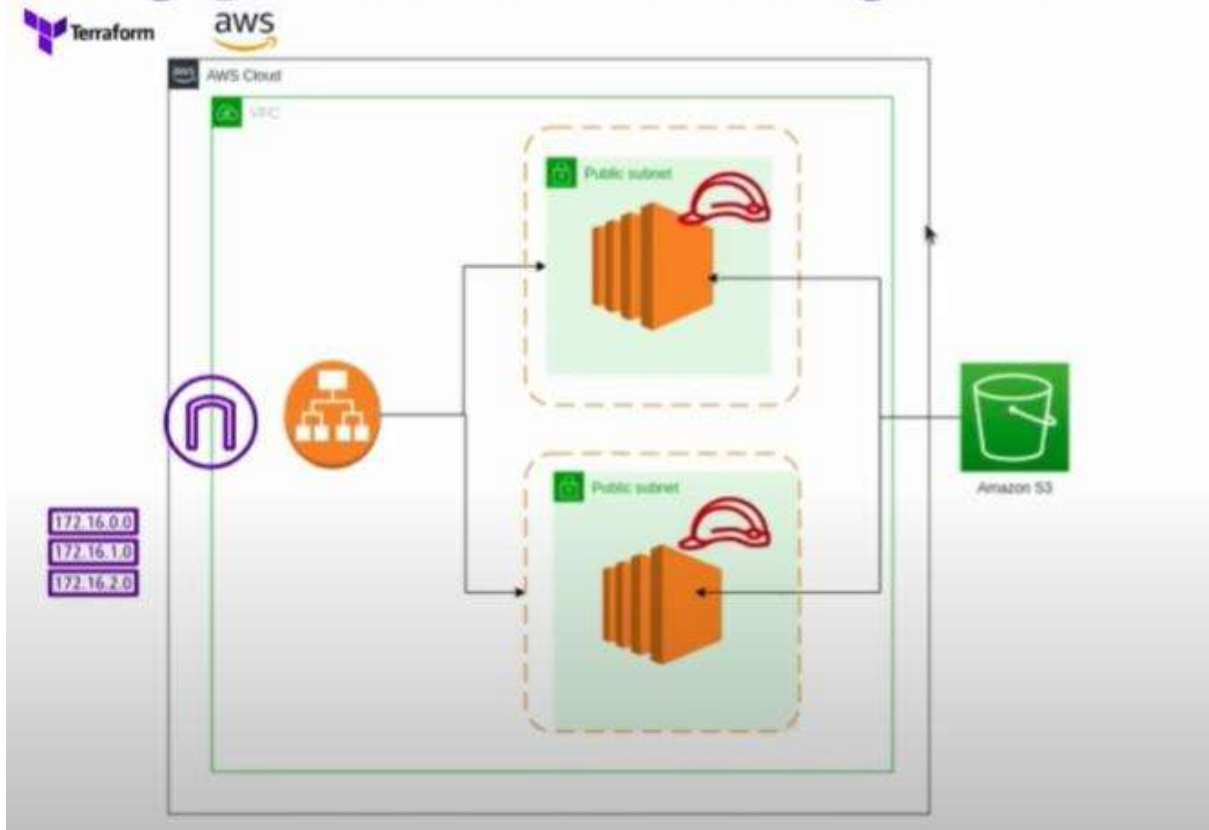


AWS – VPC

Setting up Infrastructure on AWS using Terraform



Instances (1) [Info](#) Refresh Connect Instance state Actions Launch instances

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	terra	i-014fe2d2b969cfcda	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a

```
ubuntu@ip-172-31-46-83:~/TERRAFORM$ wget -O- https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o /usr/share/keyrings/hashicorp-archive-keyring.gpg
echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com $(lsb_release -cs) main" | sudo tee /etc/apt/sources.list.d/hashicorp.list
sudo apt update && sudo apt install terraform
```

```
ubuntu@ip-172-31-46-83:~/TERRAFORM$ ls
main.tf  provider.tf  terraform.tfstate  terraform.tfstate.backup  userdata.sh  userdata1.sh
```

Github code link:

```
ubuntu@ip-172-31-46-83:~/TERRAFORM$ terraform validate
Success! The configuration is valid.
```

```
ubuntu@ip-172-31-46-83:~/TERRAFORM$ 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:

# aws_iam_instance_profile.instance_profile will be created
+ resource "aws_iam_instance_profile" "instance_profile" {
  + arn           = (known after apply)
  + create_date   = (known after apply)
  + id            = (known after apply)
  + name          = "instanceprofile"
  + name_prefix   = (known after apply)
  + path          = "/"
  + role          = "instance_role"
  + tags_all      = (known after apply)
  + unique_id     = (known after apply)
}
```

Plan: 20 to add, 0 to change, 0 to destroy.

Changes to Outputs:

+ loadbalancerdns = (known after apply)

```
ubuntu@ip-172-31-46-83:~/TERRAFORM$ terraform apply -auto-approve

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:

# aws_iam_instance_profile.instance_profile will be created
+ resource "aws_iam_instance_profile" "instance_profile" {
```

```
aws_instance.terra-2: Creation complete after 41s [id=i-03cb770c493c9df77]
aws_lb_target_group_attachment.tg-attach-2: Creating...
aws_lb_target_group_attachment.tg-attach-1: Creation complete after 0s [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:targetgroup/tf-lb-tg/9570a3847ec5043b-20231213061315302500000004]
aws_lb_target_group_attachment.tg-attach-2: Creation complete after 0s [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:targetgroup/tf-lb-tg/9570a3847ec5043b-202312130613154134000000005]
aws_lb.lb: Still creating... [50s elapsed]
aws_lb.lb: Still creating... [1m0s elapsed]
aws_lb.lb: Still creating... [1m10s elapsed]
aws_lb.lb: Still creating... [1m20s elapsed]
aws_lb.lb: Still creating... [1m30s elapsed]
aws_lb.lb: Still creating... [1m40s elapsed]
aws_lb.lb: Still creating... [1m50s elapsed]
aws_lb.lb: Still creating... [2m0s elapsed]
aws_lb.lb: Still creating... [2m10s elapsed]
aws_lb.lb: Still creating... [2m20s elapsed]
aws_lb.lb: Still creating... [2m30s elapsed]
aws_lb.lb: Still creating... [2m40s elapsed]
aws_lb.lb: Creation complete after 2m42s [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:loadbalancer/app/LB-T/7b53293300eebe05]
aws_lb_listener.lb_listener: Creating...
aws_lb_listener.lb_listener: Creation complete after 0s [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:listener/app/LB-T/7b53293300eebe05/c016a475c99b3ce0]

Apply complete! Resources: 20 added, 0 changed, 0 destroyed.

Outputs:

loadbalancerdns = "LB-T-1412627750.ap-south-1.elb.amazonaws.com"
ubuntu@ip-172-31-46-83:~/TERRAFORM$
```

← → ↻ ⚠ Not secure | lb-t-1412627750.ap-south-1.elb.amazonaws.com

Terraform Project **Server 1**

Instance ID: i-03cb770c493c9df77

When I click on refresh button LB distribute traffic between 2 subnets.



Resources Created by Terraform:

EC2:

Instances (3) Info

Find Instance by attribute or tag (case-sensitive)

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>		i-03cb770c493c9df77	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1b
<input type="checkbox"/>	terra	i-014fe2d2b969cfcda	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a
<input type="checkbox"/>		i-0627fa5eb37b6bcda	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a

SECURITY GROUP:

Security Groups (4) Info

Find resources by attribute or tag

<input type="checkbox"/>	Name	Security group ID	Security group name	VPC ID	Description
<input type="checkbox"/>	SG-1	sg-0af6bf2088e422377	SG	vpc-0cfa2a388bbe8b2a3	Managed by Terraform

Security group and IAM Role attached to ec2-instances.

Instances (1/3) Info

Find Instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
✓	<u>i-03cb770c493c9df77</u>	Running	t2.micro	2/2 checks passed	No alarms +	ap-south-1b
terra	i-014fe2d2b969cfcda	Running	t2.micro	2/2 checks passed	No alarms +	ap-south-1a
	<u>i-0627fa5eb37b6bcd</u>	Running	t2.micro	2/2 checks passed	No alarms +	ap-south-1a

Instance: i-03cb770c493c9df77

Details Security Networking Storage Status checks Monitoring Tags

▼ Security details

IAM Role
instance_role

Security groups
sg-0af6bf2088e422377 (SG)

► Inbound rules

► Outbound rules

Owner ID
687157172064

Launch time
Wed Dec 13 2023 11:42:34 GMT+0530 (I

VPC & Subnets:

Instances (1/3) Info

Find Instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 I
✓	i-03cb770c493c9df77	Running	t2.micro	2/2 checks passed	No alarms +	ap-south-1b	-
terra	i-014fe2d2b969cfcda	Running	t2.micro	2/2 checks passed	No alarms +	ap-south-1a	ec2-3-110-1
	i-0627fa5eb37b6bcd	Running	t2.micro	2/2 checks passed	No alarms +	ap-south-1a	-

Instance: i-03cb770c493c9df77

Hostname type
IP name: ip-10-0-1-125.ap-south-1.compute.internal

Answer private resource DNS name
-

Auto-assigned IP address
52.66.75.102 [Public IP]

IAM Role
instance_role

Private IP DNS name (IPv4 only)
ip-10-0-1-125.ap-south-1.compute.internal

Instance type
t2.micro

VPC ID
vpc-0cfa2a388bbe8b2a3 (First_VPC)

Subnet ID
subnet-0331d4d3fcb4a1e (Subnet-2b)

Elastic IP addresses
-

AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Auto Scaling Group name
-

VPC:

Your VPCs (1) Info

Search

VPC ID : vpc-0cfa2a388bbe8b2a3 X Clear filters

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR
First_VPC	<u>vpc-0cfa2a388bbe8b2a3</u>	Available	10.0.0.0/16	-

Subnets:

Subnets (2) Info

Find resources by attribute or tag

vpc-0cfa2a388bbe8b2a3 Clear filters

<input type="checkbox"/>	Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
<input type="checkbox"/>	Subnet-2b	subnet-03314d43fceb4a1e	Available	vpc-0cfa2a388bbe8b2a3 First...	10.0.1.0/24	-
<input type="checkbox"/>	Subnet-1a	subnet-0f9eb85de4d277235	Available	vpc-0cfa2a388bbe8b2a3 First...	10.0.0.0/24	-

Route-Table:

Route tables (2) Info

Find resources by attribute or tag

vpc-0cfa2a388bbe8b2a3 Clear filters

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-0b980144cf781ac7	2 subnets	-	No	vpc-0cfa2a388bbe8b2a3 First...
<input type="checkbox"/>	-	rtb-0d3f0c655c39caed6	-	-	Yes	vpc-0cfa2a388bbe8b2a3 First...

IGW:

Internet gateways (2) Info

Search

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID
<input type="checkbox"/>	-	igw-057ecd725a18fa151	Attached	vpc-0cfa2a388bbe8b2a3 First_VPC

Load Balancer:

EC2 > Load balancers

Load balancers (1/1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

<input checked="" type="checkbox"/>	Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
<input checked="" type="checkbox"/>	LB-T	LB-T-1412627750.ap-sout...	Active	vpc-0cfa2a388bbe8b2a3	2 Availability Zones	application	December 13, 202

Load balancer: LB-T

Load balancer type Application	Status Active	VPC vpc-0cfa2a388bbe8b2a3	IP address type IPv4
Scheme Internet-facing	Hosted zone ZP97RAFLXTNZK	Availability Zones subnet-03314d43fceb4a1e ap-south-1b (aps1-az3) subnet-0f9eb85de4d277235 ap-south-1a (aps1-az1)	Date created December 13, 2023, 11:42 (UTC+05:30)
Load balancer ARN arn:aws:elasticloadbalancing:ap-south-1:687157172064:loadbalancer/app/LB-T/7b53293300eebe05	DNS name Info LB-T-1412627750.ap-south-1.elb.amazonaws.com (A Record)		

Target Group:

Target groups (1/1) [Info](#)

Filter target groups

<input checked="" type="checkbox"/>	Name	ARN	Port	Protocol	Target type	Load balancer
<input checked="" type="checkbox"/>	tf-lb-tg	arn:aws:elasticloadbalancing:ap-south-1:687157172064:targetgroup/tf-lb-tg/9570a3847ec5043b	80	HTTP	Instance	LB-T

Target group: tf-lb-tg

arn:aws:elasticloadbalancing:ap-south-1:687157172064:targetgroup/tf-lb-tg/9570a3847ec5043b

Target type Instance	Protocol : Port HTTP: 80	Protocol version HTTP1	VPC vpc-0cfa2a388bbe8b2a3
IP address type IPv4	Load balancer LB-T		

2 Total targets	2 Healthy 0 Anomalous	0 Unhealthy	0 Unused	0 Initial	0 Draining
--------------------	-----------------------------	----------------	-------------	--------------	---------------

S3 Bucket:

Account snapshot

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

View Storage Lens dashboard

General purpose buckets

Directory buckets

General purpose buckets (3) [Info](#)

Buckets are containers for data stored in S3. [Learn more](#)

Find buckets by name

Copy ARN

Empty

Delete

Create bucket

	Name	AWS Region	Access	Creation date
<input type="radio"/>	aws-project-artifact	Asia Pacific (Mumbai) ap-south-1	Bucket and objects not public	September 13, 2023, 17:00:30 (UTC+05:30)
<input type="radio"/>	codepipeline-ap-south-1-451567434273	Asia Pacific (Mumbai) ap-south-1	Bucket and objects not public	October 6, 2023, 11:52:17 (UTC+05:30)
<input type="radio"/>	terra-pro-san	Asia Pacific (Mumbai) ap-south-1	Bucket and objects not public	December 13, 2023, 11:53:39 (UTC+05:30)

Connect one of the instance to check instance able to access s3 bucket or not (as per attached IAM ROLE) :


[EC2](#) > [Instances](#) > [i-03cb770c493c9df77](#) > Connect to instance

Connect to instance [Info](#)

Connect to your instance i-03cb770c493c9df77 using any of these options

EC2 Instance Connect	Session Manager	SSH client	EC2 serial console
-----------------------------	-----------------	------------	--------------------

Instance ID


 i-03cb770c493c9df77

Connection Type

☒ **Connect using EC2 Instance Connect**
Connect using the EC2 Instance Connect browser-based client, with a public IPv4 address.


☐ **Connect using EC2 Instance Connect Endpoint**
Connect using the EC2 Instance Connect browser-based client, with a private IPv4 address and a VPC endpoint.

Public IP address

 52.66.75.102

User name

Enter the user name defined in the AMI used to launch the instance. If you didn't define a custom user name, use the default user name, ubuntu.

 **Note:** In most cases, the default user name, ubuntu, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

Cancel

Connect

```
ubuntu@ip-10-0-1-125:~$ ls
ubuntu@ip-10-0-1-125:~$ aws s3 ls
2023-09-13 11:30:34 aws-project-artifact
2023-10-06 06:22:17 codepipeline-ap-south-1-451567434273
2023-12-13 06:23:39 terra-pro-san
ubuntu@ip-10-0-1-125:~$ sudo aws s3 cp s3://terra-pro-san/TERRAFORM.png /var/www/html/TERRAFORM.png
download: s3://terra-pro-san/TERRAFORM.png to ../../var/www/html/TERRAFORM.png
ubuntu@ip-10-0-1-125:~$ cd ../../var/www/html
ubuntu@ip-10-0-1-125:/var/www/html$ ls
TERRAFORM.png  index.html
ubuntu@ip-10-0-1-125:/var/www/html$
```

Terraform Destroy:

Outputs:

```
loadbalancerdns = "LB-T-1412627750.ap-south-1.elb.amazonaws.com"
ubuntu@ip-172-31-46-83:~/TERRAFORM$ terraform destroy -auto-approve
aws_s3_bucket.s3: Refreshing state... [id=terra-pro-san]
aws_iam_role.instance_iamrole: Refreshing state... [id=instance_role]
aws_vpc.vpc: Refreshing state... [id=vpc-0cfa2a388bbe8b2a3]
aws_security_group.sg: Refreshing state... [id=sg-0af6bf2088e422377]
aws_lb_target_group.lb-tg: Refreshing state... [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:targetgroup/tf-lb-1]
aws_internet_gateway.gw: Refreshing state... [id=igw-057ecd725a18fa151]
aws_subnet.subnet2: Refreshing state... [id=subnet-03314d43fceb4a1e]
aws_subnet.subnet1: Refreshing state... [id=subnet-0f9eb85de4d277235]
aws_route_table.rt: Refreshing state... [id=rtb-0b980144cff781ac7]
aws_lb.lb: Refreshing state... [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:loadbalancer/app/LB-T/7b53293300ee]
aws_route_table_association.rtl: Refreshing state... [id=rtbassoc-0fff8e87163f2ed3c]
aws_route_table_association.rt2: Refreshing state... [id=rtbassoc-07175381c86fdb97d]
aws_lb_listener.lb_listener: Refreshing state... [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:listener/app/LB-T]
aws_iam_instance_profile.instance_profile: Refreshing state... [id=instanceprofile]
aws_iam_role_policy_attachment.role_attachment: Refreshing state... [id=instance_role-20231213061224692600000001]
aws_iam_role_policy.role_policy: Refreshing state... [id=instance_role:instance_role_policy]
aws_instance.terra-1: Refreshing state... [id=i-0627fa5eb37b6bda]
aws_instance.terra-2: Refreshing state... [id=i-03cb770c493c9df77]
aws_lb_target_group_attachment.tg-attach-2: Refreshing state... [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:tg-attach-2]
aws_lb_target_group_attachment.tg-attach-1: Refreshing state... [id=arn:aws:elasticloadbalancing:ap-south-1:687157172064:tg-attach-1]
```