

This Terraform project provisions a AWS infrastructure for creating public and private EC2 instance with RDS PostgreSQL database backend.

Architecture Overview

This infrastructure deploys a highly available, scalable web application with the following components:

- **Region:** ap-south-1 (Mumbai)
- **Organization:** hddevops01
- **Team:** august bootcamp

Infrastructure Components

Network (network.tf)

- **VPC:** Custom VPC with CIDR 10.0.0.0/16
- **Subnets:**
 - 1 Public Subnet - 10.0.1.0/24 - for Public EC2 instance
 - 2 Private Subnets - 10.0.2.0/24 and 10.0.3.0/24 - for Private EC2 instance
 - 2 RDS Subnets (10.0.2.0/24 and 10.0.3.0/24) across AZ a & b - for database
- **Internet Gateway:** For public subnet internet access
- **NAT Gateway:** With Elastic IP for private subnet outbound traffic
- **Route Tables:** Separate routing for public and private subnets

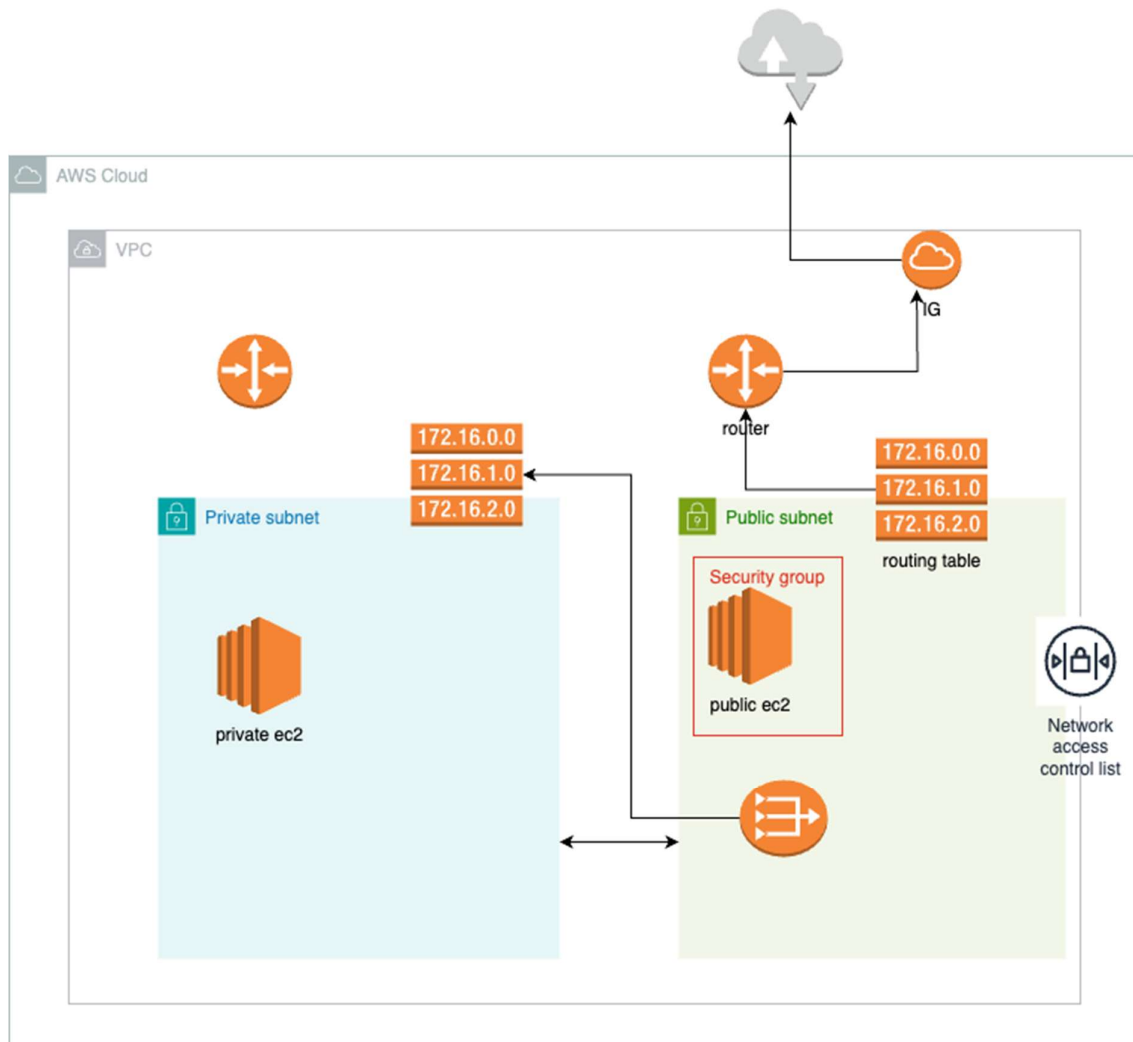
Application Layer (ec2.tf)

- **EC2 Public instance.**
- **EC2 Private instance.**

Database Layer (rds.tf)

- **RDS PostgreSQL:**
 - Engine: PostgreSQL 14.15
 - Instance: db.t3.micro
 - Storage: 30 GB (auto-scaling up to 50 GB), encrypted with KMS
 - Backup retention: 7 days
 - Multi-AZ deployment via subnet group
 - Not publicly accessible
- **DB Subnet Group:** Spans both RDS subnets
- **Security Group:** Allows inbound on port 5432 from EC2 Private instance only

- **Secrets Manager:** Stores database connection string securely
- **Random Password:** Generated for RDS master user



aws | keypa | Account ID: 0599-4182-6920 | Hemant Desale

EC2 > Instances

Instances (2) Info | Last updated 2 minutes ago | Connect | Instance state | Actions | Launch instances

Find Instance by attribute or tag (case-sensitive) | All states

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>	main-private-ec2	i-0d695112b3b7f7a2a	Running	t3.micro	3/3 checks passed	View alarms
<input type="checkbox"/>	main-public-ec2	i-05ae23170de1659bb	Running	t3.micro	3/3 checks passed	View alarms

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EC2 > Security Groups

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Security Groups (6) Info

Find security groups by attribute or tag

<input type="checkbox"/>	Name	Security group ID	Security group name	VPC ID
<input type="checkbox"/>	main-rds-sg	sg-0437da15372421160	terraform-2025100619001838940000...	vpc-0098d6fdaed9a5b9...
<input type="checkbox"/>	-	sg-08dd1f07d8dd171d7	default	vpc-0098d6fdaed9a5b9...
<input type="checkbox"/>	-	sg-0a6255c5e04ab0e45	main-public-ssh-access	vpc-0098d6fdaed9a5b9...
<input type="checkbox"/>	-	sg-031535ad72938de17	main-private-ssh-access	vpc-0098d6fdaed9a5b9...
<input type="checkbox"/>	main-ec2-sg	sg-0cc1c5c529b2e89af	terraform-2025100619001617870000...	vpc-0098d6fdaed9a5b9...

Select a security group

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EC2 > Elastic IP addresses

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Elastic IP addresses (1) Info

Find elastic IP addresses by attribute or tag

<input type="checkbox"/>	Name	Allocated IPv4 addr...	Type	Allocation ID	R...
<input type="checkbox"/>	main-public	13.200.213.143	Public IP	eipalloc-05b88788c5a6775f3	-

Select an elastic IP address

View IP address usage and recommendations to release unused IPs with [Public IP insights](#)

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EC2 > Key pairs

AMIs

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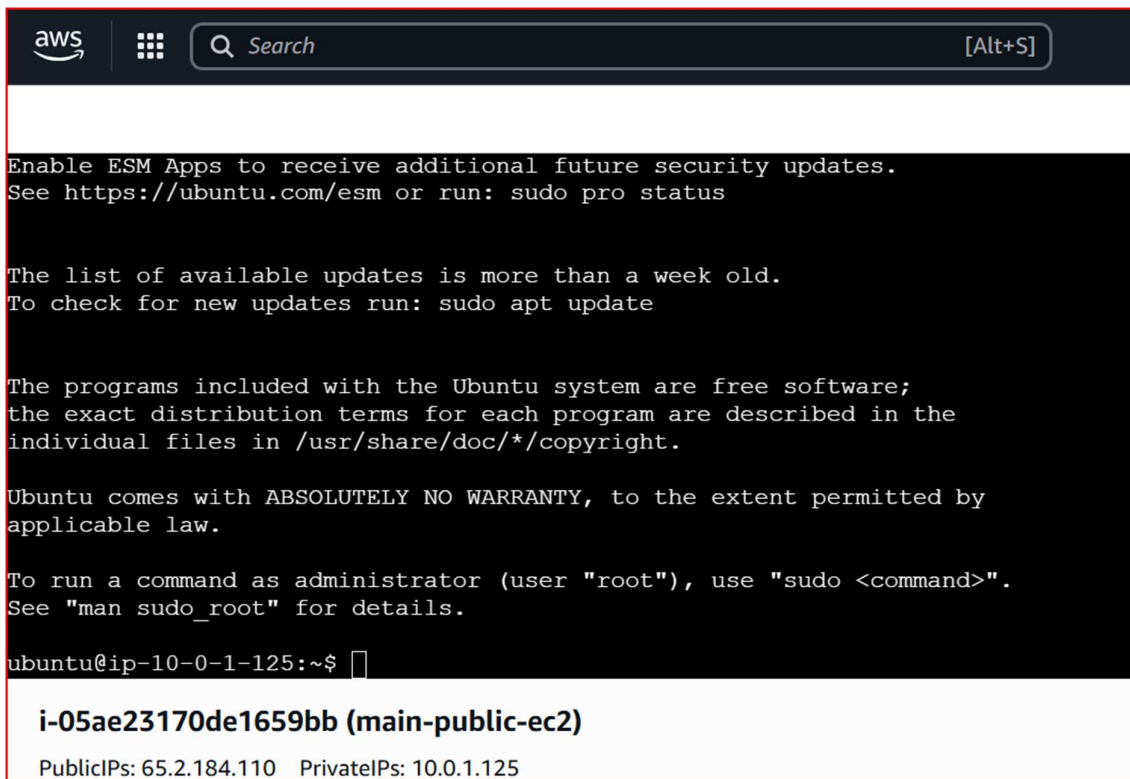
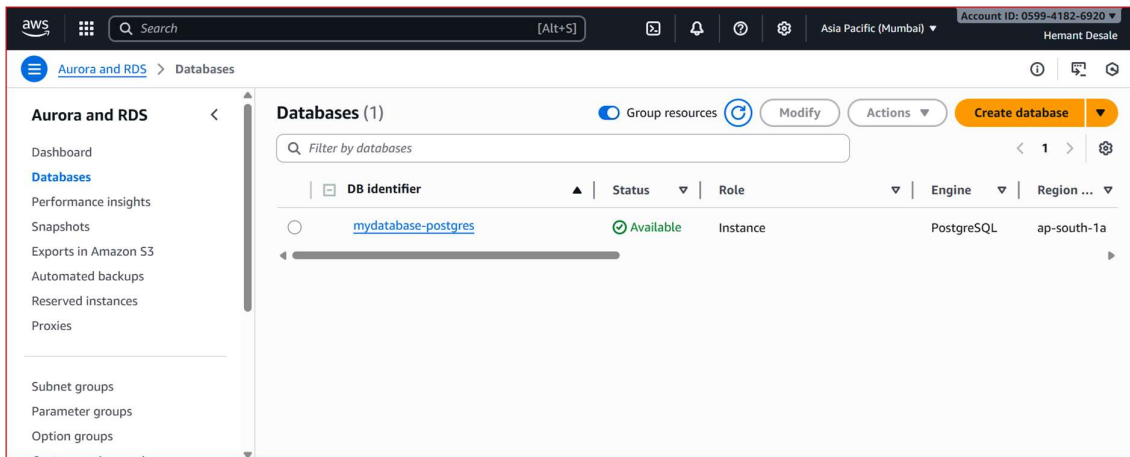
Network & Security

Security Groups

Key pairs (1) Info

Find Key Pair by attribute or tag

<input type="checkbox"/>	Name	Type	Created
<input type="checkbox"/>	ssh-key	rsa	2025/10/03 22:35 GMT+5...



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Account ID: 0599-1182-6920

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EC2

Instances

i-0d695112b3b7f7a2a

Connect to instance

Connect

Info

Connect to an instance using the browser-based client.

EC2 Instance Connect

Session Manager

SSH client

EC2 serial console

No public IPv4 or IPv6 address assigned

With no public IPv4 or IPv6 address, you can't use EC2 Instance Connect. Alternatively, you can try connecting using [EC2 Instance Connect Endpoint](#).

Instance is not in public subnet

Associated subnet [subnet-01e4750978d38dfb9 \(main-private1\)](#) is not a public subnet.
To use EC2 Instance Connect, your instance must be in a public subnet. [To make the subnet a public subnet, add a route in the subnet route table to an internet gateway.](#)

Instance ID

[i-0d695112b3b7f7a2a](#) (main-private-ec2)

Connection type