**AWS Cloud Web Server Deployment with LAMP Stack**

## Introduction

This project demonstrates the deployment of a secure VPC and an EC2 instance configured with the LAMP stack (Linux, Apache, MySQL, PHP) using Terraform and manual configuration steps. It provides a practical approach to Infrastructure as Code (IaC) and server provisioning.

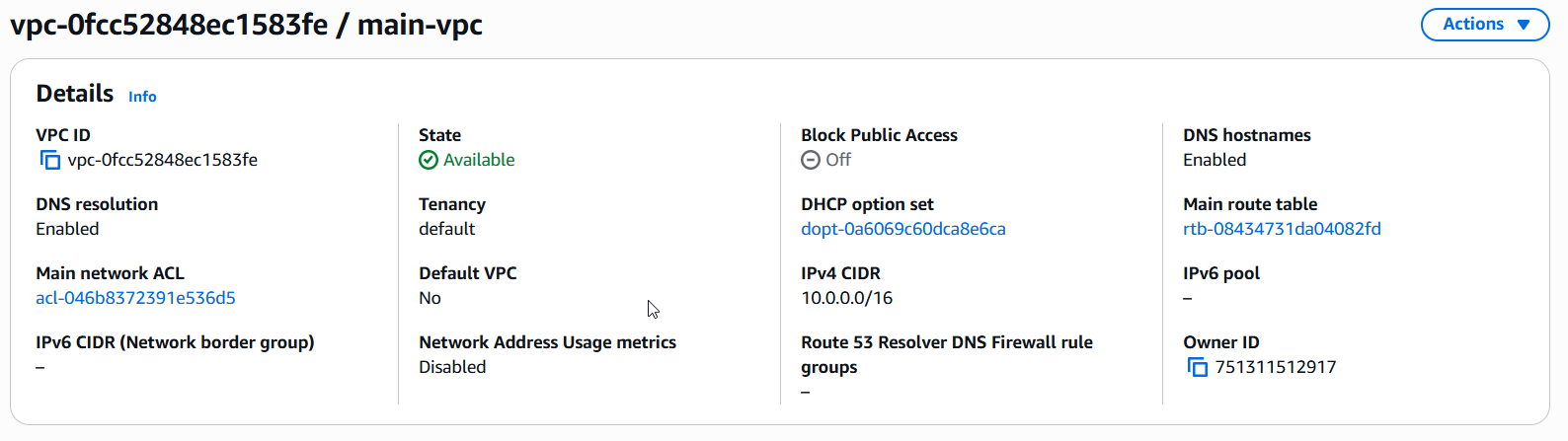
## 1. Create VPC using Terraform

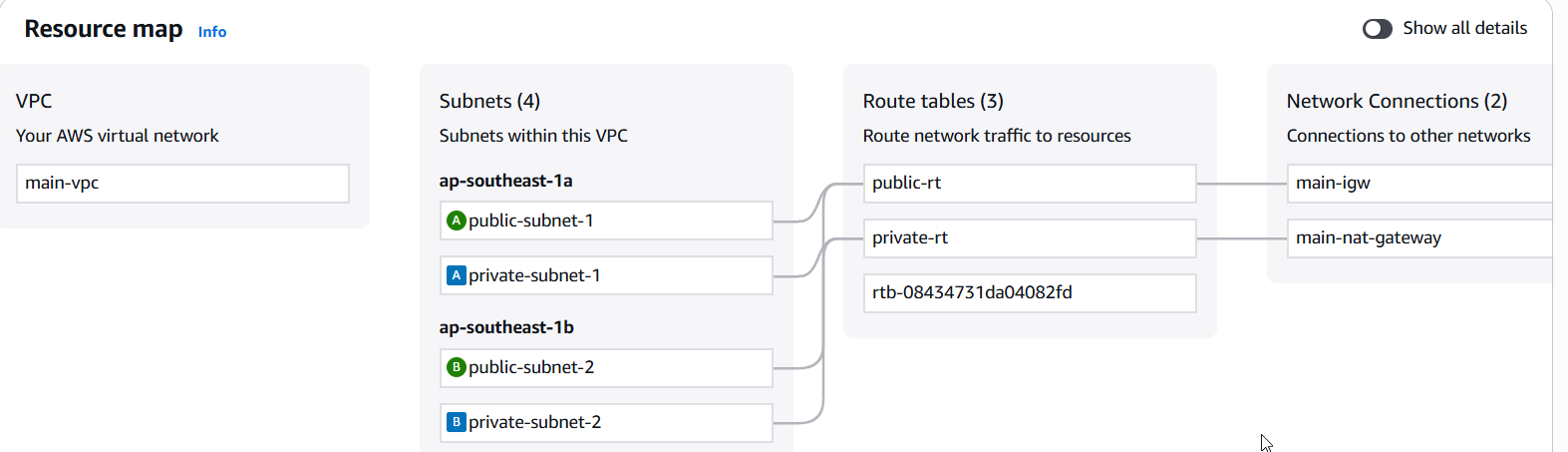
We used Terraform to define and provision a secure AWS Virtual Private Cloud (VPC). The configuration includes subnets, internet gateway, route tables, and security groups.

### Terraform Commands

terraform init  
terraform plan  
terraform apply -auto-approve

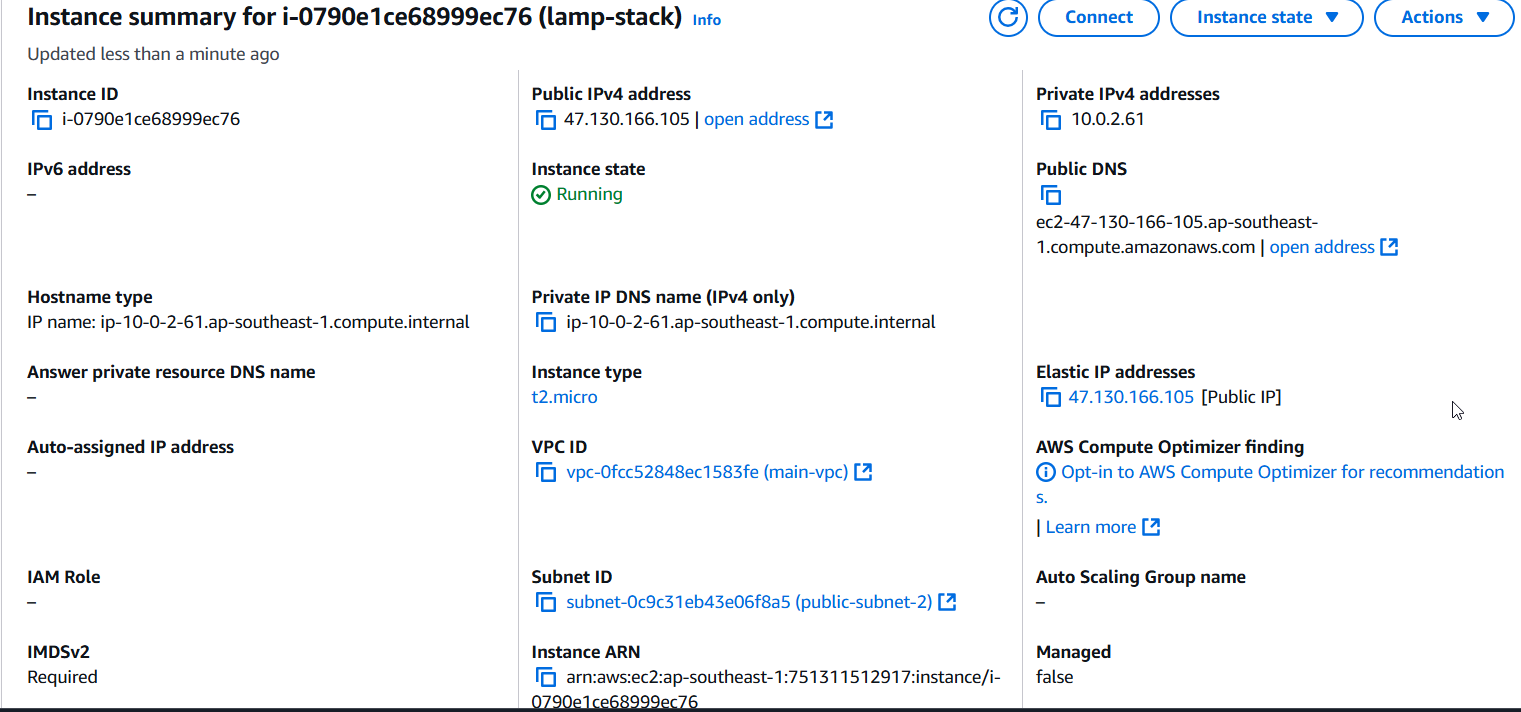
**Output:**

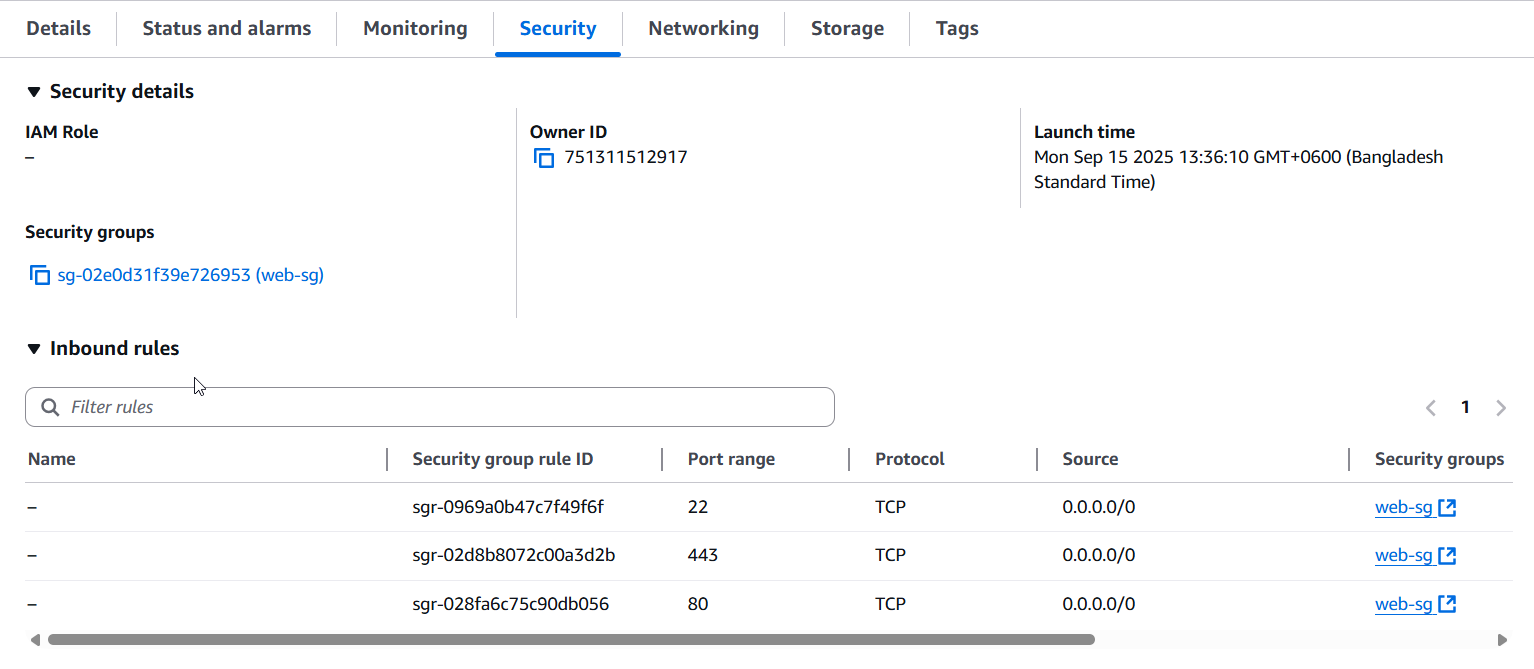


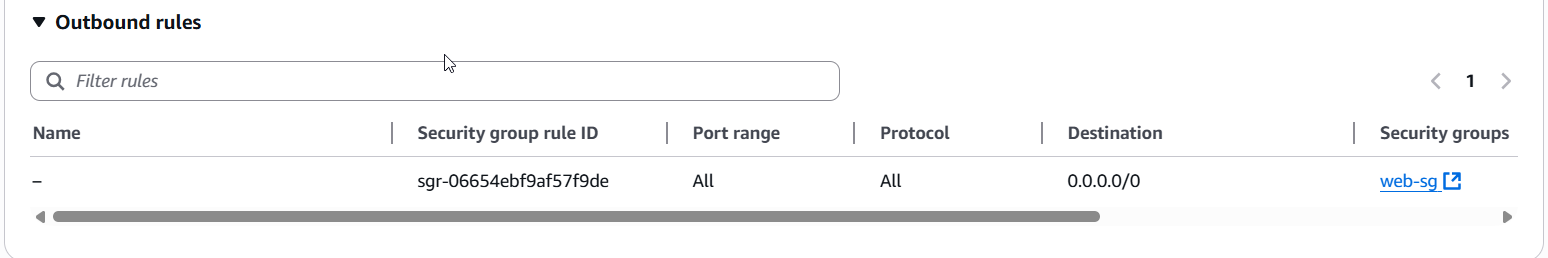


## 2. Create EC2 Instance (lamp-stack)

An EC2 instance named 'lamp-stack' was created within the VPC. The instance runs Ubuntu 24.04 and is configured for web hosting.







## 3. Setup Process on EC2

SSH into the EC2 instance:  
 ssh -i your-key.pem ubuntu@<PUBLIC\_IP>

### Update System and Install Apache

sudo apt update -y && sudo apt upgrade -y  
sudo apt install apache2 -y  
sudo systemctl enable apache2  
sudo systemctl start apache2

### Install MySQL

sudo apt install mysql-server -y  
sudo mysql\_secure\_installation

### Create Database and User

sudo mysql -u root -p  
CREATE DATABASE lampdb;  
CREATE USER 'lampuser'@'localhost' IDENTIFIED BY 'StrongPass!123';  
GRANT ALL PRIVILEGES ON lampdb.\* TO 'lampuser'@'localhost';  
FLUSH PRIVILEGES;  
EXIT;

### Install PHP

sudo apt install php libapache2-mod-php php-mysql -y  
sudo systemctl restart apache2

### Test PHP

echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php

### Database Connection Test

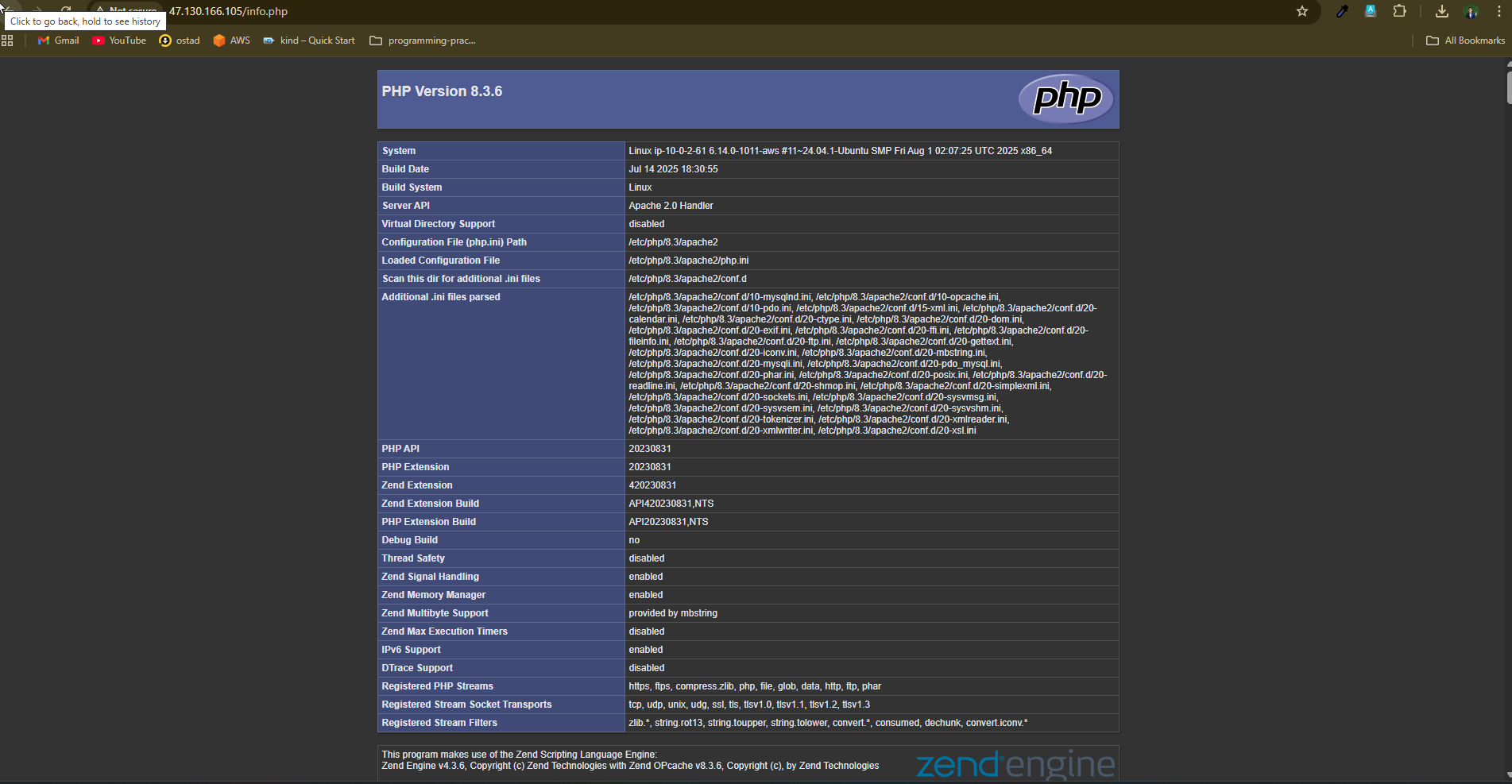
sudo tee /var/www/html/dbtest.php > /dev/null <<'PHP'  
<?php  
$host = '127.0.0.1';  
$db = 'lampdb';  
$user = 'lampuser';  
$pass = 'StrongPass!123';  
$mysqli = new mysqli($host, $user, $pass, $db);  
  
if ($mysqli->connect\_errno) {  
 echo " DB Connection failed: " . $mysqli->connect\_error;  
} else {  
 echo " DB Connection successful!";  
}  
?>  
PHP

## 4. System Architecture

The architecture includes the following components:  
- A secure VPC with public and private subnets.  
- An Internet Gateway for external access.  
- Security Groups allowing HTTP (80), HTTPS (443), and SSH (22).  
- An EC2 instance running the LAMP stack.  
- Apache serving PHP applications and connecting to MySQL database.

**5. Output:**

http://47.130.166.105/info.php



http://47.130.166.105/dbtest.php

