

Hexarootsystems – AWS DMZ Architecture Project

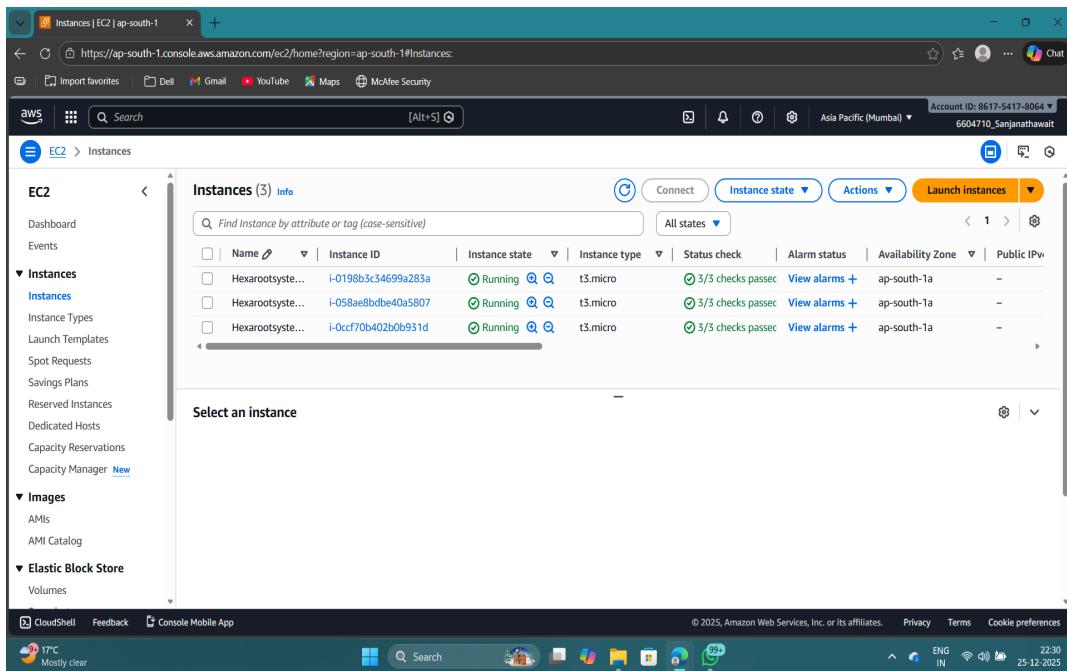
Abstract

This project demonstrates the design and implementation of a secure AWS-based DMZ architecture using EC2, VPC, subnets, route tables, and security groups. The aim is to expose a public-facing web server while isolating internal resources.

Architecture Diagram Explanation

The architecture consists of a VPC divided into a DMZ subnet and an Internal subnet. The DMZ hosts a public EC2 web server connected via an Internet Gateway, while internal servers remain isolated for security.

EC2 Instances Running in AWS Console



The screenshot shows the AWS EC2 Instances page with three running t3.micro instances listed:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
Hexarootsystems...	i-0198b3c34699a283a	Running	t3.micro	3/3 checks passed	View alarms +	ap-south-1a	-
Hexarootsystems...	i-058ae8bdbe40a5807	Running	t3.micro	3/3 checks passed	View alarms +	ap-south-1a	-
Hexarootsystems...	i-0cf70b402b0931d	Running	t3.micro	3/3 checks passed	View alarms +	ap-south-1a	-

VPC Configuration – Hexarootsystems-VPC

Your VPCs

Name	VPC ID	State	Encryption c...	Encryption control ...	Block Public...	IPv4
vpc-0473d4b60b986945d	vpc-0473d4b60b986945d	Available	-	-	Off	172.
Hexrootsystems-VPC	vpc-0e50cdb57c4610516	Available	-	-	Off	10.0

Select a VPC above

Subnet Configuration (DMZ and Internal Subnets)

Subnets (5) Info

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
DMZ-Subnet	subnet-092ef1cef3169523b	Available	vpc-0e50cdb57c4610516 Hex...	Off	10.0.2.0/24
-	subnet-08629026b5706f8d7	Available	vpc-0473d4b60b986945d	Off	172.31.0.0/20
-	subnet-049463e447f424149	Available	vpc-0473d4b60b986945d	Off	172.31.16.0/20
Internal-Subnet	subnet-07859a0eb27cd585b	Available	vpc-0e50cdb57c4610516 Hex...	Off	10.0.1.0/24
-	subnet-06162407429e2104d	Available	vpc-0473d4b60b986945d	Off	172.31.32.0/20

Select a subnet

Route Table Configuration

Route tables (4) Info

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
-	rtb-01944e6cfad0bb973	-	-	Yes	vpc-0473d4b60b986945d
Hexarootsystems-Public-RT	rtb-084c1552b2bb35442	subnet-092ef1cef316932...	-	No	vpc-0e50cdb57c4610516 Hex
Hexarootsystems-Private-RT	rtb-0380b88cccd5b56d	subnet-07859a0eb27cd5...	-	No	vpc-0e50cdb57c4610516 Hex
-	rtb-0dafa747c053bab03	-	-	Yes	vpc-0e50cdb57c4610516 Hex

Apache Web Server Output (Public Access)

Apache2 Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should [replace this file](#) (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the [manual](#) if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|-- ports.conf
|-- mods-enabled
|   |-- *.load
|   |-- *.conf
|-- conf-enabled
|   |-- *.conf
|-- sites-enabled
|   |-- *.conf
```

Conclusion

The AWS DMZ architecture successfully isolates public and private resources, demonstrating secure enterprise cloud deployment. This project enhances understanding of AWS networking and security best practices.