Placement Empowerment Program

Cloud Computing and DevOps Centre

Implement DNS for Your Application: Set up a DNS record to map your web application's IP or load balancer to a domain name.

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Introduction

In cloud computing, proper Domain Name System (DNS) configuration is crucial for making applications accessible over the internet. AWS Route 53, a highly available and scalable DNS service, allows users to manage domain names and point them to AWS resources, such as EC2 instances. This Proof of Concept (PoC) demonstrates how to create and configure a DNS record in AWS Route 53, linking it to a web server hosted on an EC2 instance. This setup enables users to access the web application via a custom domain name.

Overview

This PoC involves the following steps:

1. **Launch an EC2 Instance:** Deploy an EC2 instance to host the web application.
2. **Set Up a Web Server:** Install Apache or Nginx on the EC2 instance to serve the application.
3. **Create a Hosted Zone:** Use AWS Route 53 to create a hosted zone for a custom domain (e.g., myapp.local).
4. **Configure DNS Records:** Create an A record in Route 53 to map the domain to the EC2 instance's public IP.
5. **Modify Hosts File:** Update the local machine's hosts file to test the custom domain before public access.
6. **Test the Configuration:** Verify the setup by accessing the application via the custom domain name.

Objectives

The key objectives of this PoC are to:

1. **Understand Route 53 Configuration:** Learn how to manage domain names and map them to cloud resources.
2. **Deploy and Configure EC2:** Gain hands-on experience with EC2 instance setup and web server configuration.
3. **Enable Custom Domain Access:** Configure a domain to point to the EC2 instance for user-friendly access.
4. **Test and Troubleshoot:** Ensure the domain resolves correctly and troubleshoot any issues.

Importance

- **Enhanced Web Access:** Provides a user-friendly way to access applications via a custom domain.
- **Scalable DNS Management:** AWS Route 53 offers reliable, scalable DNS solutions.
- **Cloud Skill Development:** Builds practical experience with AWS services for cloud architects and developers.

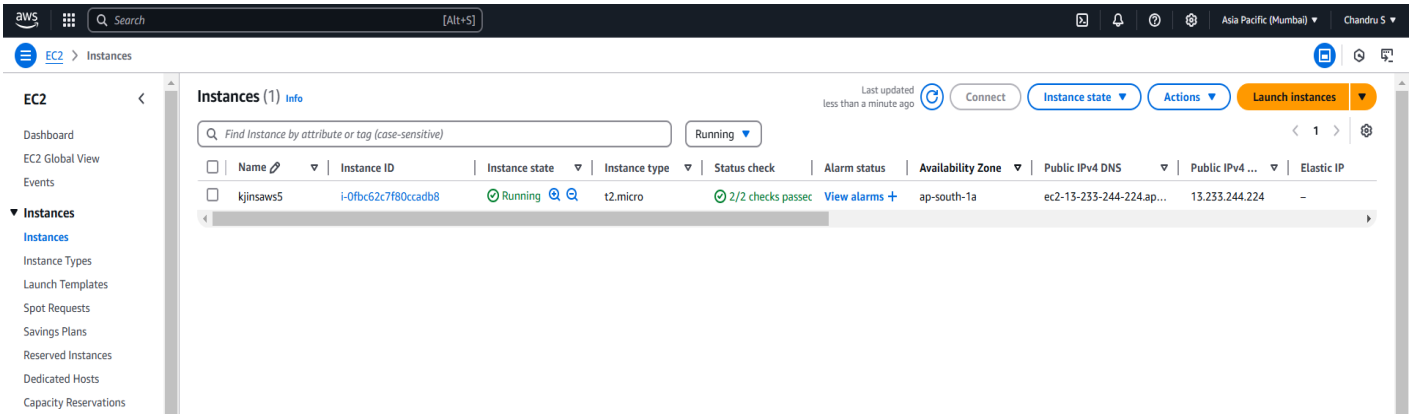
- **Cost-Effective Testing:** Leverages the AWS Free Tier for testing without additional costs.

Step-by-Step Overview

Step 1:

Create an EC2 Instance

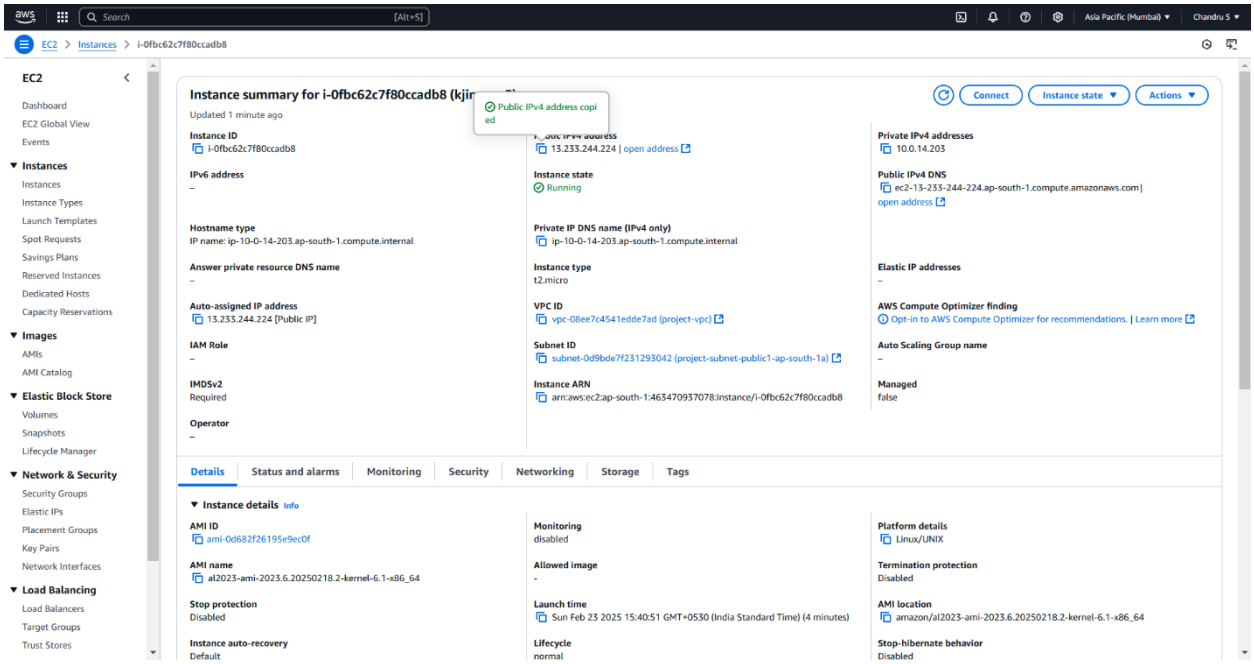
- Log in to your AWS account.
- Launch an **EC2 instance** and wait for it to start.



Step 2:

Find the Public IPv4 Address

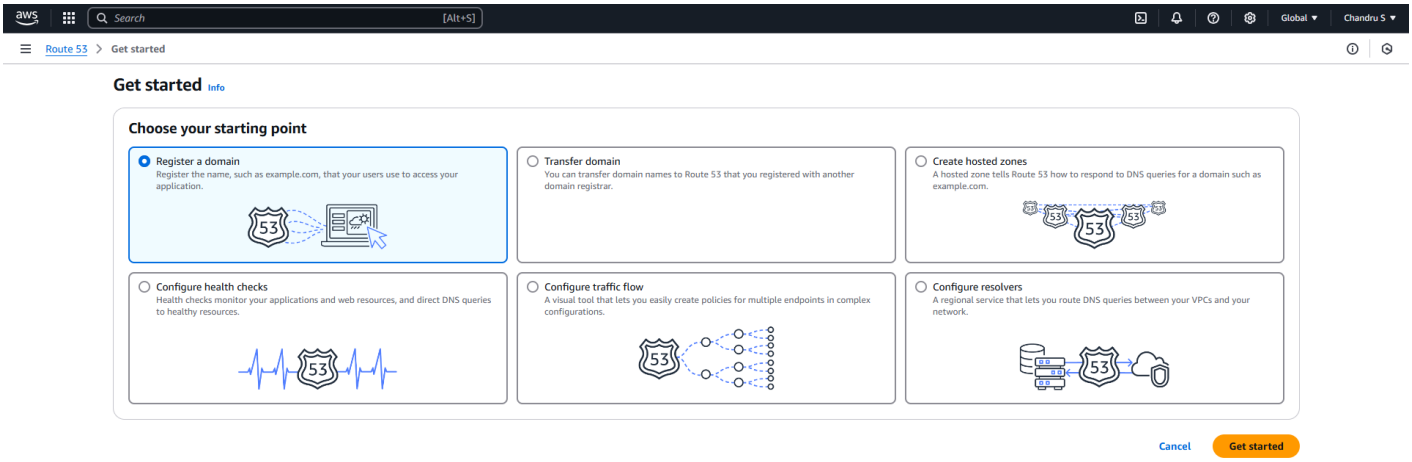
- Open the **EC2 Dashboard**.
- Locate your instance and copy its **Public IPv4 address**.



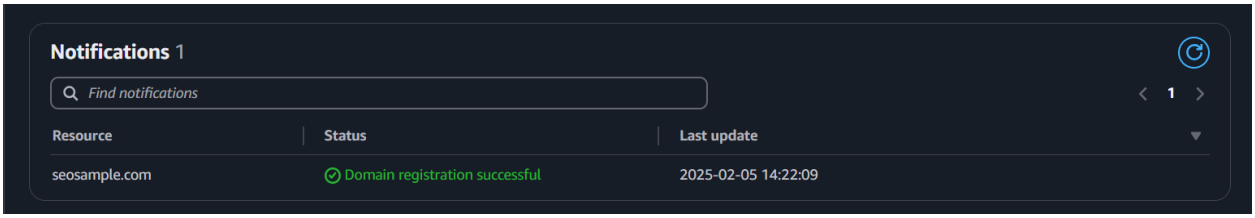
Step 3:

Register a Domain Name

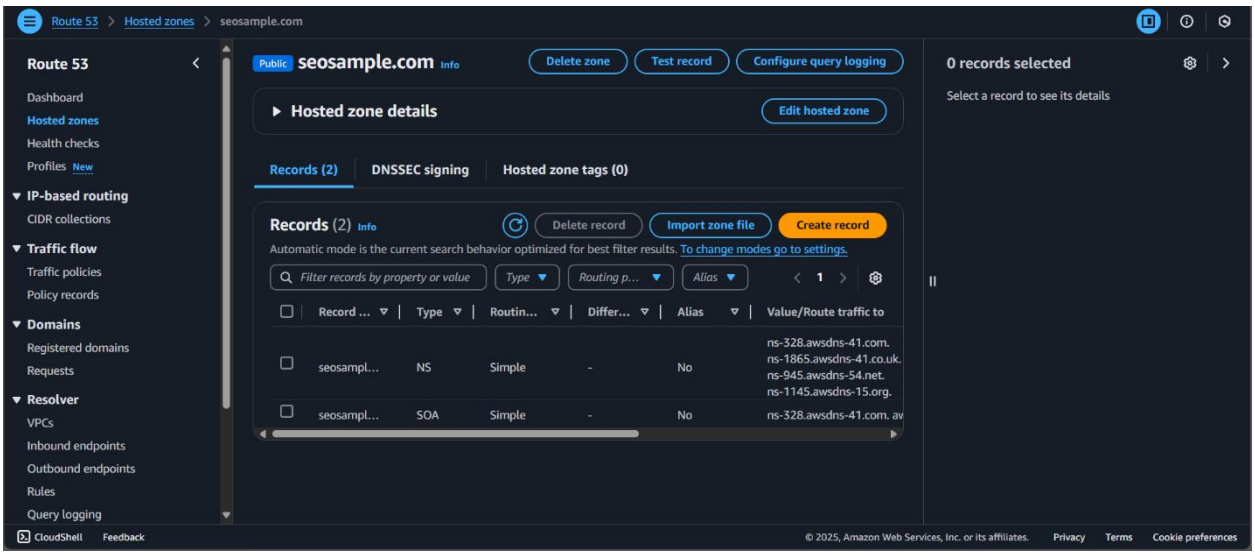
- Open the **Amazon Route 53** console.
- Click **Register Domain** and follow the steps to purchase a domain.



- Now you have successfully registered a Domain. (it might take a few minutes)



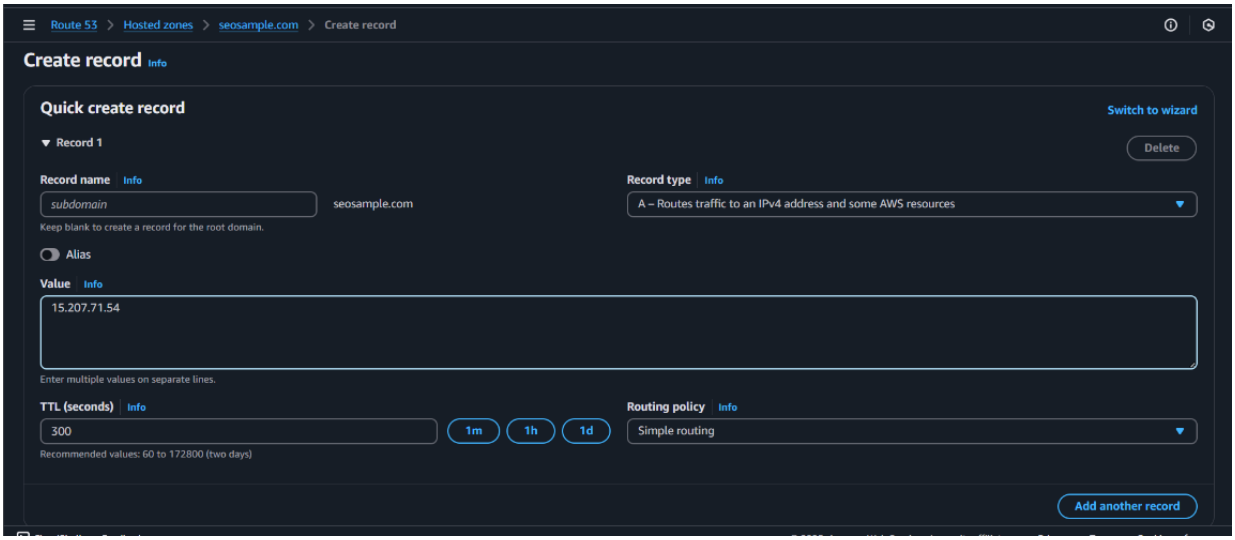
- Once registered, AWS will automatically create a **hosted zone** for the domain.

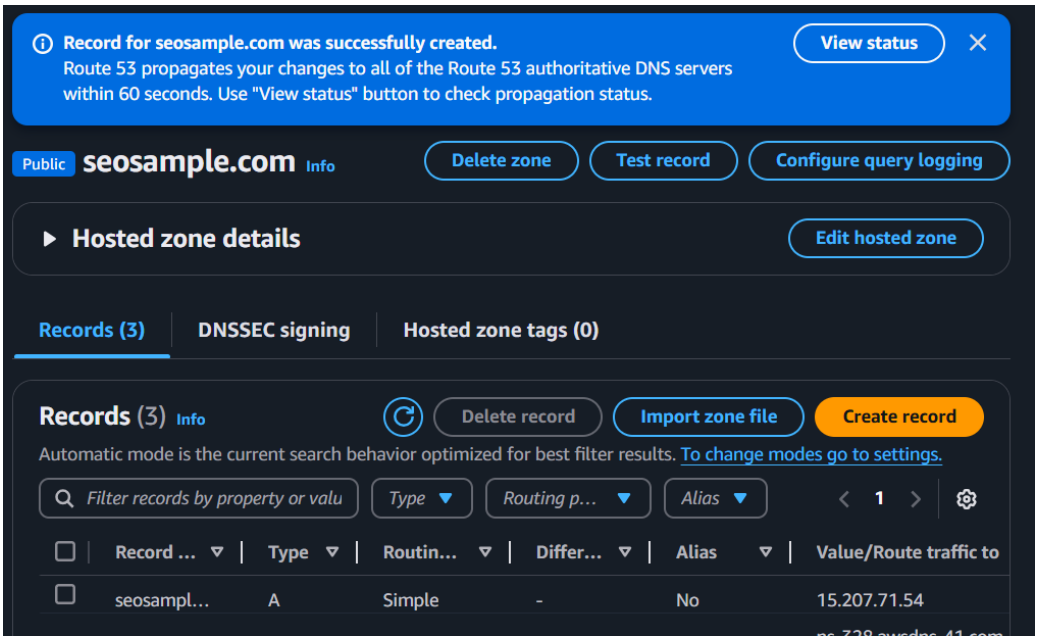


Step 4:

Configure the Hosted Zone

- In **Route 53**, navigate to **Hosted Zones**.
- Click Create Record and configure the following:
  - **Record Name:** Leave blank for the root domain (example.com) or enter www for www.example.com.
  - **Record Type:** A (IPv4 address).
  - **Value:** Paste your EC2 Public IPv4 address (e.g., 3.123.45.67).
  - **TTL:** Keep the default value (300 seconds).
- Click **Create Record** to save the configuration.

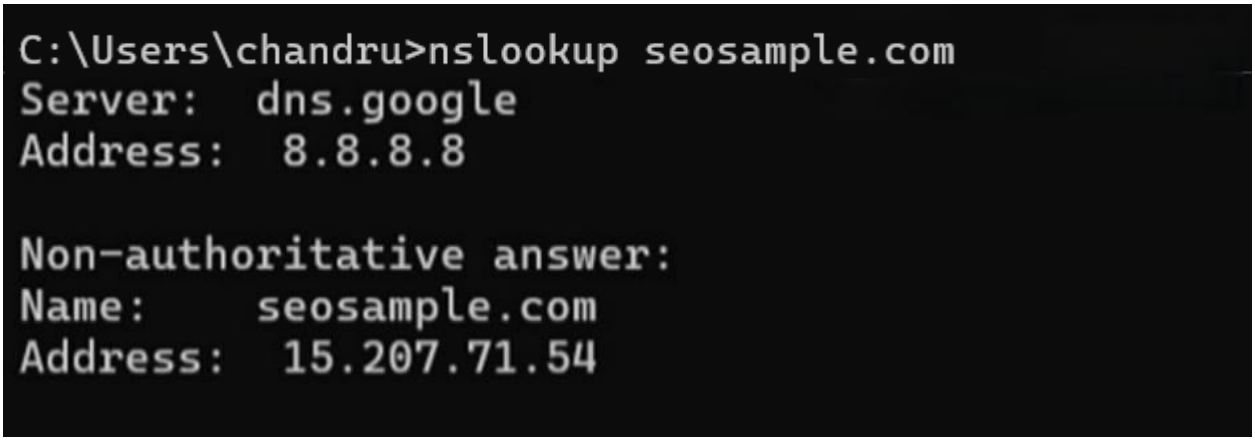




Step 5:

Verify DNS Resolution

- Wait a few minutes for DNS propagation.
- Open a terminal and run:
  nslookup <yourdomain.com>



- You should see the correct EC2 IP address as the DNS resolves.

Outcome

Upon completing this DNS configuration using AWS Route 53 and EC2, you will achieve the following:

- Custom domain access for your web application.
- Enhanced user experience and professional branding.
- Successful DNS mapping and verification.