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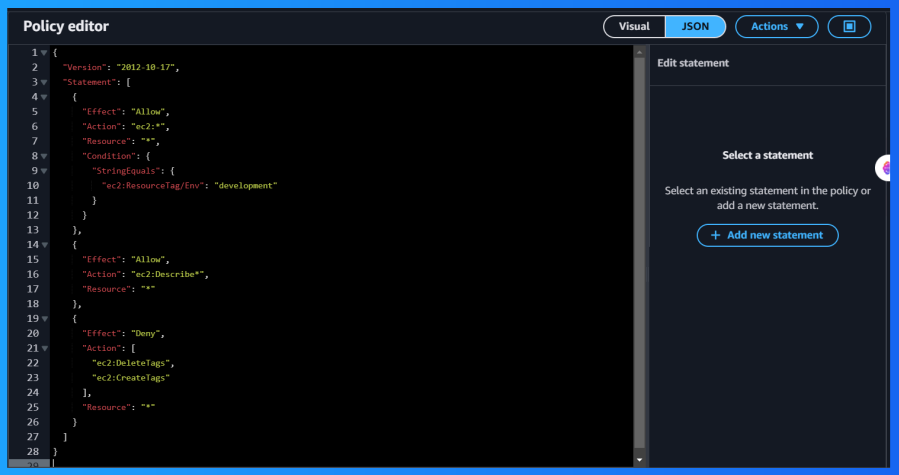
Cloud Security with AWS IAM

Honesty Dogunro



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Introducing today's project!

What is AWS IAM?

AWS IAM (Identity and Access Management) is a service that manages user access to AWS resources securely. It’s useful for providing fine-grained permission control, ensuring only authorized users can access specific services and resources.

How I'm using AWS IAM in this project

I used AWS IAM to create user roles and policies for secure access to resources in today's project. This ensured that team members had the appropriate permissions for their tasks while maintaining security and compliance across the AWS environment.

One thing I didn't expect...

One thing I didn't expect in this project was the complexity of managing permissions with AWS IAM. I used IAM to create user roles and policies, ensuring secure access to resources while navigating unexpected challenges in permission configurations.

This project took me...

This project took me approximately 2 hours to complete. i took breaks

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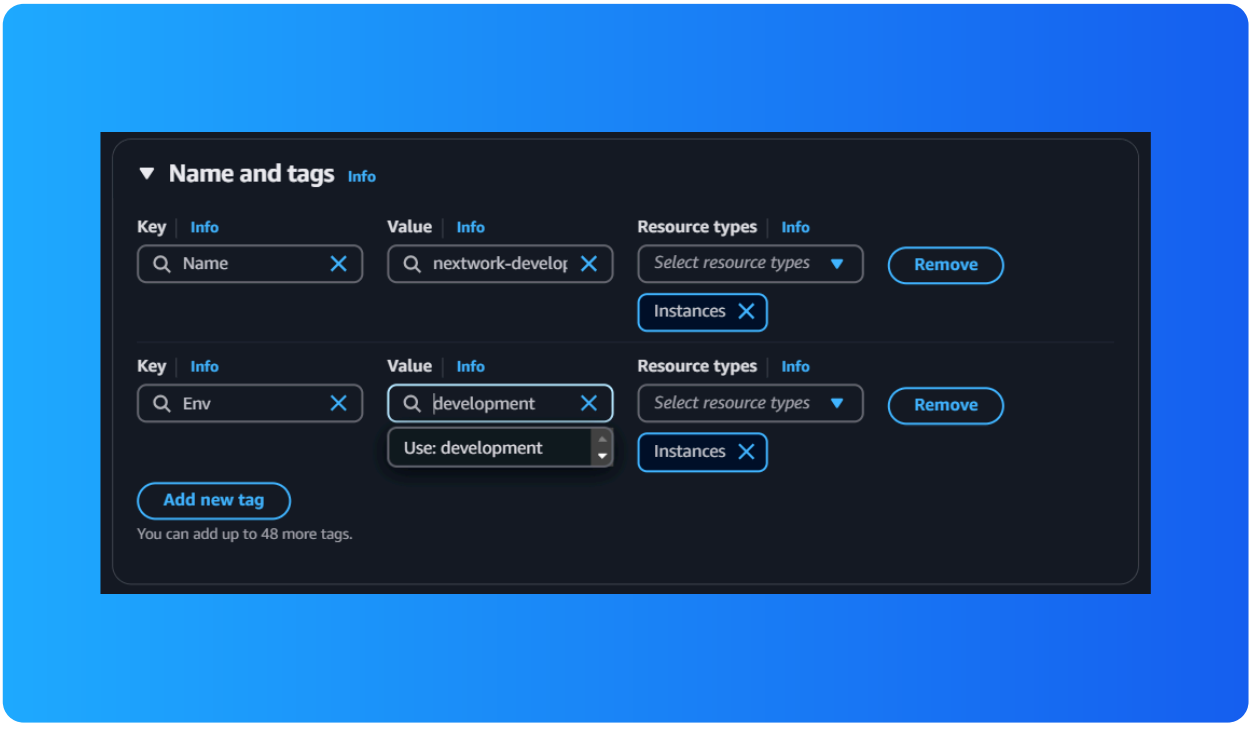
Tags

Tags are labels or keywords that categorize digital content, enhancing its organization and discoverability. They improve user experience by simplifying navigation, aid in SEO, and facilitate content filtering in social media and e-commerce platforms

'The tag I've used on my EC2 instances is called Env. The value I've assigned for my instances are development and production, these are the 2 enviroment that will be used in this project



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IAM Policies

IAM Policies are rules that define permissions for AWS resources, controlling who can access and perform actions on those resources to ensure security and compliance.

The policy I set up

For this project, I've set up a policy using JSON

I've created a policy that restricts EC2 actions based on the environment tag. It allows all actions for resources tagged as "development," permits describing resources, and denies creating or deleting tags across all resources.

When creating a JSON policy, you have to define its Effect, Action and Resource.

The Effect, Action, and Resource attributes of a JSON policy means: Effect: Determines if access is allowed or denied. Action: Specifies what operations are permitted. Resource: Defines which resources the policy applies to.

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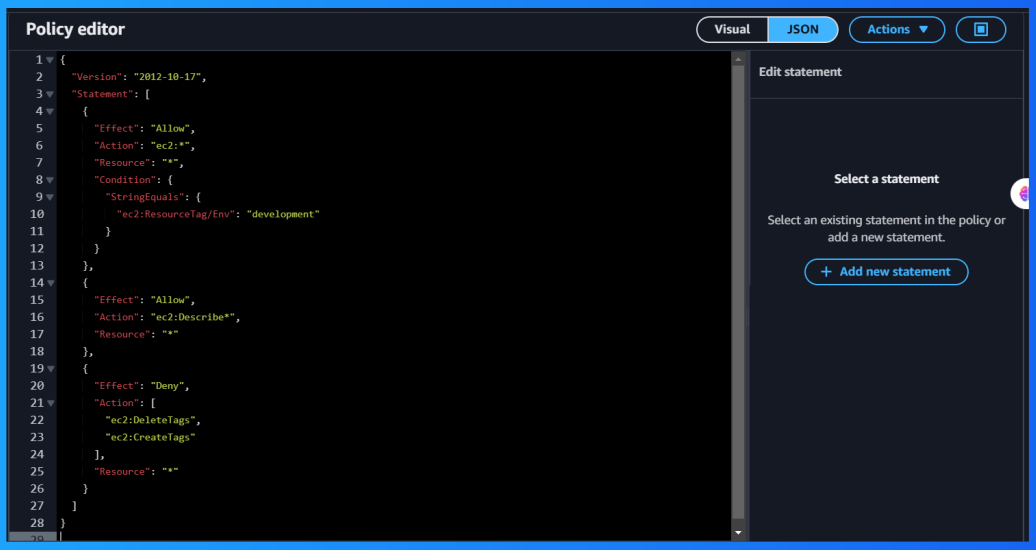
My JSON Policy



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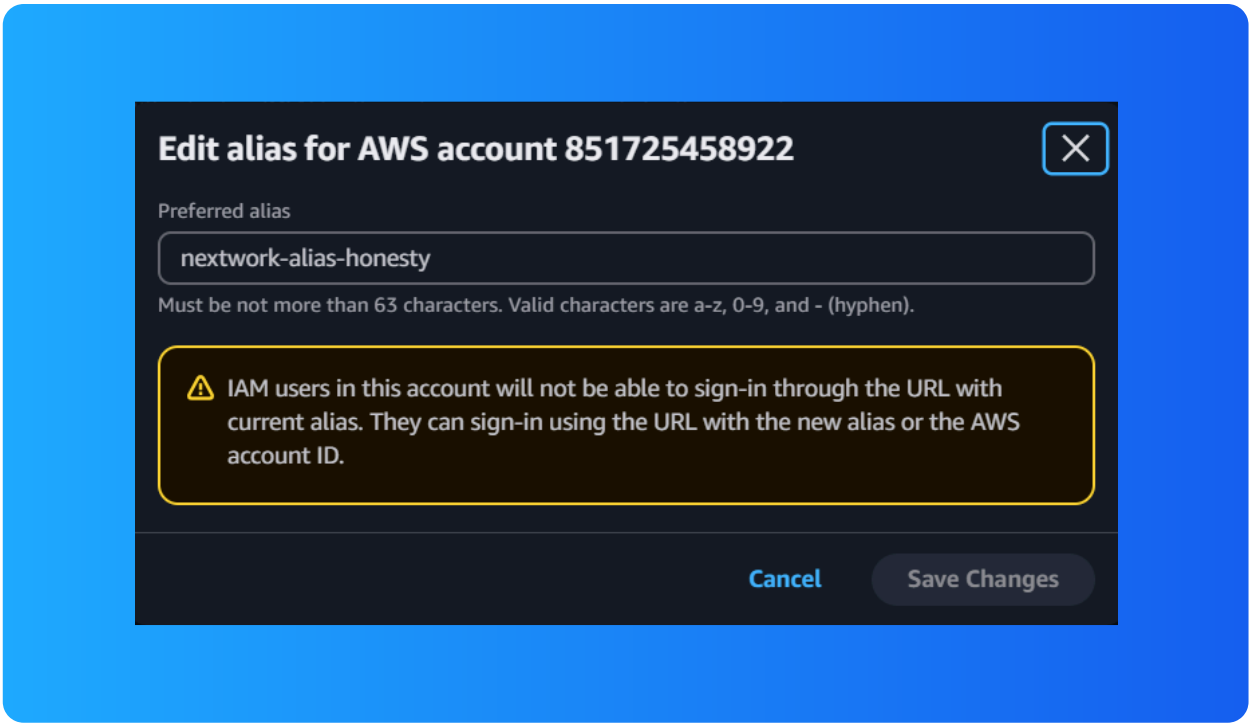
Account Alias

An account alias is a secondary identifier that allows users to send and receive messages without revealing their primary email, enhancing privacy and managing communications.

Creating an account alias took me less than a minute Now, my new AWS console sign-in URL is https://nextwork-alias-honesty.signin.aws.amazon.com/console



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IAM Users and User Groups

Users

IAM users are individual identities in AWS IAM that allow secure access to AWS services, with specific permissions tailored for tasks and resources.

User Groups

IAM user groups are collections of IAM users in AWS that simplify permissions management. By assigning policies to a group, all members inherit those permissions, making it easier to manage access for multiple users based on their roles.

I attached the policy I created to this user group, which means all group members will inherit the defined permissions, simplifying access management.

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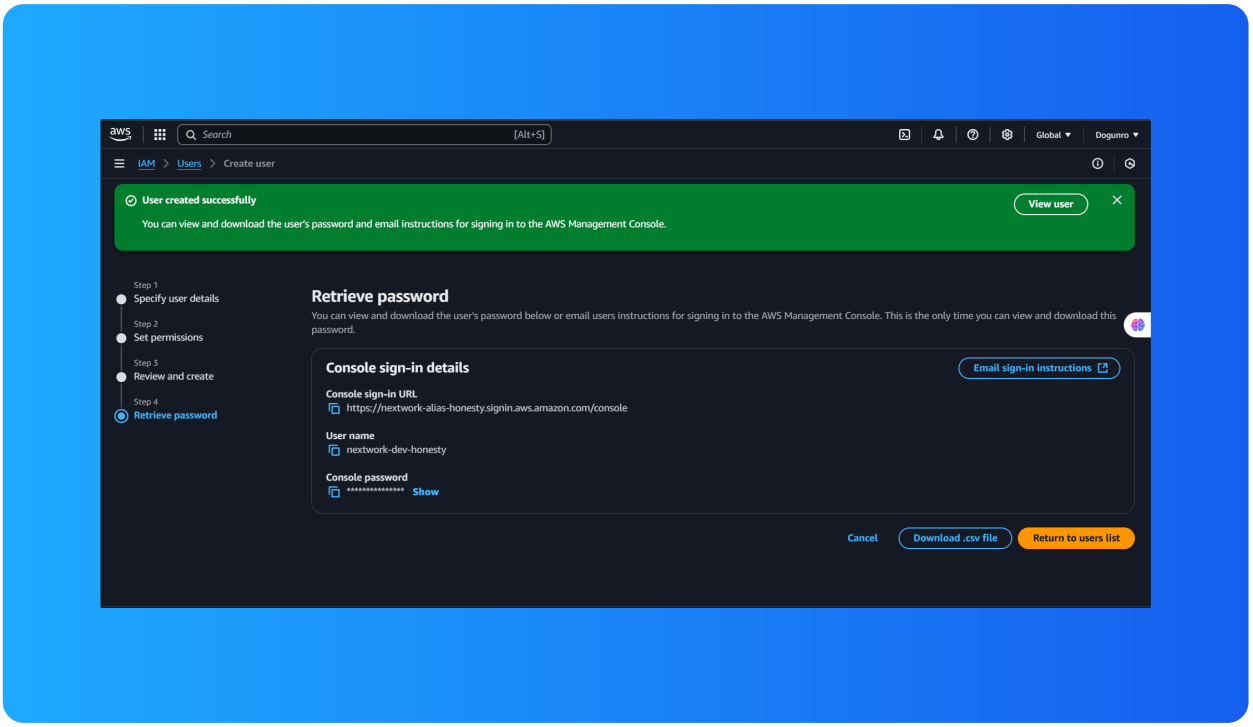
Logging in as an IAM User

The first way is to send the user an email with their sign-in URL, username, and a temporary password. The second way is to provide them the details verbally or through a secure messaging method, ensuring they change their password upon first sign-in

I HAVE LIMITED ACCESS



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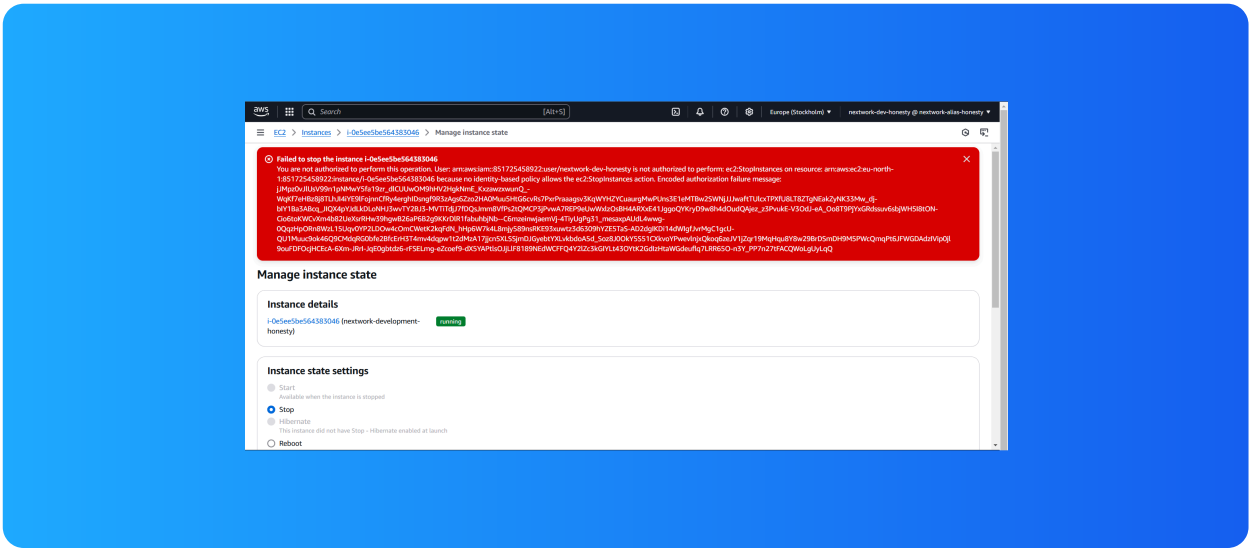
Testing IAM Policies

I tested my JSON IAM policy by attaching it to two EC2 instances. I performed actions like launching and stopping the instances to verify that the policy properly granted or restricted access to the specified AWS resources.

Stopping the production instance

When I tried to stop the production instance, I received an authorization error. This was because my IAM user did not have the necessary permissions to perform the `ec2:StopInstances` action on that resource.



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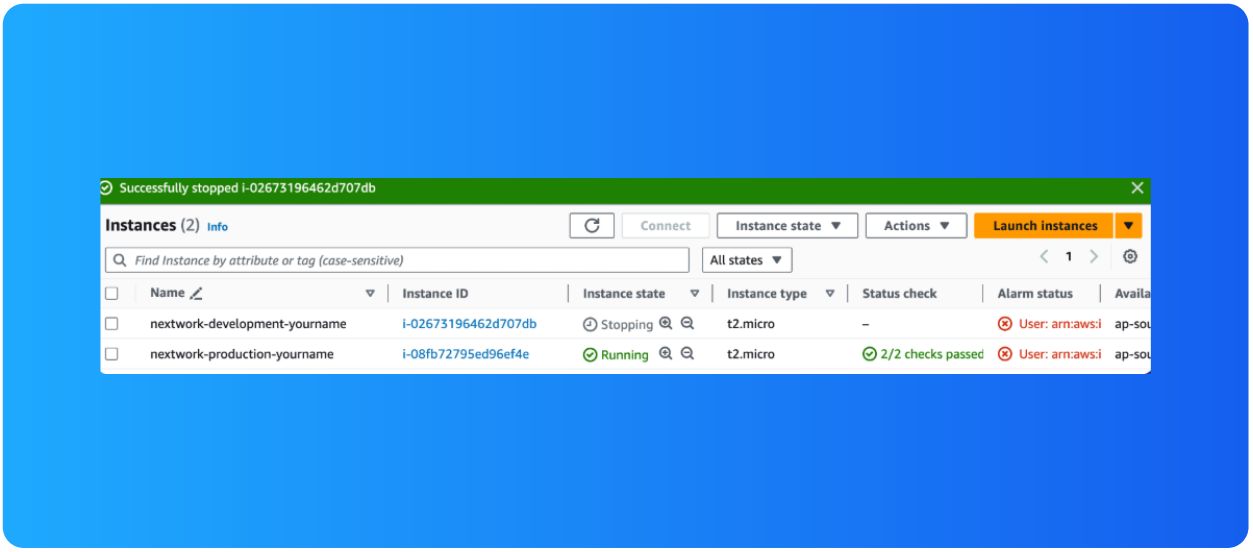
Testing IAM Policies

Stopping the development instance

Next, when I tried to stop the development instance it stopped This was because'.of the policy that was created..



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