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Cloud Security with AWS IAM

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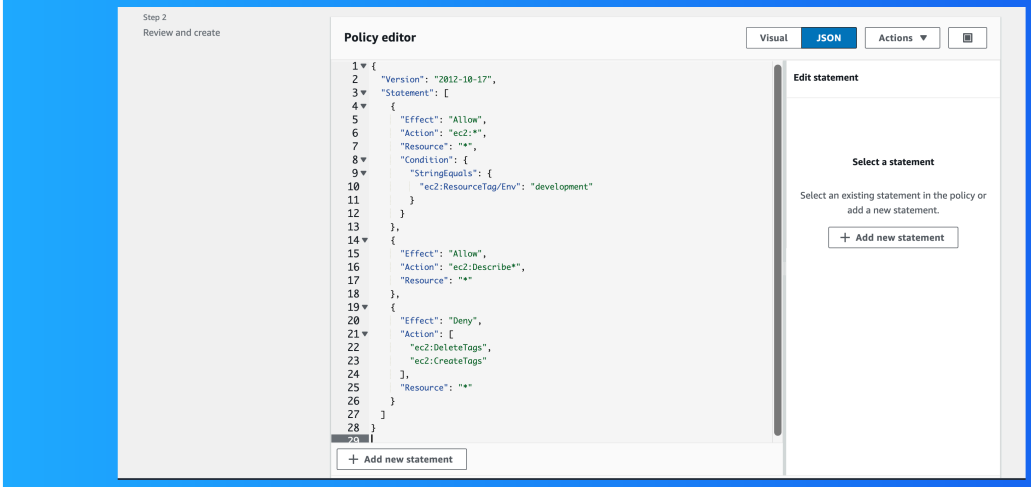

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Introducing today's project!

What is AWS IAM?

AWS Identity and Access Management (IAM) is a service that enables you to securely manage access to AWS services and resources. It allows you to create and control user accounts, assign permissions, and enforce security policies.

How I'm using AWS IAM in this project

Creating Users and Groups: I set up IAM users and grouped them based on their roles. Assigning Policies: I attached specific policies to users and groups, granting them the necessary permissions to access and manage AWS resources like EC2 instances.

One thing I didn't expect...

I didn't expect this project to provide robust security steps without being technically difficult. In light of completing this project, It was straightforward and didn't not come at the cost of sacrificing security

This project took me...

2 hours

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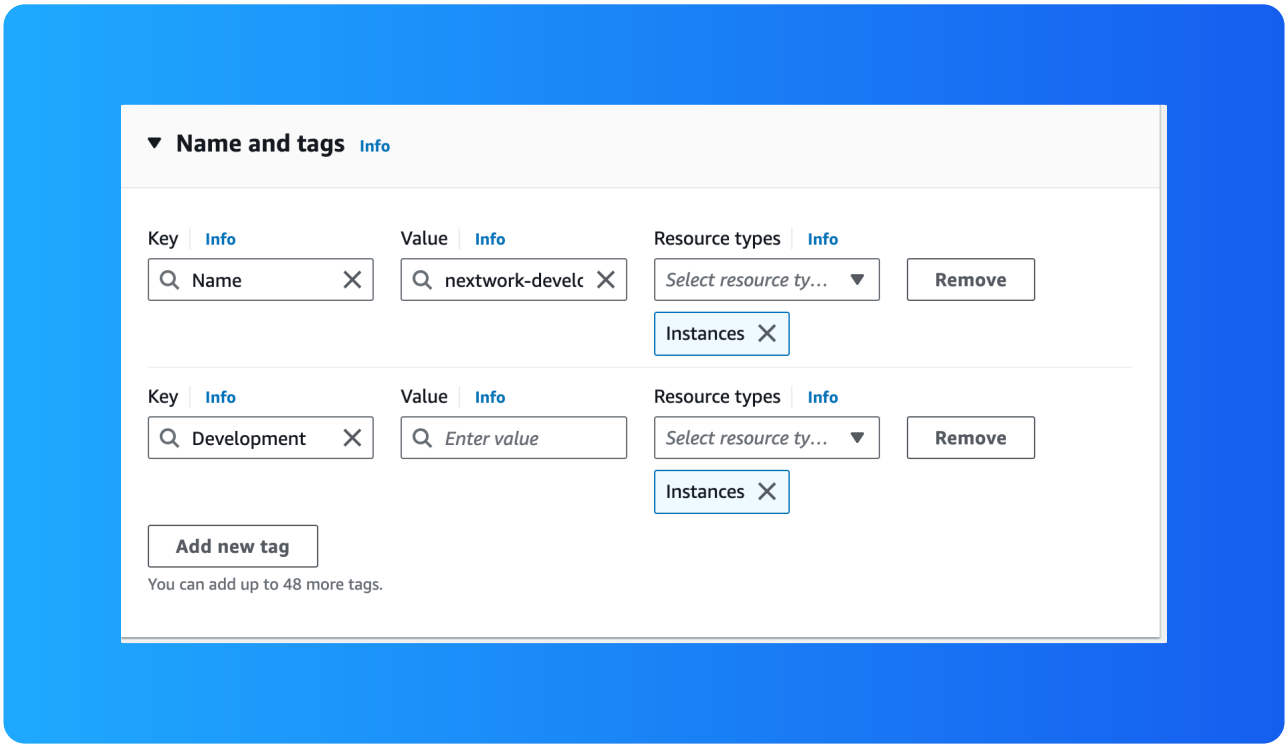
Tags

Tags are like unique label identifiers attach to AWS resources for organisation. This tagging helps us with identifying all resources with the same tag at once

The tag I've used on my EC2 instances are called nextwork-development-Otite and nextwork-production-Otite. The value I've assigned for my instances are' called 'Env production' and 'Env Environment



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IAM Policies

IAM Policies enable robust control for whps has permitted access to use specific AWS resources. It's all about giving permissions to IAM users, groups, or roles, saying what they can or can't do on certain resources

The policy I set up

For this project, I've set up a policy using JSON as it can be easily configured with an existing template provided in the JSON Policy Editor.

I've created a policy that allows some actions (like starting, stopping, and describing EC2 instances) for instances tagged with "Env = development" while denying the ability to create or delete tags for all instances.

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 These attributes together control access by defining what can be done, on which resources, and whether it is allowed or denied.

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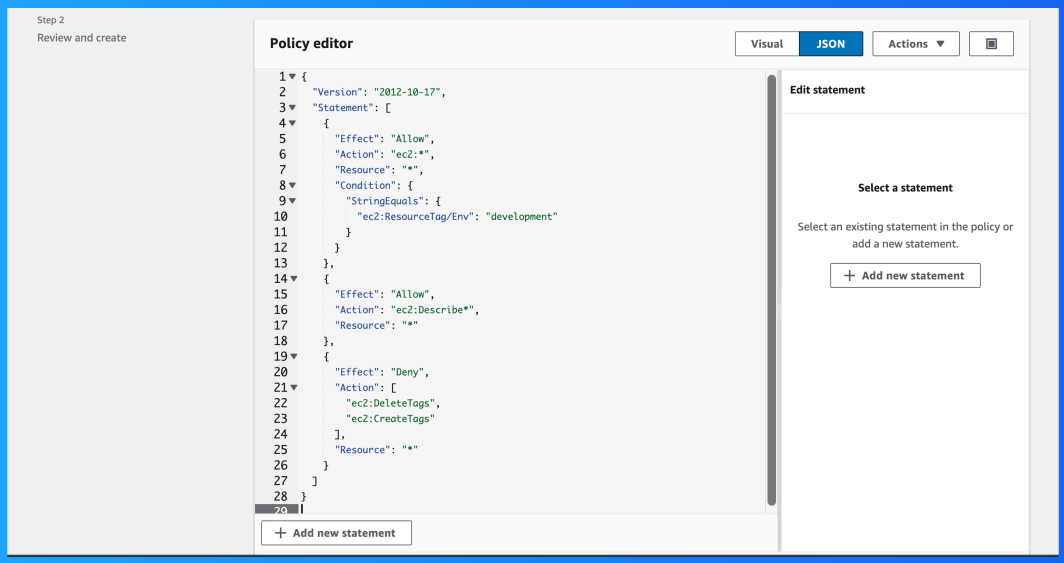
My JSON Policy



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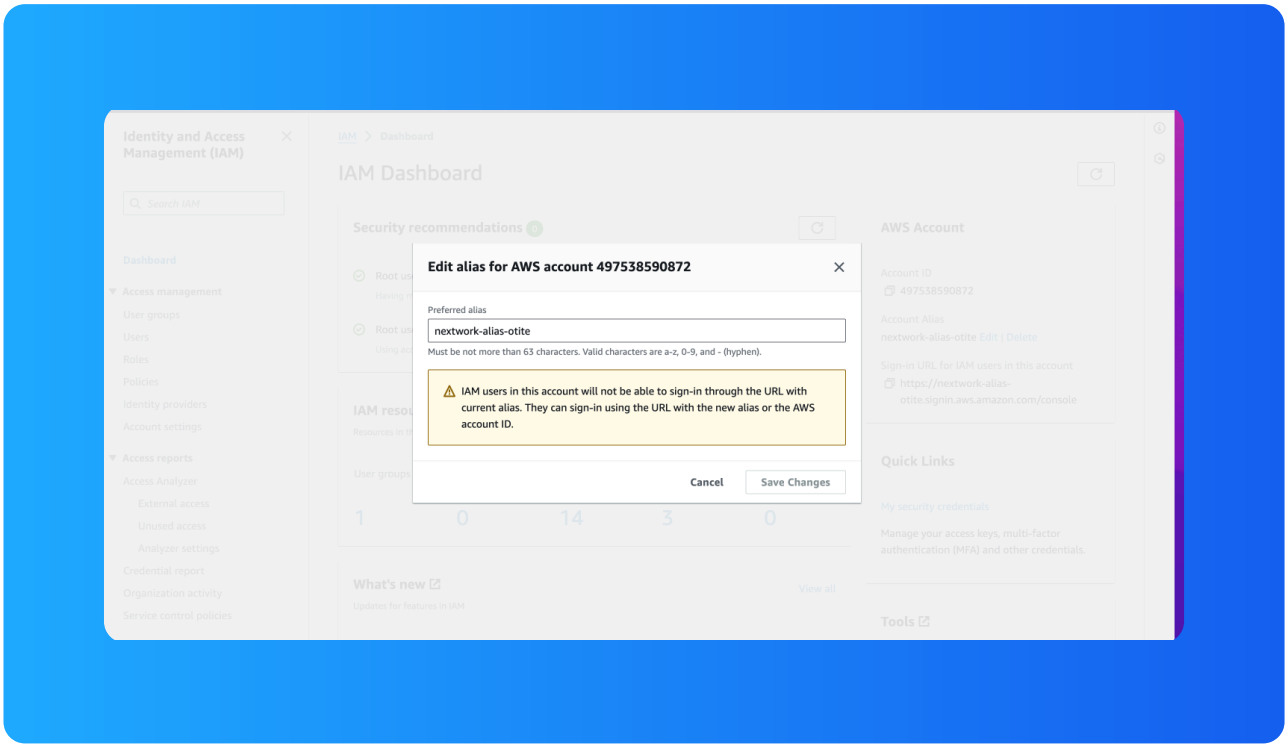
Account Alias

An account alias is a friendly name for your AWS account that you can use instead of your account ID

Creating an account alias took me 2 minutes to create

Now, my new AWS console sign-in URL is https://nextwork-alias-otite.signin.aws.amazon.com/console



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IAM Users and User Groups

Users

IAM users are are the people that will get access to your resources/AWS account

User Groups

IAM user groups are groups are the collections/folders of users for easier user management.

I attached the policy I created to this user group, which means that every user in the group inherits the permissions specified in the policy. This allows for centralised management of permissions

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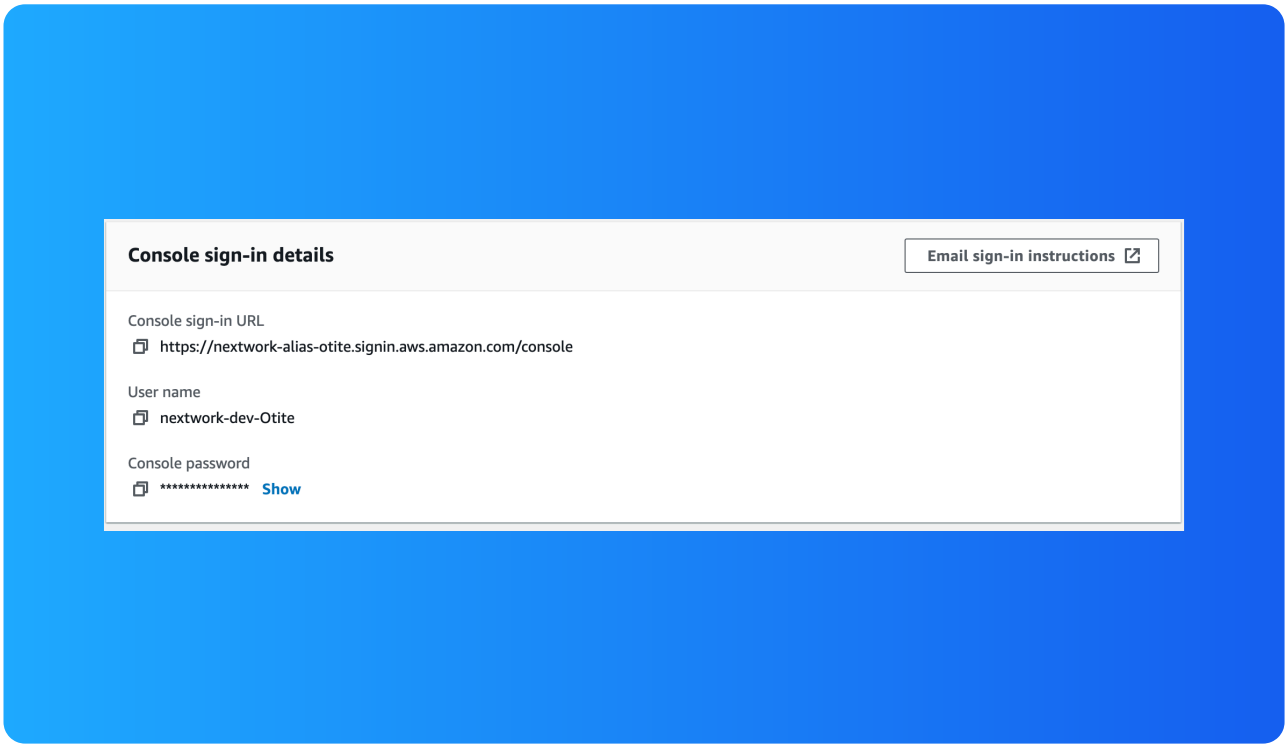
Logging in as an IAM User

The first way is download a CSV file containing the user's access key ID, secret access key, and other sign-in details. The second way is emailing the Sign-In Link AWS provides includes the account ID or alias

Once I logged in as my IAM user, I noticed that some of your dashboard panels are displaying restrictive access



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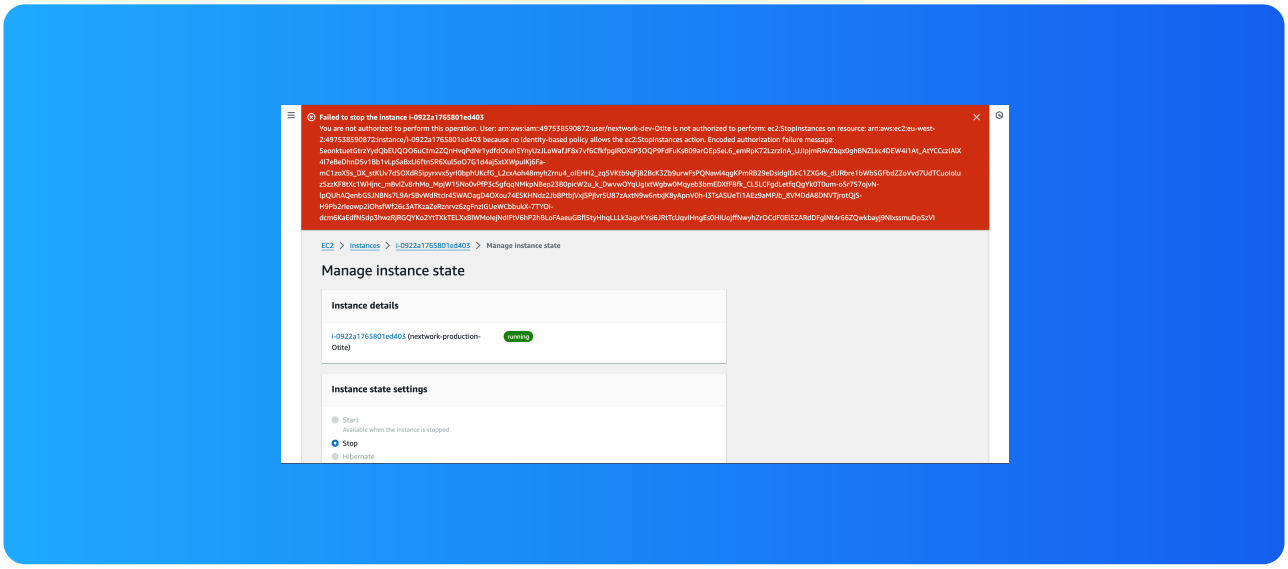
Testing IAM Policies

I tested my JSON IAM policy by trying to stop the development and production instances i.e. triggering the StopInstance action.

Stopping the production instance

When I tried to stop the production instance, an error message stopped me and explained that I am not authorised to stop the production instance.



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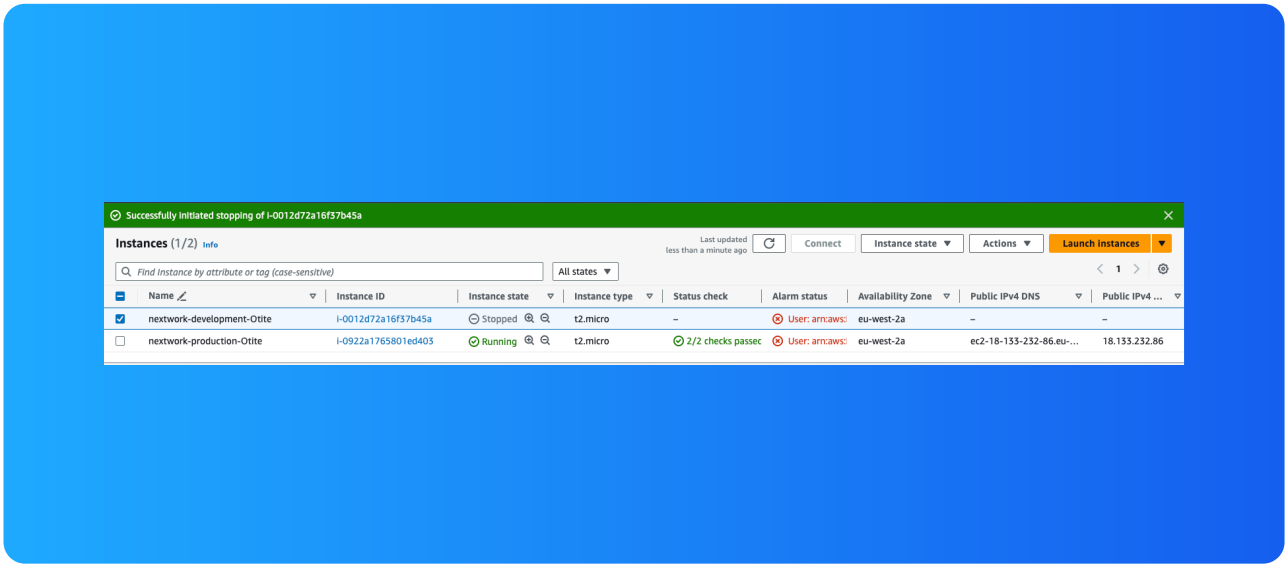
Testing IAM Policies

Stopping the development instance

Next, when I tried to stop the development instance, it successfully stopped



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