MANAGING PERMISSIONS WITH AWS IAM

Muhammad Asif Sahil

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WHAT IS AWS IAM?

What it does:

- AWS IAM (Identity and Access Management) is a service that helps you securely control access to AWS services and resources for your users.

Why it's useful:

- AWS IAM is useful because it allows you to manage permissions and access for users and resources in a secure and scalable way. This ensures that only authorized users can access specific resources, enhancing the security of your AWS environment.

How I'm using it in today's project:

- I am using it to deploy and managene to instances for the business departments namely, Production and Development.

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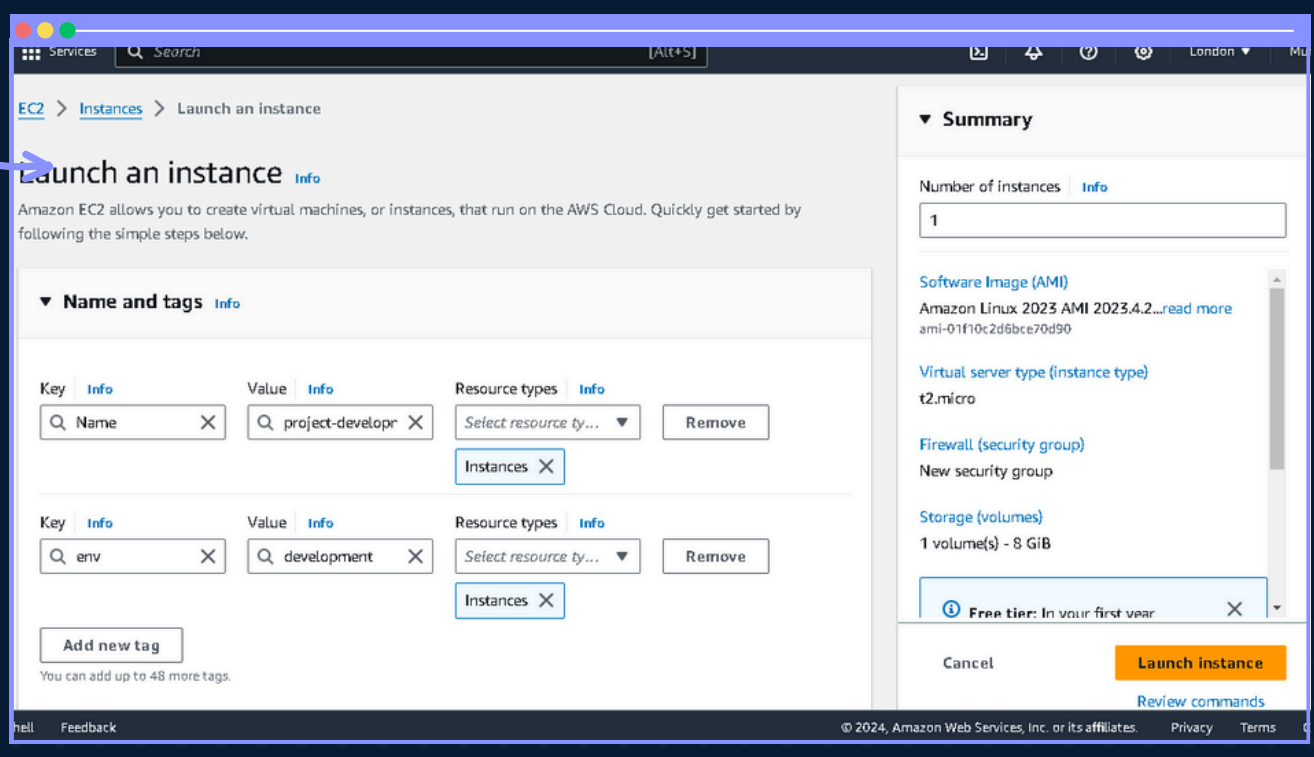
SETTING UP TAGS

- I’ve set up two EC2 instances to test the effectiveness of the permission settings I’ll set up in AWS IAM. I’ve used **tags** to label them.

- Tags are Production and Development.

- The tag I’ve used on my EC2 instances is called **name and env** The value I’ve assigned to the instances are **Production and Dvelopment**.

How the tags are set up for my EC2 instances



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IAM POLICIES

- **IAM Policies** are JSON documents that define permissions to control access to AWS resources.

- For this project, I've set up a policy using the Visual Studio Code.

- I've created a Policy that controls the behaiviour of instances, i.e, start, stop and describe

- When writing JSON Policy statements, you have to specify the:
  - Effect: To start or stop the instance.
  - Action: Defines the set of actions.
  - Resource: Defines the particular resourse.

The policy I've set up in the IAM Policies page!

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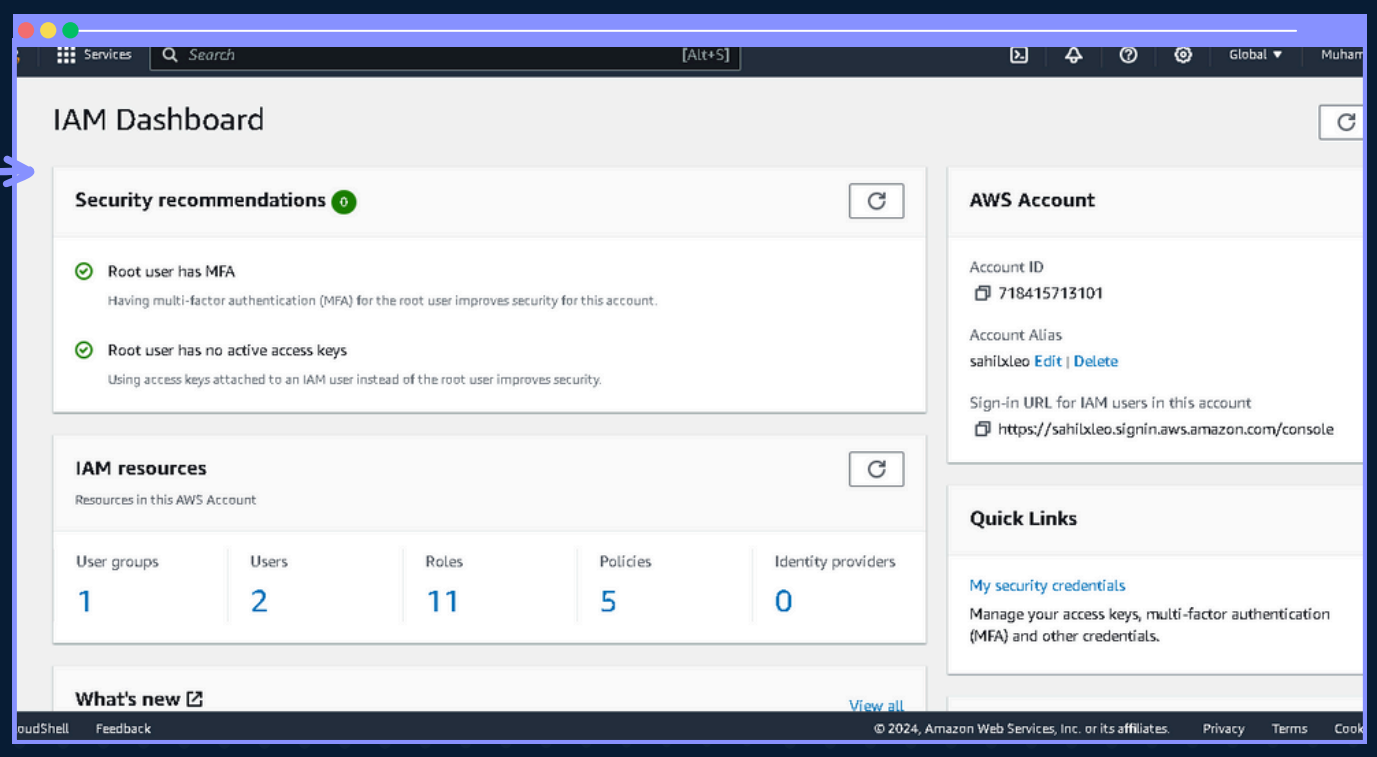
AWS ACCOUNT ALIAS

- When new users get onboarded onto my AWS account, they get access by signing into a unique URL created for my account' Account ID.

- An AWS Account Alias is a user-friendly name that you assign to your AWS account to replace the default numerical account ID.

- Creating an account alias took me less than a minute.

You get to set up your own account alias name!



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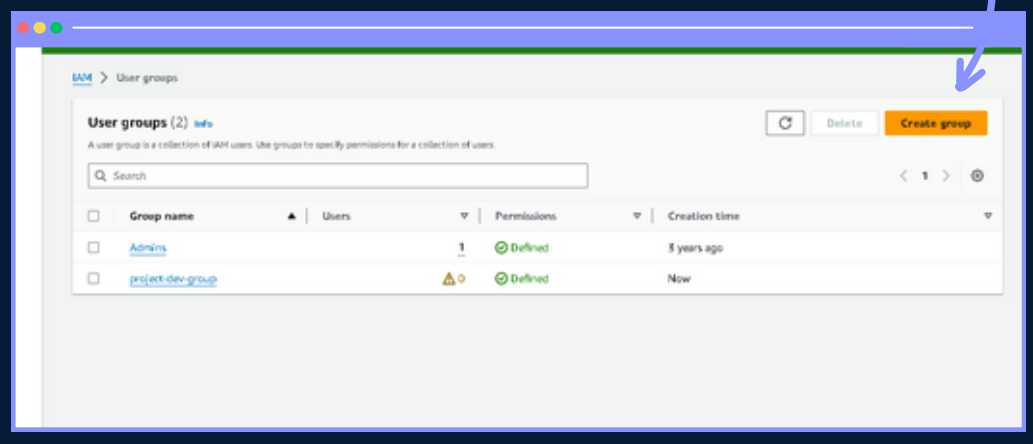
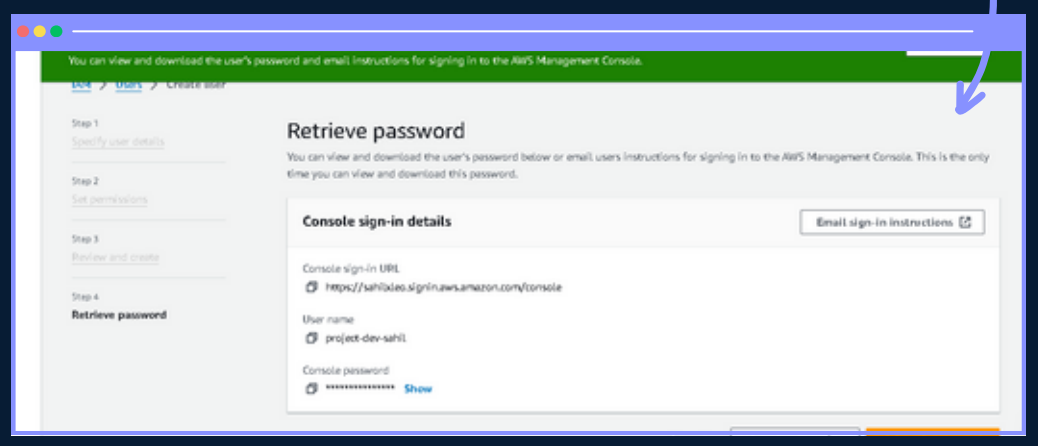
IAM USERS + USER GROUPS

- **IAM Users** are Sahil and Arshman.
- I also created a **User Group**. User Groups are useful for better policy implementation and management.
- My User Group is called Project-Dev-Sahil . I attached the Policy I created to this User Group, which means that attaching your Policy to this User Group in AWS grants all members of the group the permissions specified in the policy.
- Once my new user was set up, there were two ways I could share its sign-in details: Email and .csv file
- My new user had a unique sign-in URL. Here's my user alias at work

My User Group!



My User's sign-in details!



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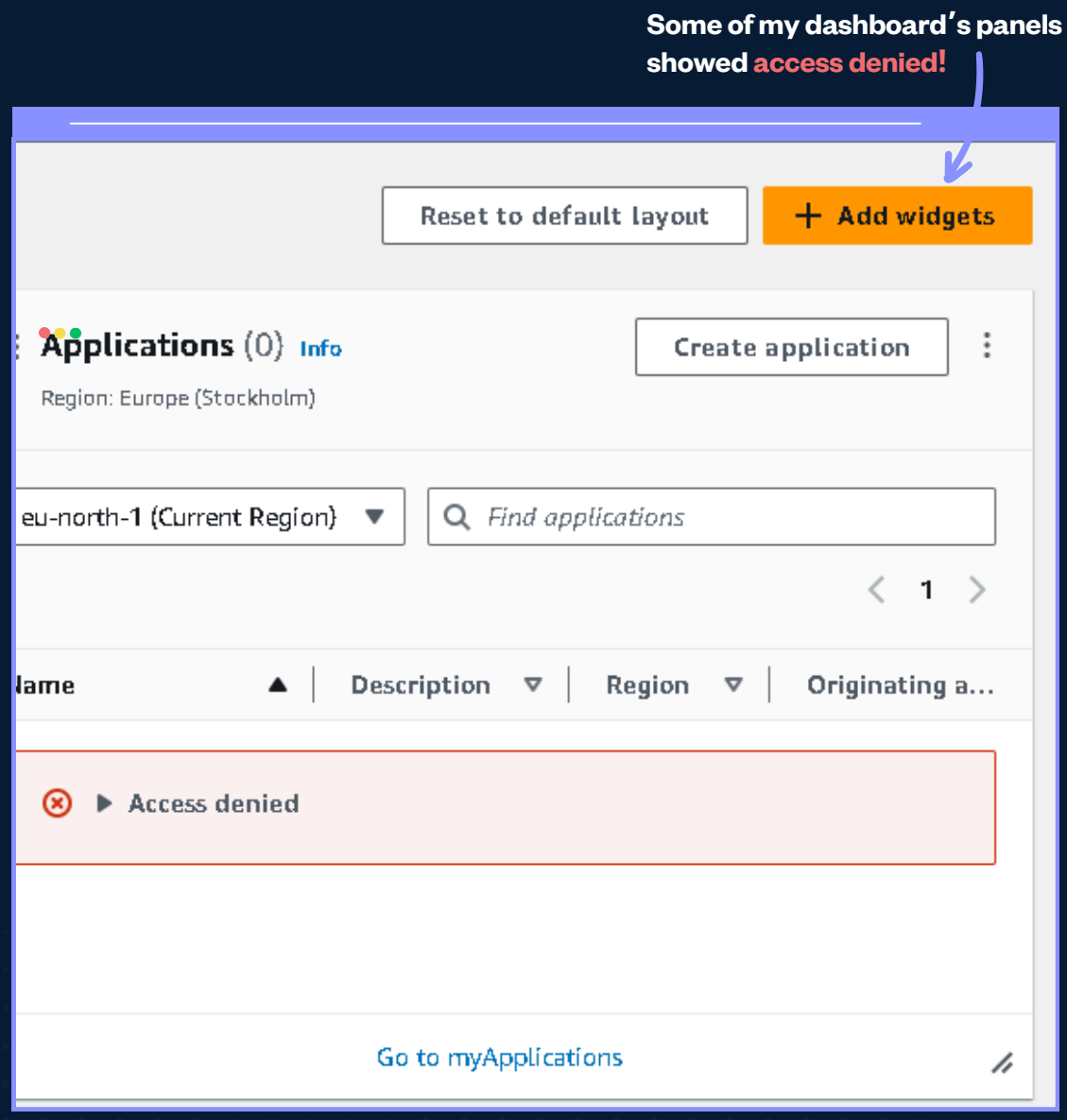
IAM USER IN ACTION

- Now with my IAM Policy, IAM User Group and IAM User all set up, let's put it all together! To do this, I logged into my AWS account as the new user.

To log in as my IAM User, I used the console login URL for the user.

- Once I logged in, I noticed that the dashboard for the newly formed user was different from the rest of the previous users. The screen was presented with the Access Denied error.



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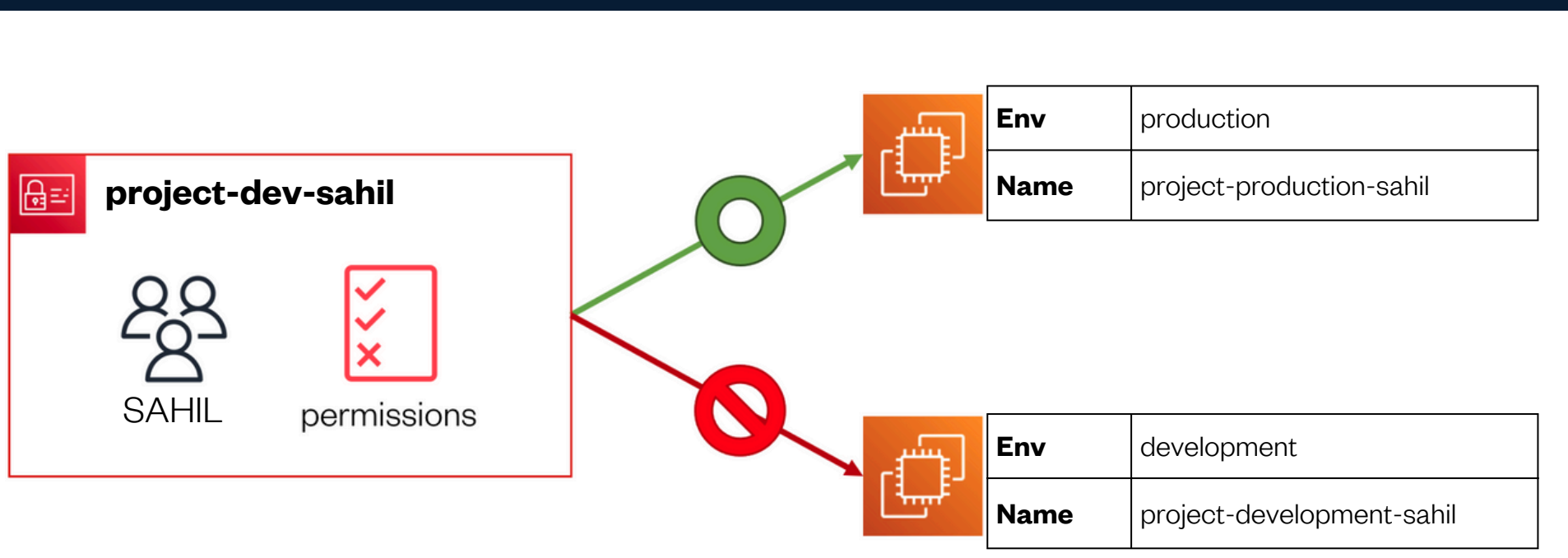
TO SUMMARISE

I created:

- An IAM User Group called **Project-Dev-Sahil** with defined permissions using an IAM Policy
- An IAM User called **Sahil**that is added to the user group
- An EC2 instance with the Env tag **project-development-sahil** and Name **Development.**
- An EC2 instance with the Env tag **project-production-sahi**l and Name **Production.**



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My Key Learnings

01 AWS IAM Policies are JSON documents that define permissions to control access to AWS resources for users, groups, and roles.

02 IAM Users are individual identities with specific permissions within a cloud environment, created to manage access to resources securely and ensure accountability.

03 IAM User Groups are collections of IAM users with specified permissions, created to simplify managing access policies for multiple users in AWS.

04 An AWS Account Alias is a user-friendly name that you assign to your AWS account to replace the default numerical account ID.

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Final thoughts...

- This project took me about one hour of time.
- Delete EVERYTHING at the end! Let's keep this project free :)
- Now that I know how IAM could be used to enhance security and permissions in my AWS account, some real-world use cases of what I've learnt are:
    - Creating different IAM Users for my personal AWS account to enhance security when I do personal projects that will enable public access to my account's resources.
    - Creating user groups for different company departments e.g. marketing, finance, development
    - Using an AWS Account Alias to create a user friendly console log in URL for a company's AWS account.]

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