



Cloud Security with AWS IAM



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Specify permissions Info

Add permissions by selecting services, actions, resources, and conditions. Build permission statements using the JSON editor.

Policy editor

```
1 ▼ {
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "ec2:*",
      "Resource": "*",
      "Condition": {
        "StringEquals": {
          "ec2:ResourceTag/Env": "development"
        }
      }
    },
    {
      "Effect": "Allow",
      "Action": "ec2:Describe",
      "Resource": "*"
    },
    {
      "Effect": "Deny",
      "Action": [
        "ec2:DeleteTags",
        "ec2:CreateTags"
      ],
      "Resource": "*"
    }
  ]
}
```

Visual **JSON** Actions ▾

Edit statement

Select a statement

Select an existing statement in the policy or add a new statement.

+ Add new statement

5851 of 6144 characters remaining

JSON Ln 29, Col 0 Security: 0 Errors: 0 Warnings: 0 Suggestions: 0

The screenshot shows the AWS IAM Policy Editor interface. It displays a JSON-based policy definition with three statements. The first statement allows all actions on all resources for the 'development' tag value. The second statement allows the 'Describe' action on all resources. The third statement denies the 'DeleteTags' and 'CreateTags' actions on all resources. The interface includes tabs for 'Visual' and 'JSON', and a sidebar for editing statements. At the bottom, it shows character count and validation status.

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Introducing today's project!

What is AWS IAM?

AWS IAM is an essential tool for managing access and ensuring the security of your AWS environment. By providing robust features for user and permission management, IAM helps organizations protect their resources, comply with regulations.

How I'm using AWS IAM in this project

AWS IAM to control and test user permissions

One thing I didn't expect...

Everything is good as expected

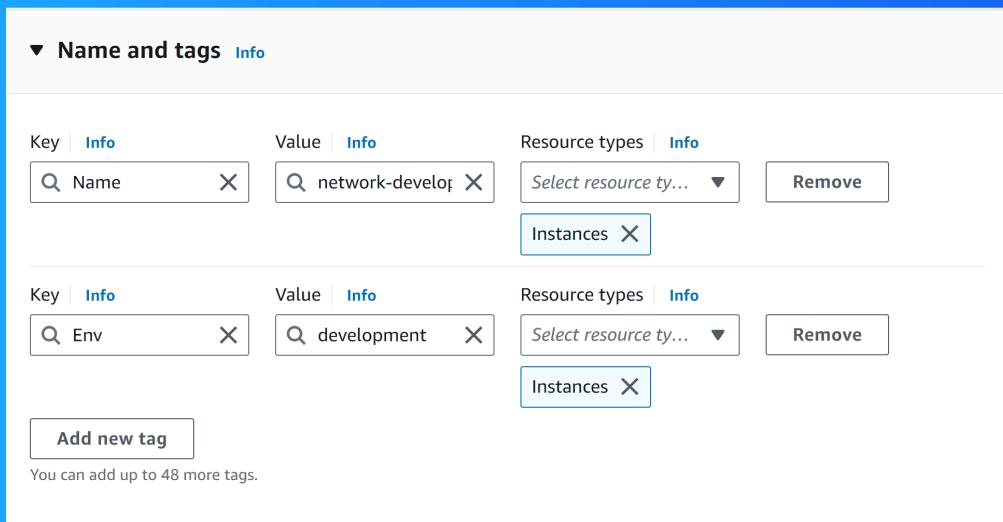
This project took me...

2hours

Tags

Tags are labels to help AWS Account users identify and manage their resources. Tags are useful for grouping, mass management and applying security policies.

The tag I've used on my EC2 instances is called Env. The value I've assigned for my instances are production, and development. This represents the two different environments that we are using to build and release the NetWork app.



IAM Policies

IAM Policies are rules that help to allow/deny users'/resources' permissions to perform certain actions to my AWS Account's resources.

The policy I set up

For this project. I've set up a policy using the JSON editor.

I've created a Policy that allows all EC2-related actions to all EC2 instances that have the Environment ("Env") tag "development". But, it also denies creating and deleting tags for ALL EC2 instances.

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

Effect: i.e. Allow or Deny. Action: i.e. the specific action that we are wanting to allow or deny. Resource: the specific resource/group of resources in my AWS Account that this policy will take effect on.

VO

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My JSON Policy

Specify permissions Info

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Policy editor

```
1▼ {
  2  "Version": "2012-10-17",
  3  "Statement": [
  4    {
  5      "Effect": "Allow",
  6      "Action": "ec2:Describe",
  7      "Resource": "*",
  8    },
  9    {
  10      "Condition": {
  11        "StringEquals": {
  12          "ec2:ResourceTag/Env": "development"
  13        }
  14      },
  15      "Effect": "Allow",
  16      "Action": "ec2:Describe",
  17      "Resource": "*",
  18    },
  19    {
  20      "Effect": "Deny",
  21      "Action": [
  22        "ec2:DeleteTags",
  23        "ec2:CreateTags"
  24      ],
  25      "Resource": "*"
  26    }
  27  }
  28 }
```

[+ Add new statement](#)

Visual **JSON** Actions ▾

Edit statement

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5851 of 6144 characters remaining

JSON - Ln 29, Col 0 Security: 0 Errors: 0 Warnings: 0 Suggestions: 0

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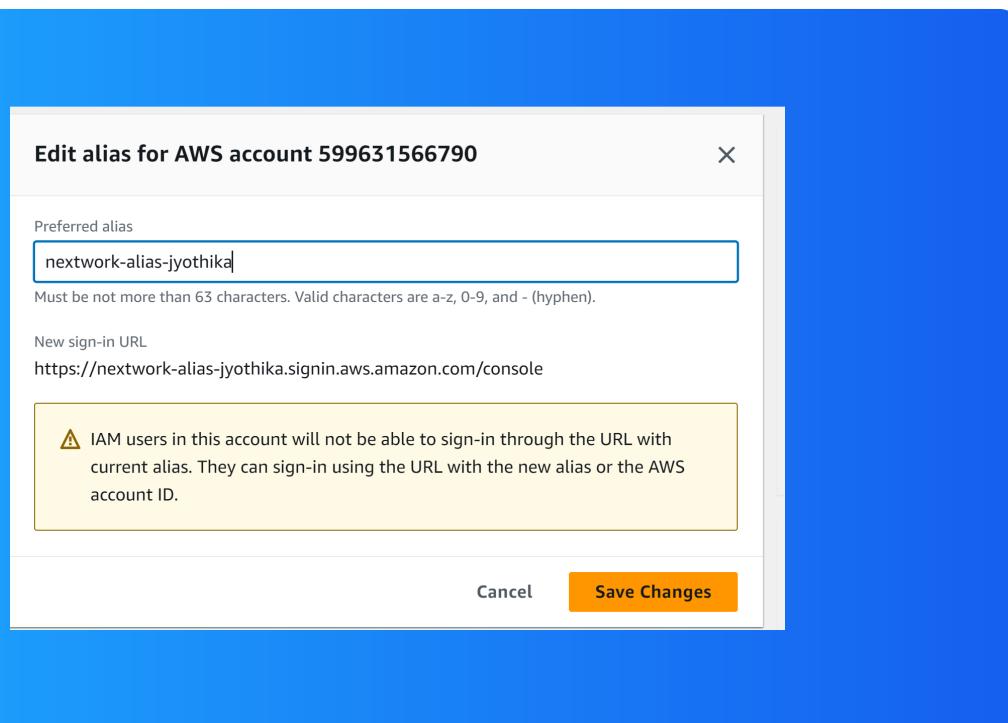
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Account Alias

An account alias is a custom name that I can assign to my AWS Account. This custom name would replace my Account ID in my Account's log-in URL.

Creating an account alias took me less than a minute - super fast!

<https://nextwork-alias-jyothika.signin.aws.amazon.com/console>.



IAM Users and User Groups

Users

IAM Users are other log-ins/people who have access to my AWS Account. These were users are created by myself using the AWS IAM service! I can designate my IAM users' access to my AWS Account's resources/services. I also created a User Group.

User Groups

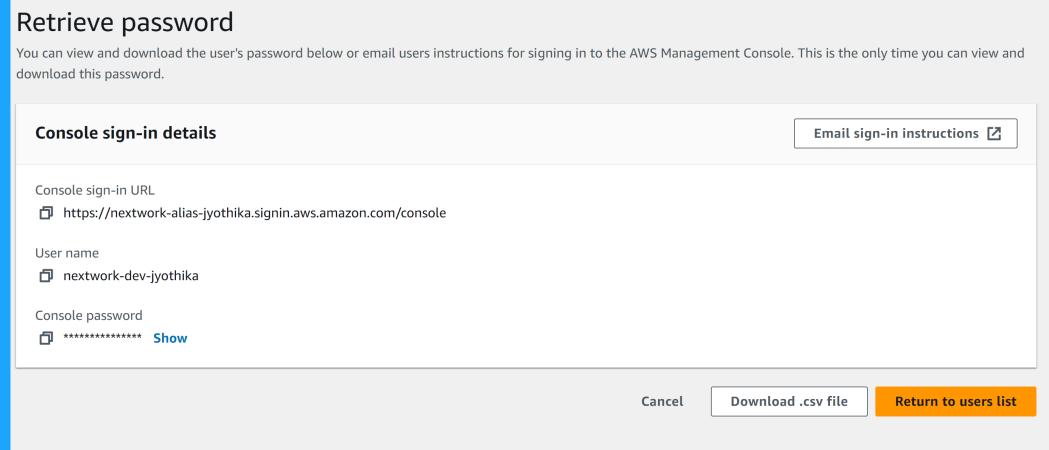
IAM user Groups are useful for grouping and managing users permissions at a group level. They act similarly to folders when it comes to mass assigning permission/policies. • My User Group is called nextwork-dev-group.

I attached the Policy I created to this User Group, which means all users that are added to that user group will automatically inherit the user group's access permission

Logging in as an IAM User

Once my new user was set up, there were two ways I could share its sign-in details: firstly, emailing sign-in instructions; secondly, downloading a osv fil My new user had a unique URL - <https://nextwork-alias-jyothika.signin.aws.amazon.com/console>

Once I logged in as my IAM user, I noticed Access denied at all locations



Testing IAM Policies

I tested the JSON IAM policy I set up by trying to Stop the development and production instances i.e. triggering the Stop instances action.

Stopping the production instance

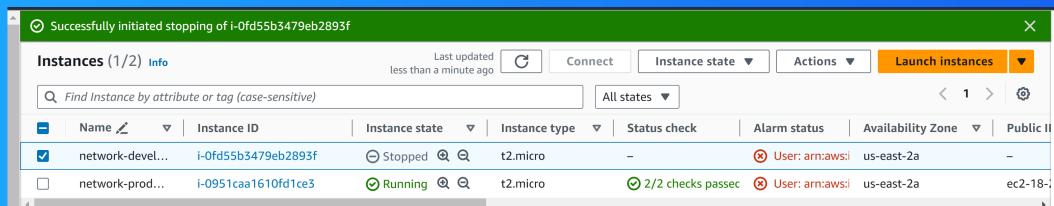
When I tried to stop the production instance, an error message stopped me and explained that I am not authorised to stop the production instance.



Testing IAM Policies

Stopping the development instance

When I tried to stop the development instance, successful message displayed and explained that I am authorised to stop the development instance.





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