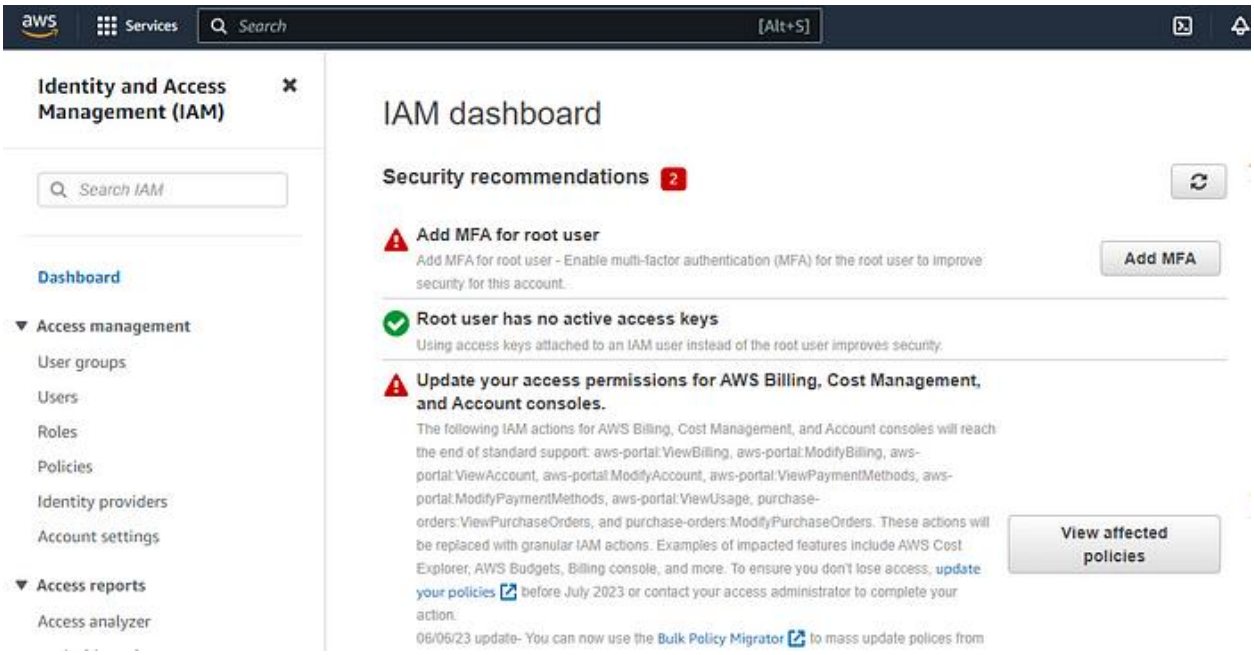
How to create an IAM User and add MFA

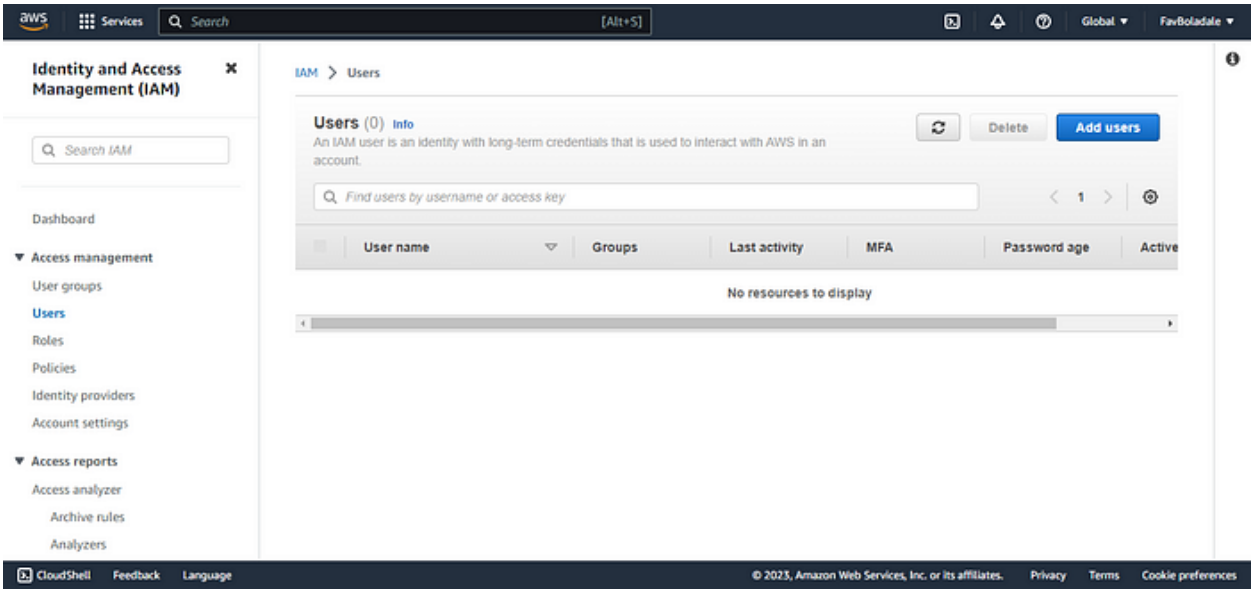
Step 1: Sign in to the AWS Management Console

Go to the AWS Management Console (https://console.aws.amazon.com) and sign in using your AWS account credentials. Access the IAM service: Once logged in, search for “IAM” in the AWS Management Console search bar and select the IAM service from the results.



Step 2: Navigate to “Users” in the IAM console

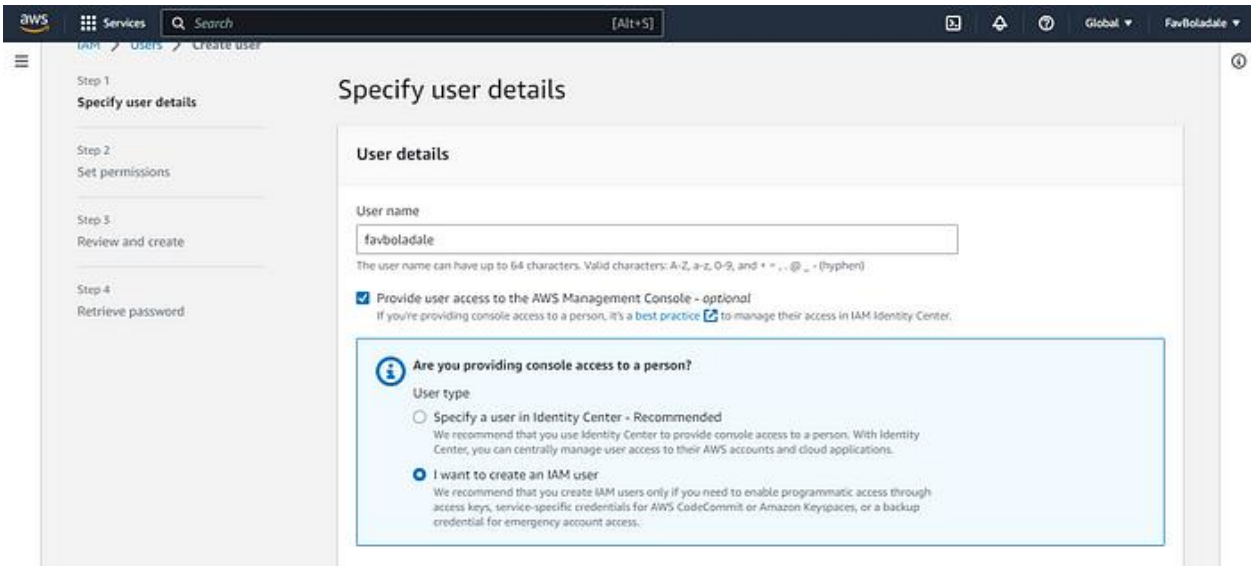
In the IAM console, on the left-hand side, click on “Users” under the “Access management” section. This will display a list of existing IAM users in your account. In my case I have none, so I have to click the add users on the top right corner.



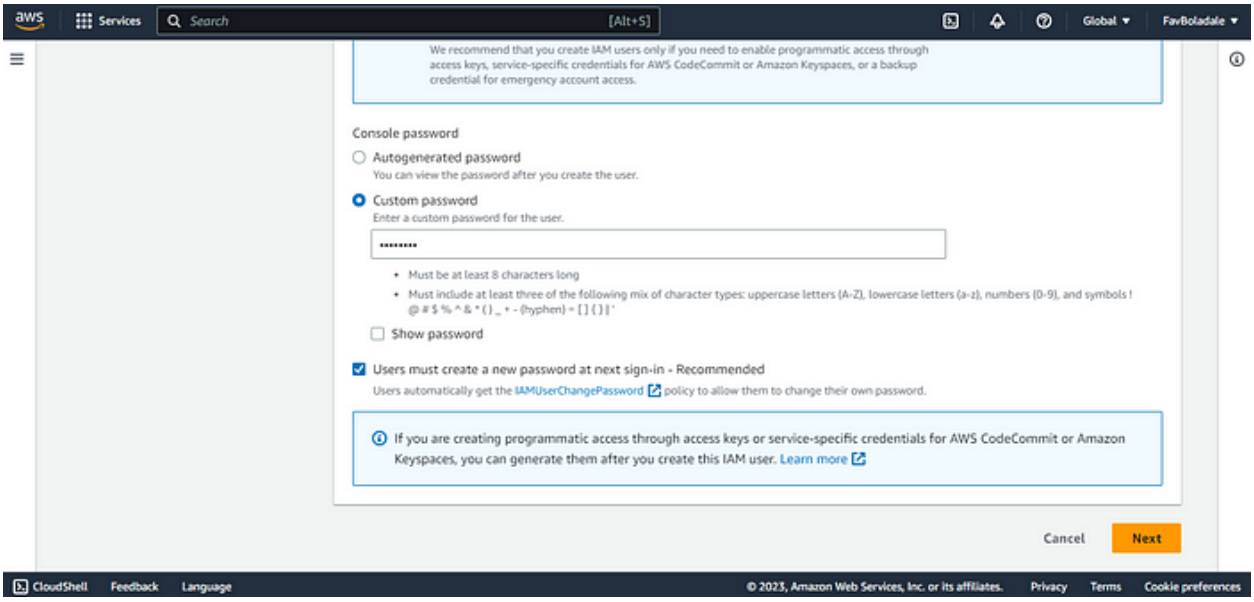
Step 3: Specify User Details

Here, we have to specify user details by supplying the necessary information as required such as user name, type of user, password(autogenerated or custom), etc. You can also choose to enable programmatic access (which generates access keys for API

access) and AWS Management Console access (which allows the user to log in to the AWS Management Console).

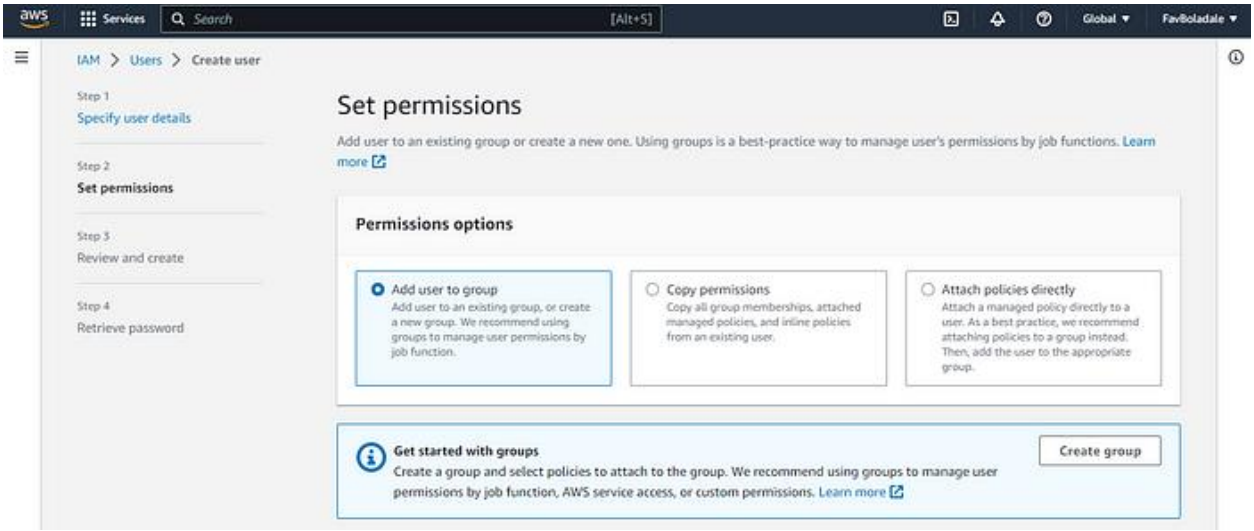


You can also enable the user to change the password upon sign in which is highly recommended.



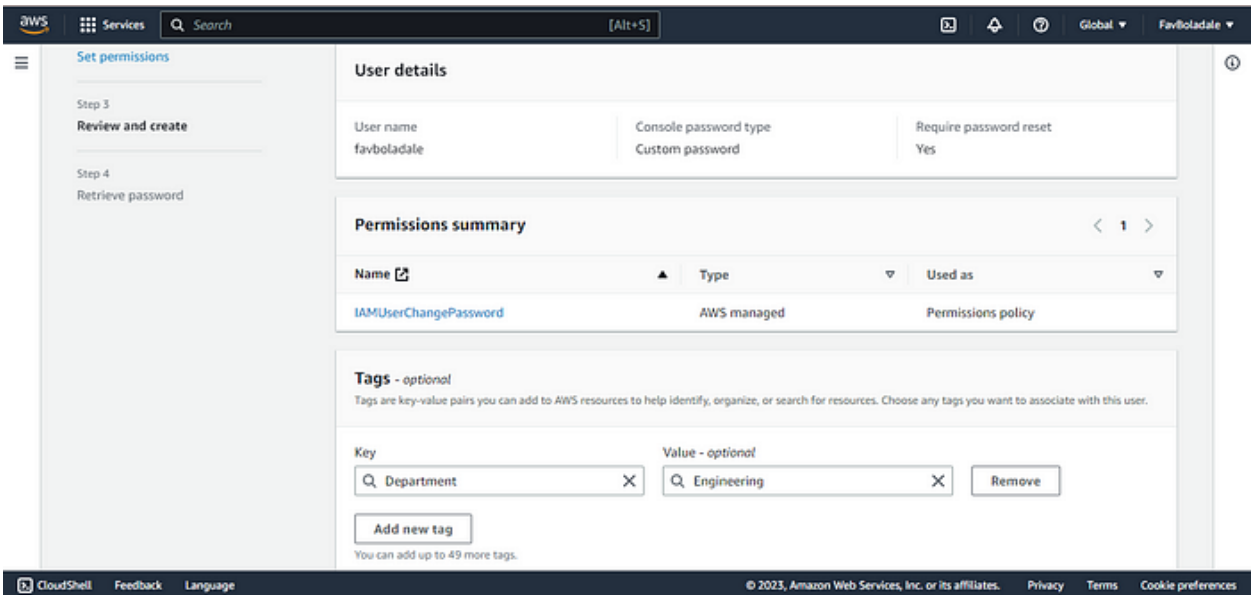
Step 4: Set user permissions

Now we have to set permissions: you can choose to add the user to an existing group or attach policies directly to the user. Groups are a convenient way to manage permissions for multiple users, as you can assign policies to a group, and any user added to that group inherits the group's permissions.



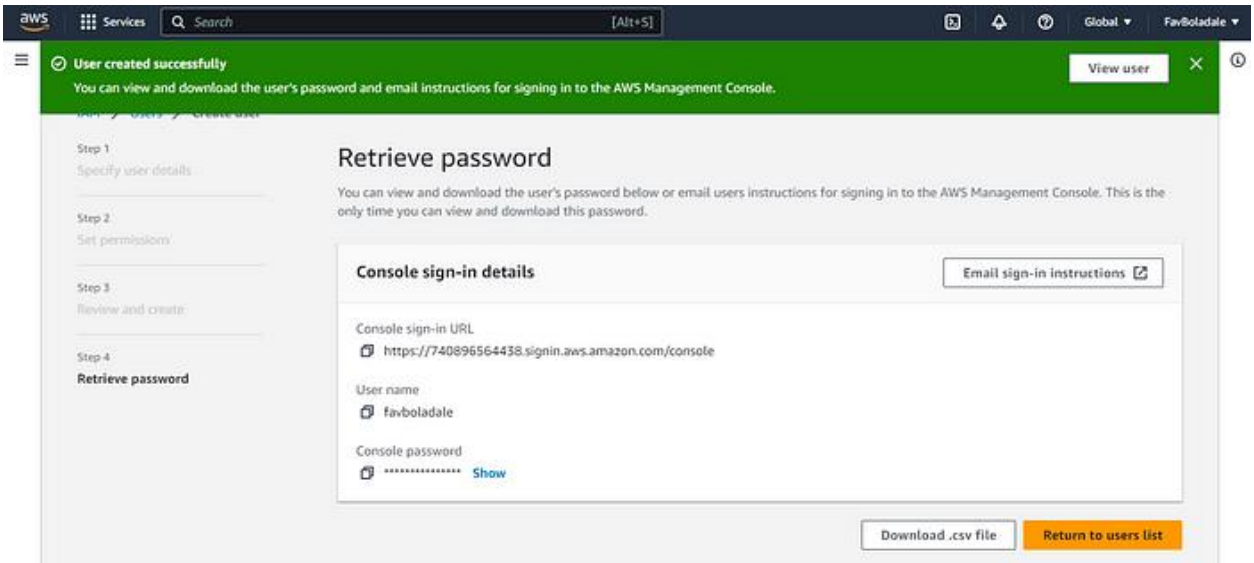
Step 5: Configure Tags, Review, and Create

Here, you can assign key-value pairs as tags to the user. Tags provide additional metadata and can be useful for organizing and managing your IAM users. I used Department- Engineering as below.



Step 6: Download the Access key and Secret Access Key

After setting up the user details, permissions, and tags, review the configuration. Make sure everything is accurate, and then click on the “Create user” button. Before you leave the page, kindly download the CSV file because it will no longer be available.



How to add a user to MFA

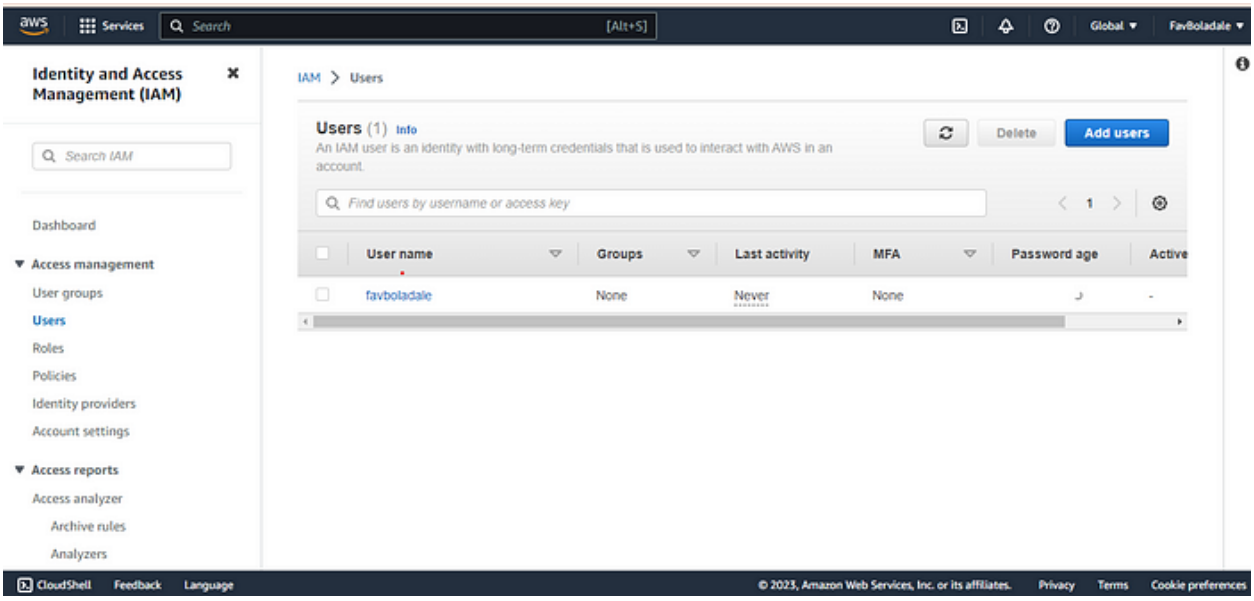
Prerequisites:

Download the Google Authenticator App on your mobile phone available on google play and IOS AppStore.

Step 1: Sign in to the AWS Management Console

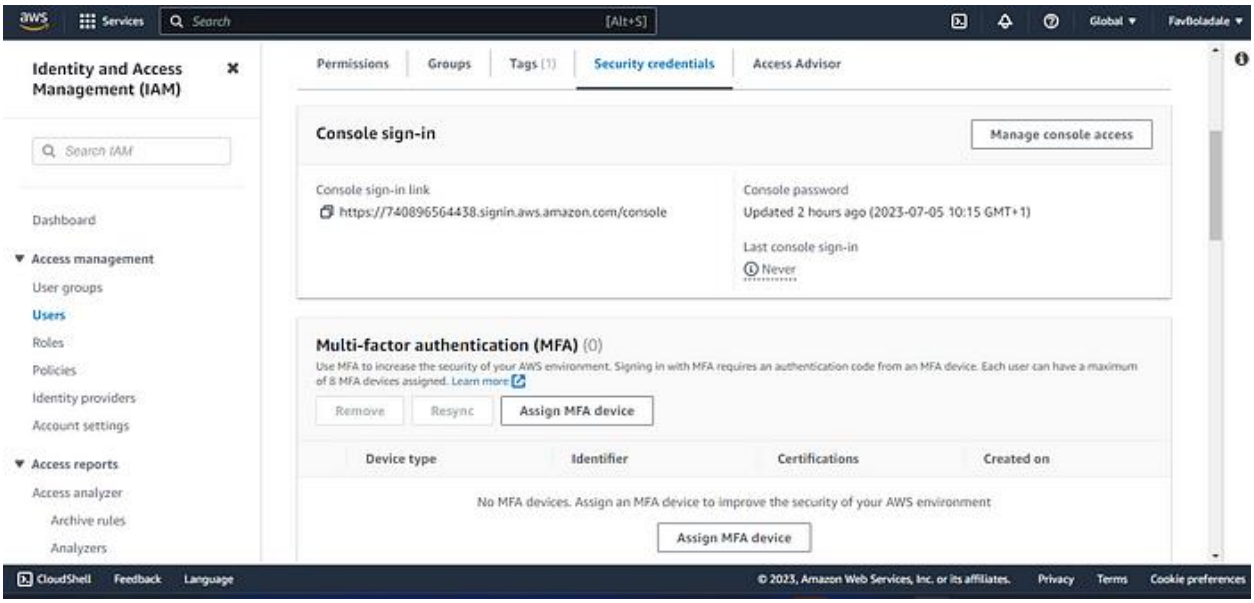
Go to the AWS Management Console and access the IAM Service. In the IAM console, on the left-hand side, click on “Users” under the “Access management” section. This will display a list of existing IAM

users in your account. Then click on the user you just created. For me, I gave the user the name “favboladale” as seen below.



Step 2: Enable MFA for the User

With the user selected, click on the “Security credentials” tab. Under the “Multi-factor authentication (MFA)” section, click on the “Assign MFA Device” button.



Step 3: Choose the “Virtual MFA device” option

Select the “Virtual MFA device” option to use the Google Authenticator app as the MFA device.

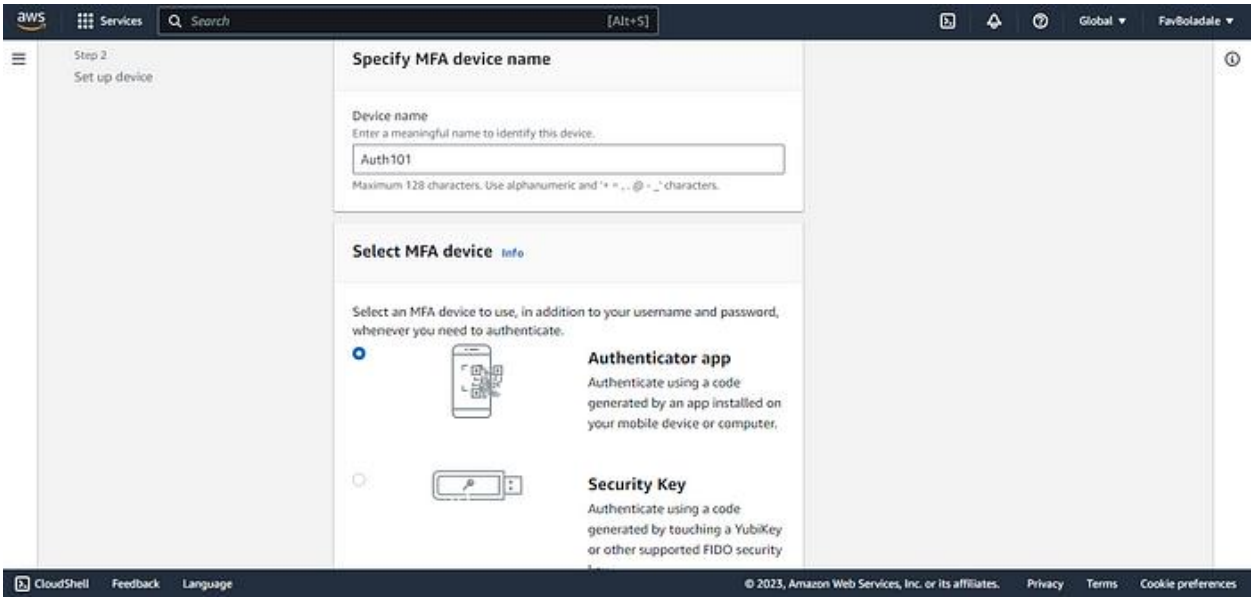
Once you click a new page will pop up, provide the name for your MFA, select Authenticator App, and click next.

Step 4: Set Up the Virtual MFA Device

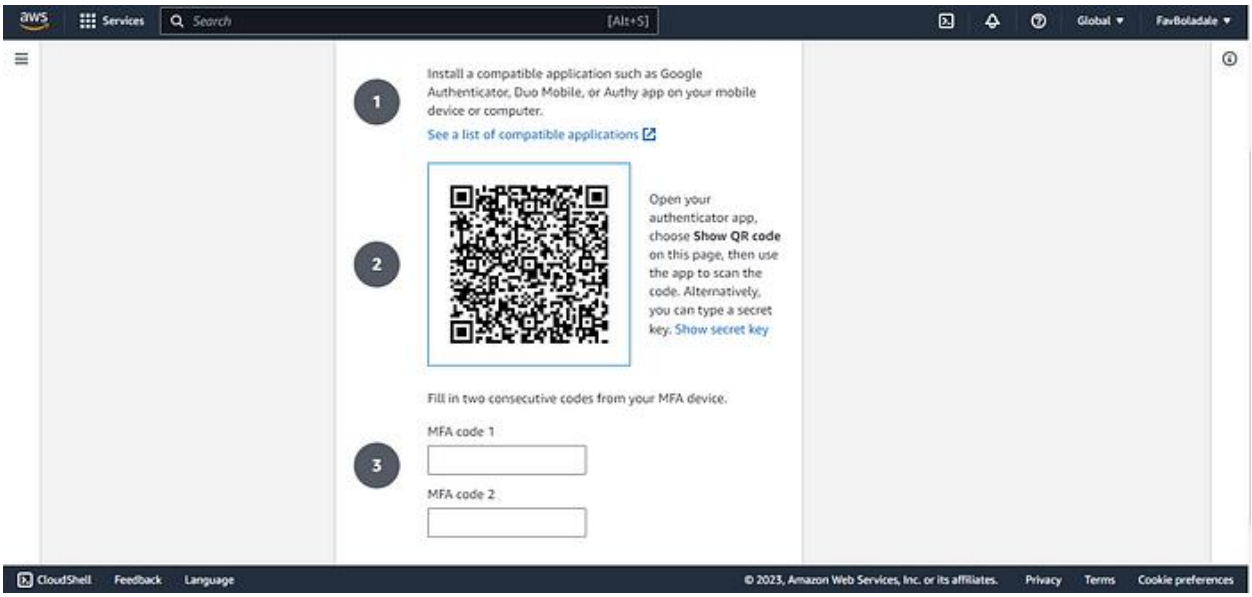
In this step, you have two options to set up the virtual MFA device:

a. **Use QR Code:** Open the Google Authenticator app on your smartphone or tablet, tap the “+” symbol to add a new account, and select the “Scan a barcode” option. Scan the QR code displayed on the AWS console.

b. **Use Secret Key:** If you are unable to scan the QR code, you can manually enter the secret key displayed on the AWS console into the Google Authenticator app.

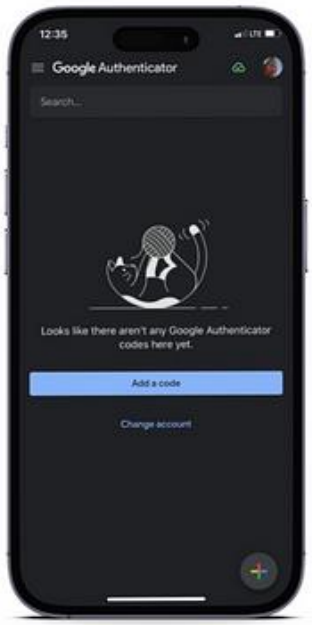


Then this page will come up



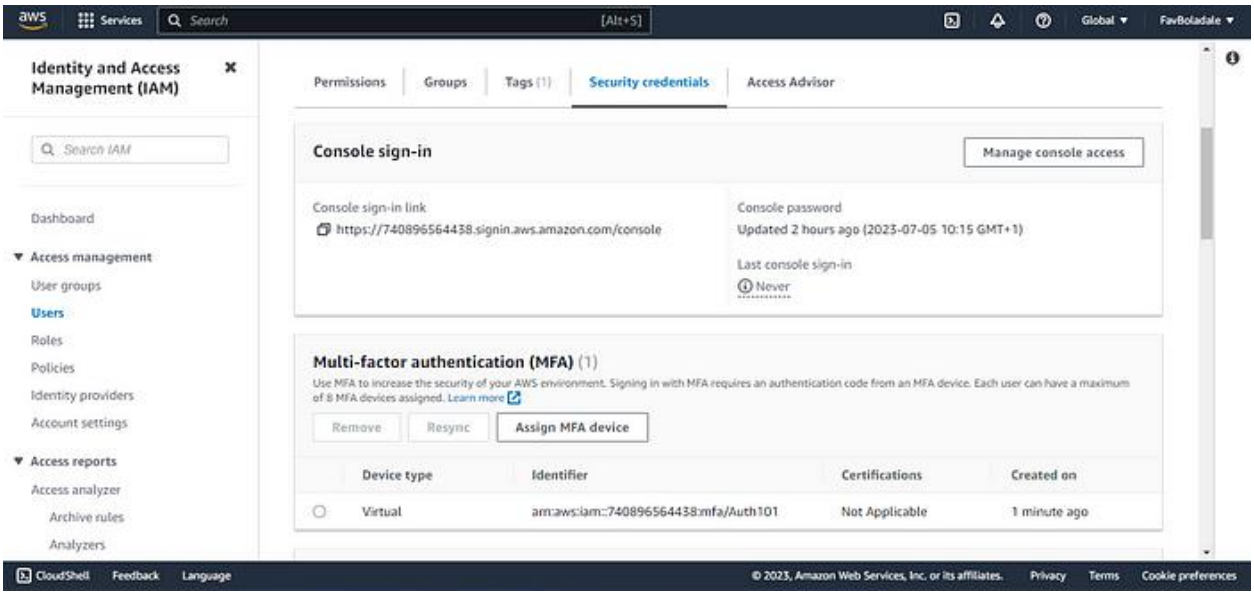
Step 5: Enter the Generated MFA Codes

The Google Authenticator app will generate a 6-digit verification code. Enter the first verification code into the “Authentication Code 1” field on the AWS console, and then enter the second verification code into the “Authentication Code 2” field.



Step 6: Verify and Complete MFA Setup

After entering the verification codes, click on the “Assign MFA” button to complete the MFA setup for the IAM user.



Step 7: Test MFA Setup

To ensure that MFA is working correctly, sign out of the AWS Management Console and sign back in. When prompted, enter your username and password, and then provide the current 6-digit verification code from the Google Authenticator app.

Conclusion

Enabling MFA for IAM users adds an extra layer of security to your AWS environment by requiring users to provide an additional authentication factor. By following the step-by-step instructions

outlined in this guide, you can easily add MFA to an IAM user in AWS using the Google Authenticator app. Protecting your AWS resources with MFA helps safeguard against unauthorized access and enhances the overall security of your cloud infrastructure.

How to Create IAM Roles in AWS

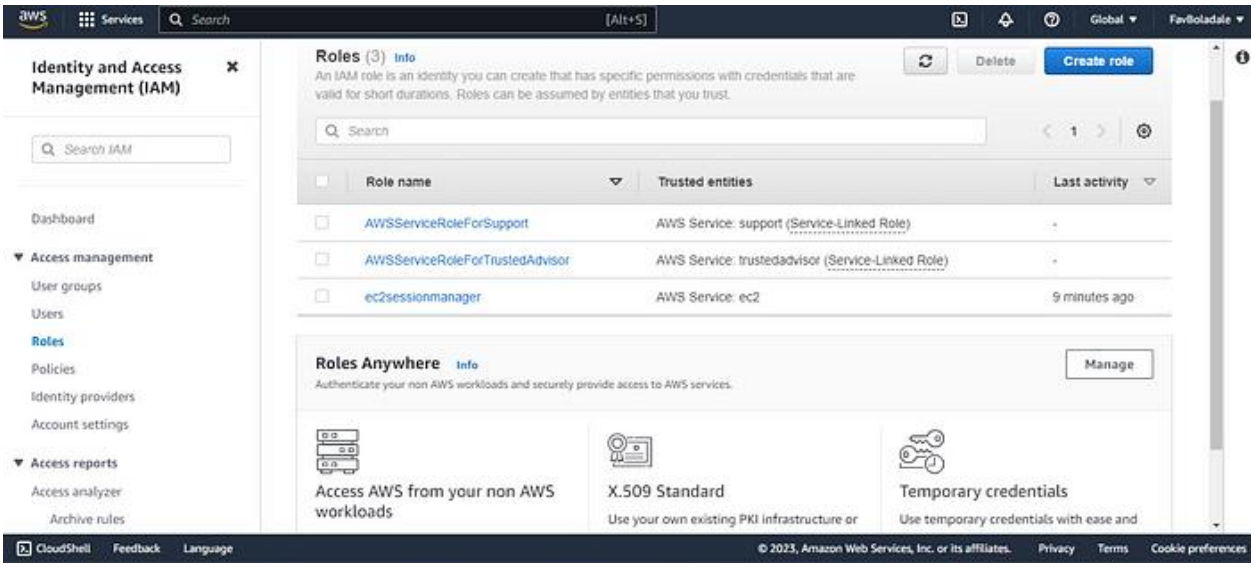
Step 1: Navigate to the IAM Service on AWS

Management Console

Once logged in, search for “IAM” in the services search bar at the top of the AWS Management Console. Click on “IAM” from the suggestions or select it from the list of available services.

Step 2: Access the IAM Roles Section

In the IAM console, you will find the left-hand navigation pane. Click on “Roles” to proceed, then click on the “Create role” button.



Step 3: Select the Trusted Entity and the Use Case

On the “Select type of trusted entity” page, you have various options:

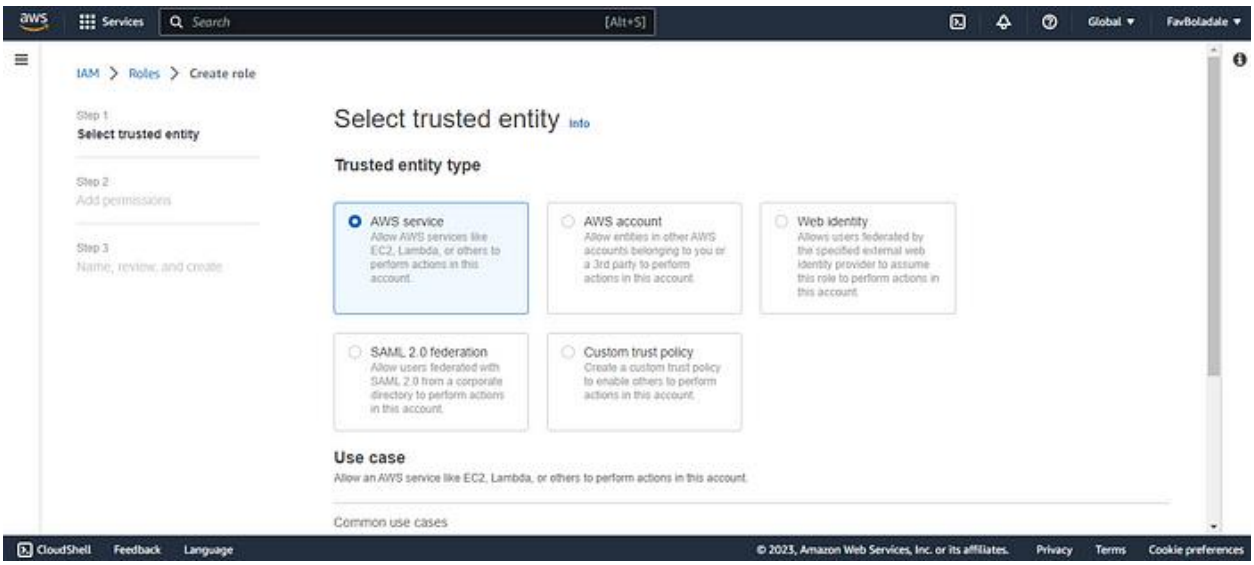
a. AWS service: If you want to grant permissions to an AWS service.

b. Another AWS account: If you want to grant access to another AWS account.

c. Web identity: If you want to grant access to web identity providers like Amazon Cognito, Google, or Facebook.

d. SAML 2.0 federation: If you want to grant access to users from your corporate directory that supports SAML 2.0.

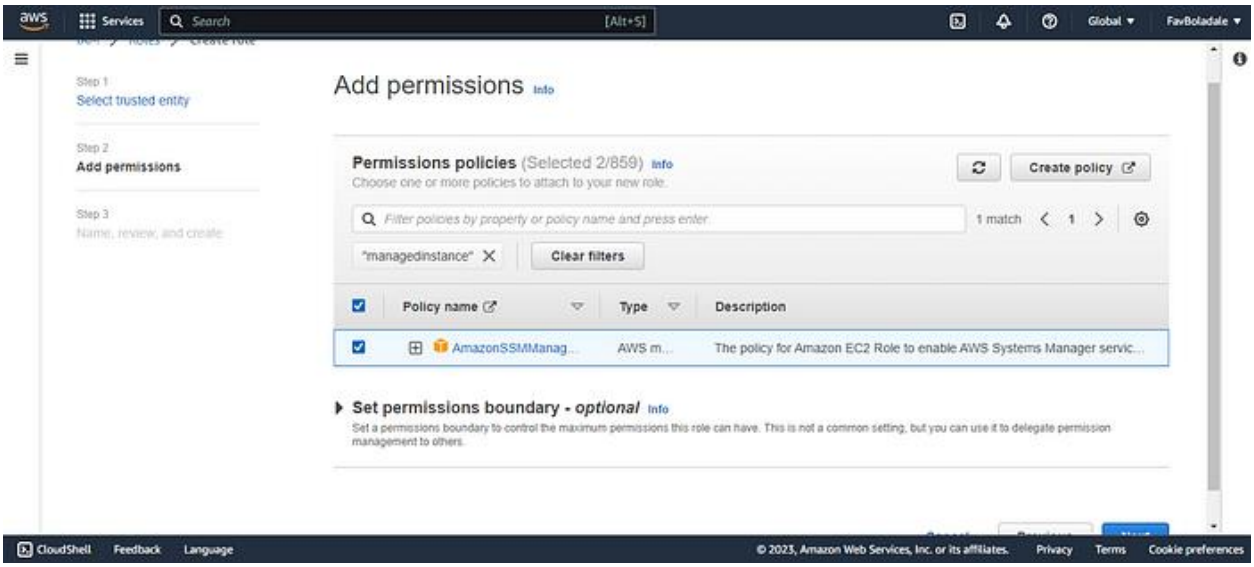
In the Use Case section, choose the appropriate option based on your requirements and click on the “Next: Permissions” button.



Step 4: Attach Permissions Policies

On the “Attach permissions policies” page, you can attach one or more IAM policies to the role. You can choose from existing policies or create a custom policy based on your specific needs. To attach existing policies, search for the desired policy in the search bar and select it.

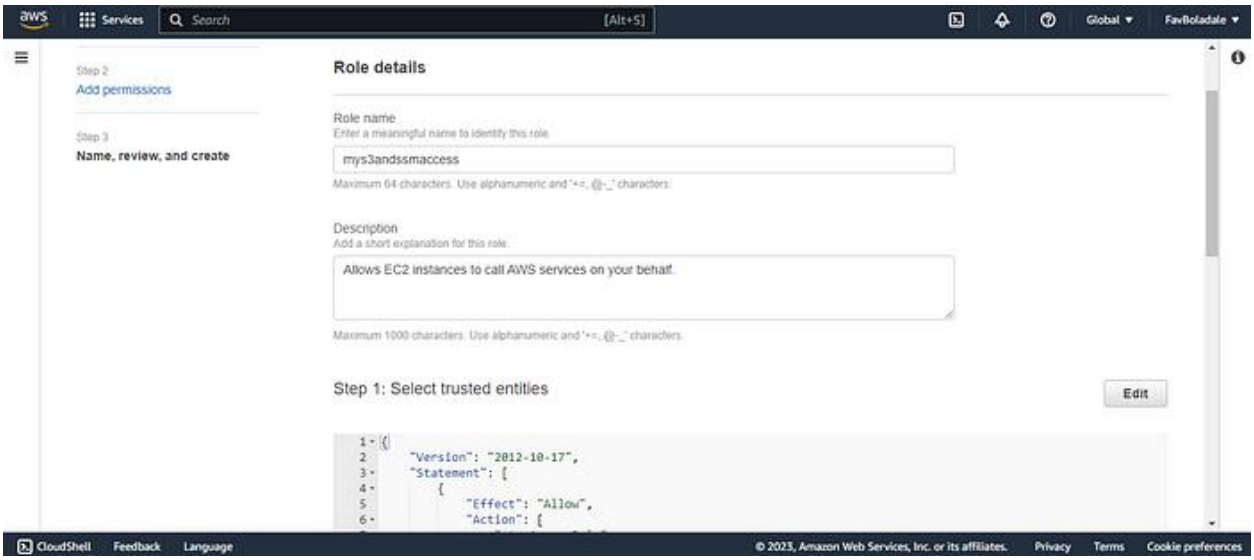
To create a custom policy, click on the “Create policy” button, and a new tab will open where you can define the policy. Once you have selected the desired policies, click on the “Next: Tags” button. Here I will be using “AmazonS3FullAccess” and AmazonSSManagedInstanceCore policies.



Step 5: Add Role Details and Tags (Optional)

Provide a descriptive role name and description of the role. On the “Add tags” page, you can add tags to the role for better organization and management of your resources. Tags are key-value pairs that help in identifying and categorizing resources. Click on the “Add tags”

button and provide the tag key and value. Once you have added the tags, click on the “Next: Review” button.



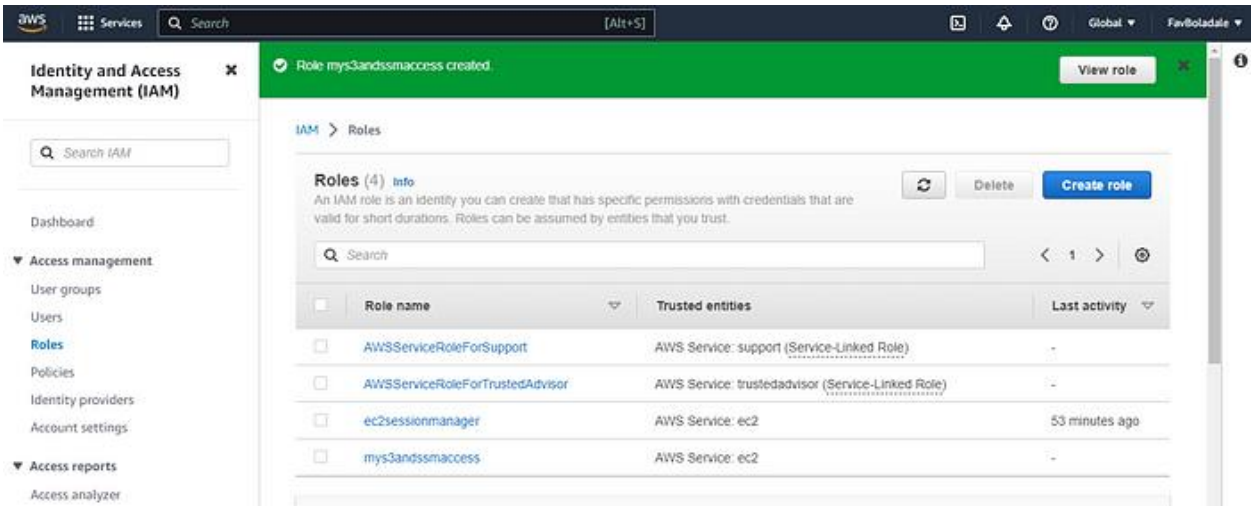
Step 6: Review and Create the Role

On the “Review” page, review the role configuration and ensure that everything is correct. If you need to make any changes, you can go back to the previous steps and modify the settings accordingly.

Once you are satisfied with the configuration, click on the “Create role” button.

Step 7: Role Creation Confirmation

AWS will create the IAM role, and you will be redirected to the “Roles” page. Here, you can see the newly created role and other existing roles.



CREATING IAM POLICY

Crafting IAM Policies: Practical Examples

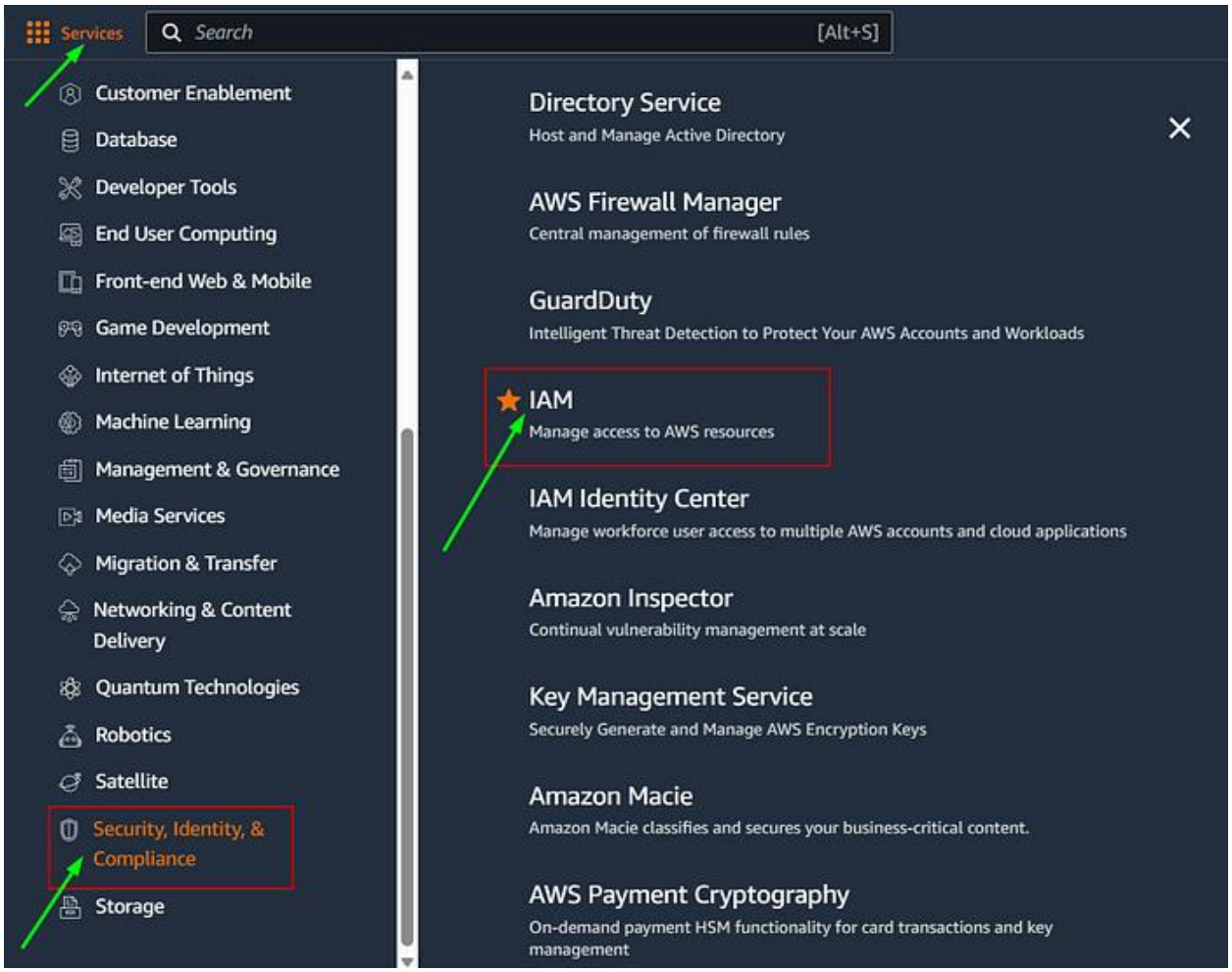
Access the AWS Management Console:

Log in to the AWS Management Console:

https://aws.amazon.com/console/.

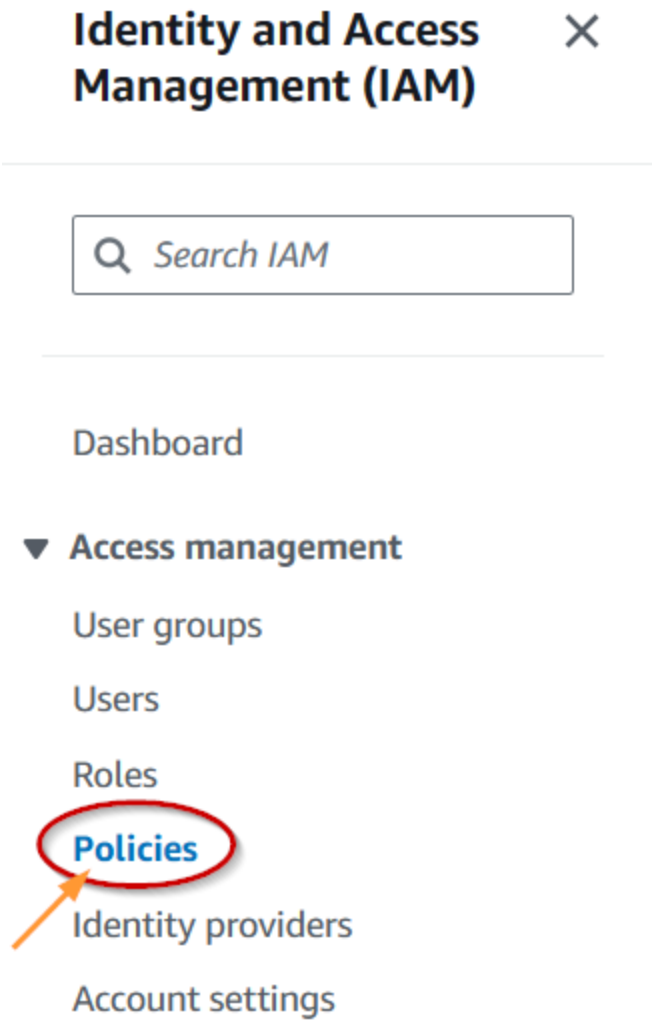
2. Navigate to IAM:

In the AWS Management Console, go to the “Services” menu and select “IAM” under the “Security, Identity, & Compliance” section.

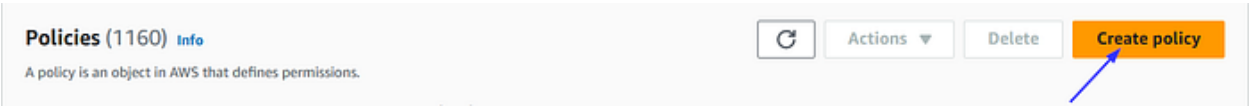


3. Access the Policy Generator:

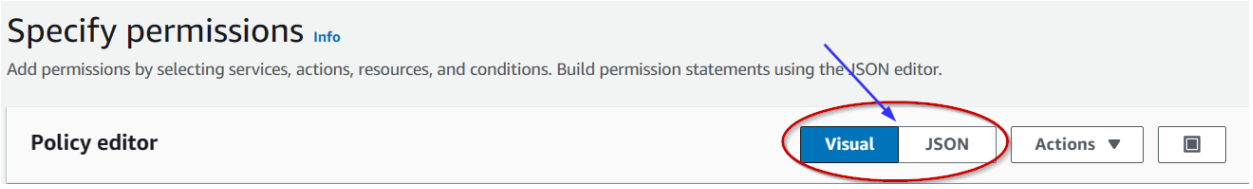
In the IAM console, select “Policies” from the left-hand navigation pane.



Click on the “Create policy” button.



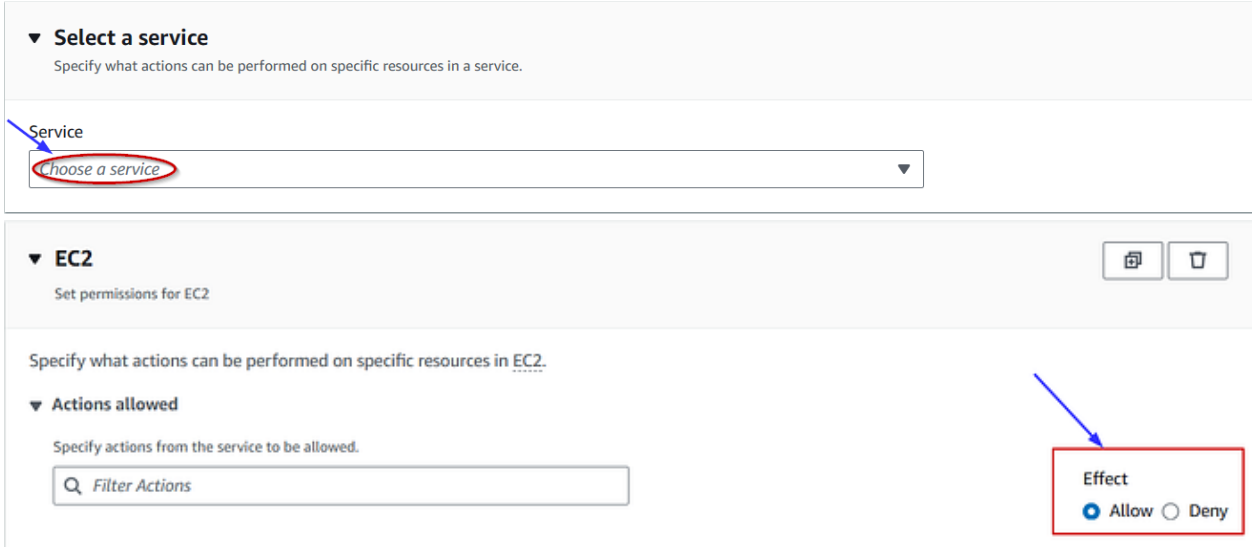
Choose between “Visual” or “JSON” tab from the policy editor.



Use Case 1: EC2 Snapshot Management

⇨ Define Permissions:

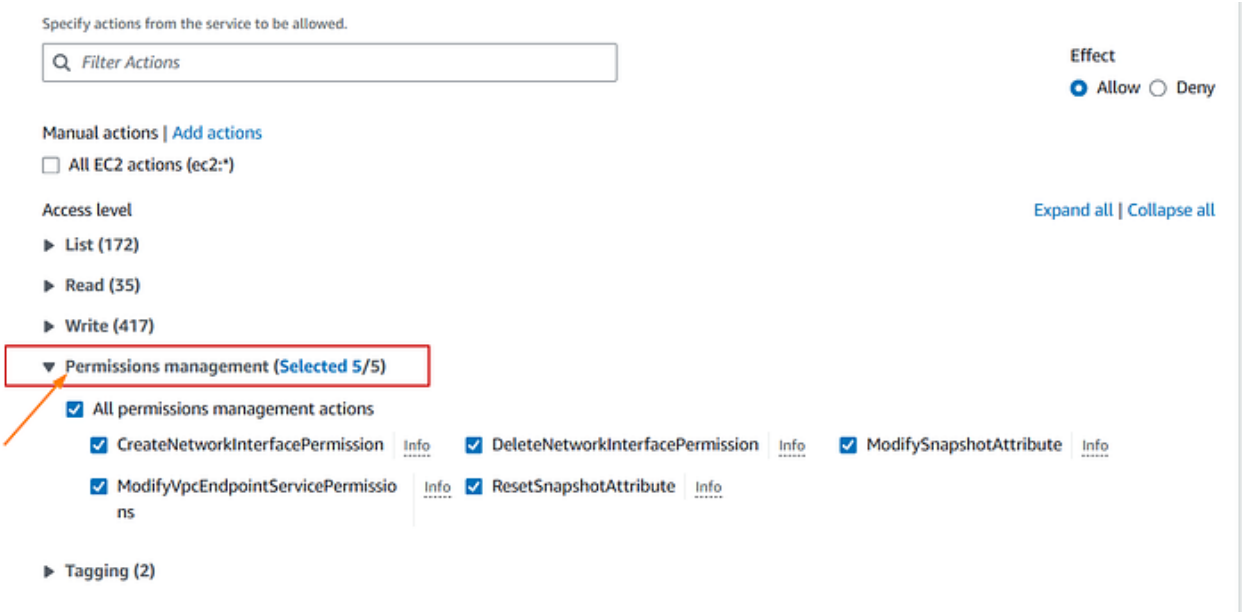
Select the service (e.g., EC2) and actions needed for EC2 snapshot management.



⇨ Add actions:

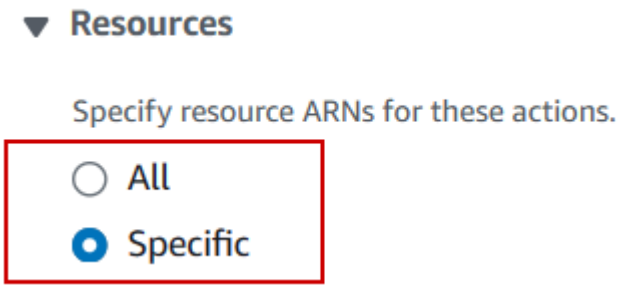
Specify actions like Modify Snapshot Attribute, Reset Snapshot Attribute, etc.

Here's an example of an allowing All-permissions management actions in EC2:

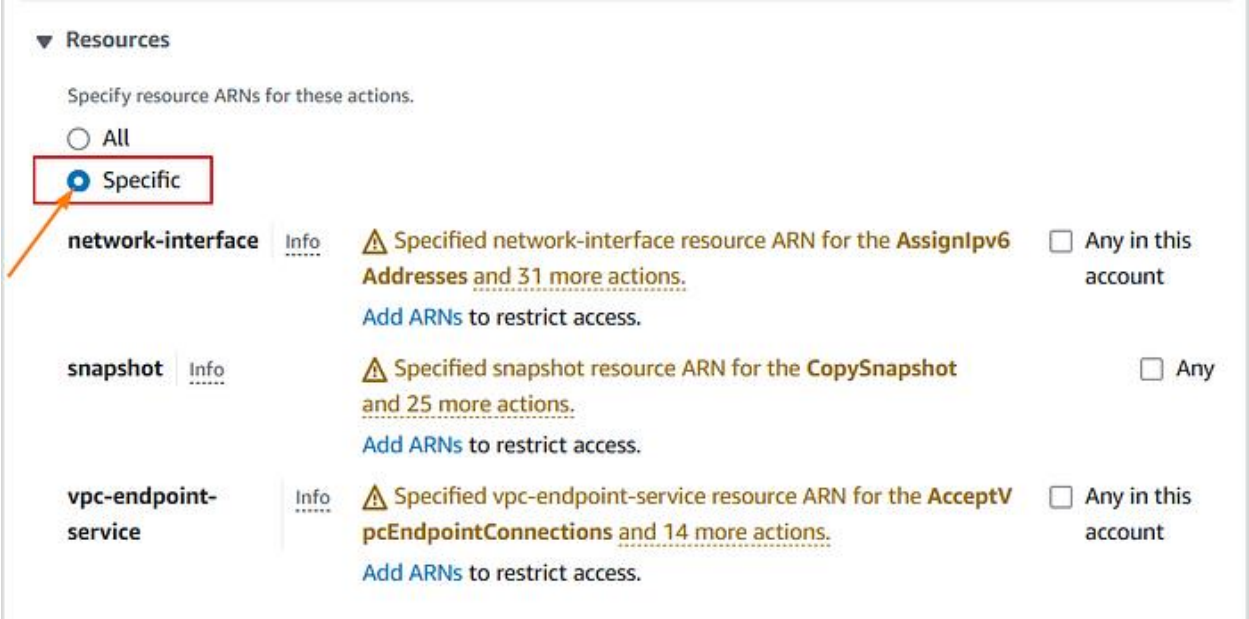


⇨ Select Resources:

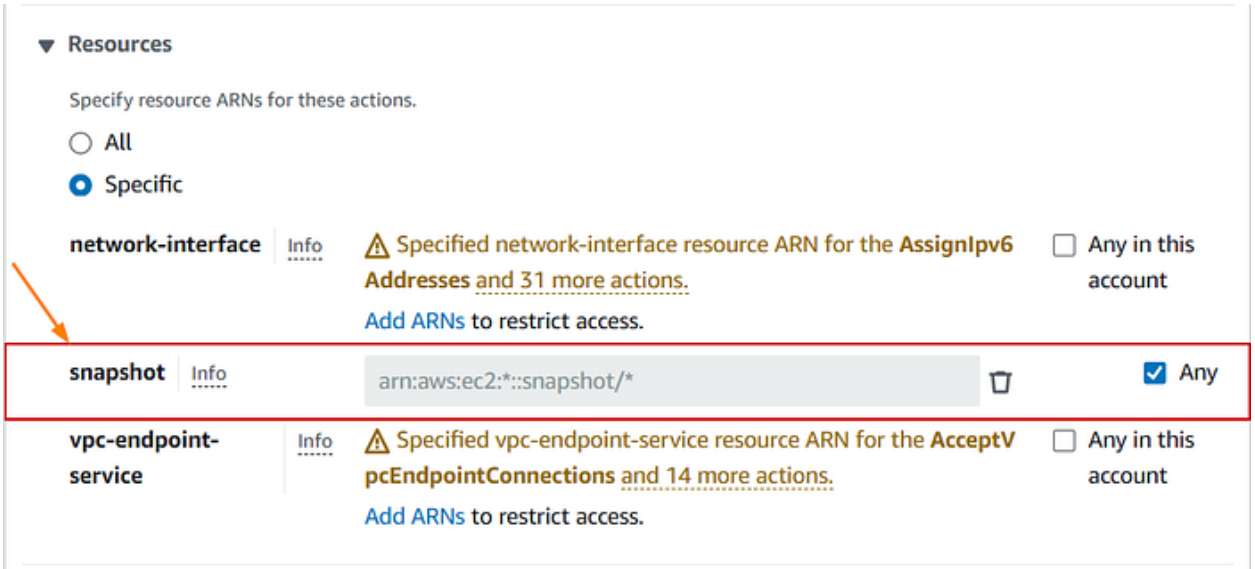
Choose whether the policy applies to all resources or specific resources.



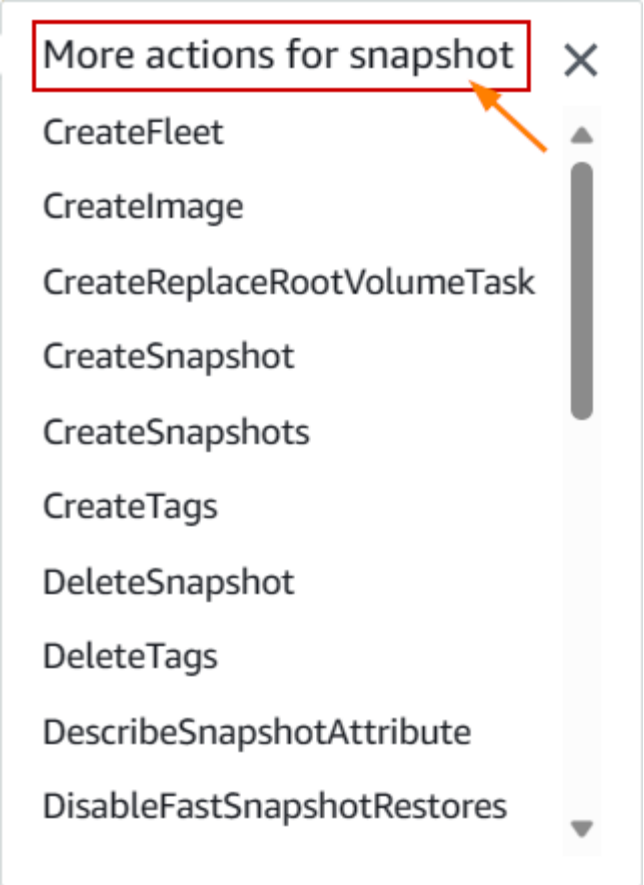
If selecting specific resources, specify the ARN (Amazon Resource Name) of the snapshots.



You can select any resources from this, now Iam choosing all actions in snapshot.



To specify snapshot resource ARNs for the `CopySnapshot` and other actions, you can create an AWS Identity and Access Management (IAM) policy in Visual format.



Then Click “NEXT”

⇨ Review and Create:

After configuring the policy, review the summary.

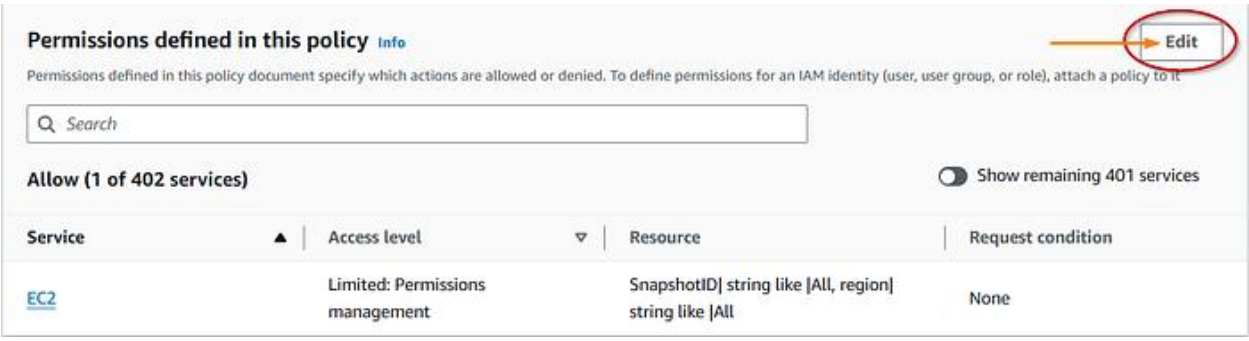
Click on the “Add” button to generate the policy.

Permissions defined in this policy:

Permissions defined in this policy document specify which actions are allowed or denied. To define permissions for an IAM identity (user, user group, or role), attach a policy to it.

If you want to change the permissions, go to right side of tab and click the “Edit.”

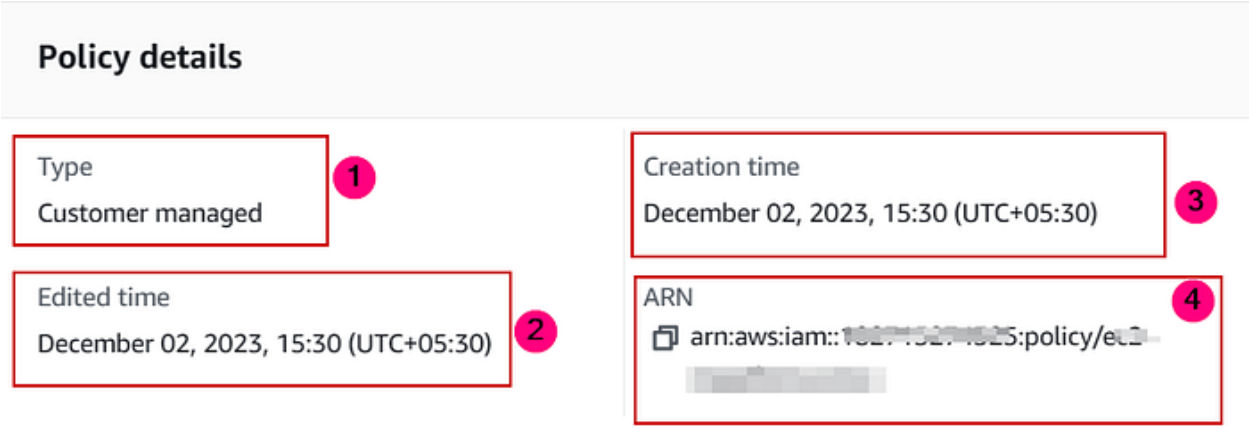
then you can edit the permissions defined in this policy.



Then click on the “Create policy” icon.

Now we successfully created the policy. If you want to view the policy, click on the “View policy.”

⇨ Policy details:



1. Type: policy type

2. Edited time: When the policy edited

3. Creation time: When the policy created

4. ARN: Policy ARN

Permissions defined in this policy in JSON format:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "VisualEditor0",
            "Effect": "Allow",
            "Action": [
                "ec2:ModifyVpcEndpointServicePermissions",
                "ec2:DeleteNetworkInterfacePermission",
                "ec2:ModifySnapshotAttribute",
                "ec2:CreateNetworkInterfacePermission",
                "ec2:ResetSnapshotAttribute"
            ],
            "Resource": "arn:aws:ec2:*::snapshot/*"
        }
    ]
}
```

⇨ Apply the Policy:

Once generated, you can attach the policy to IAM users, groups, or roles based on your use case.

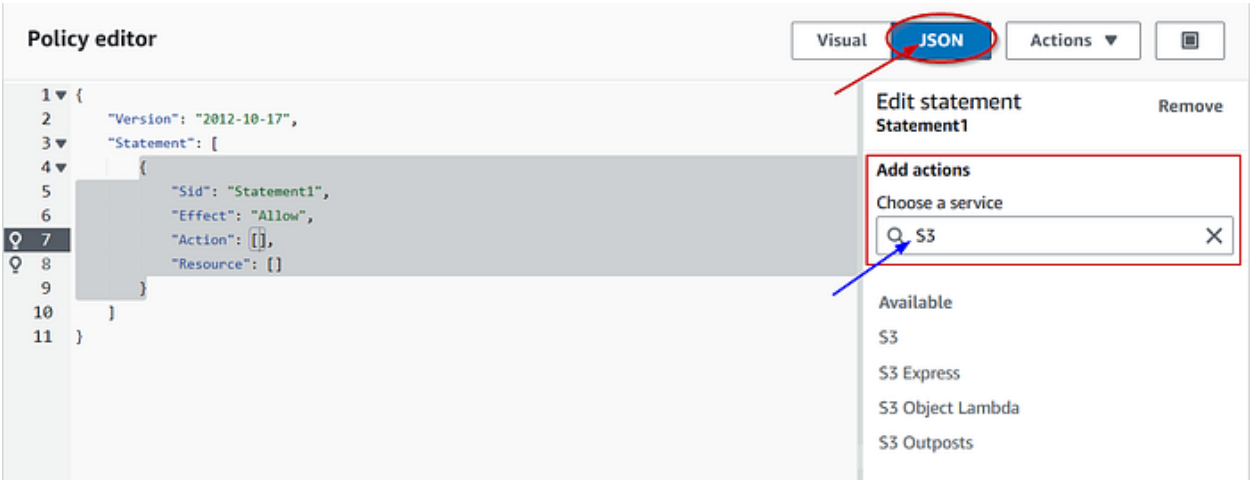
Use Case 2: S3 Bucket Access Control

Using JSON:

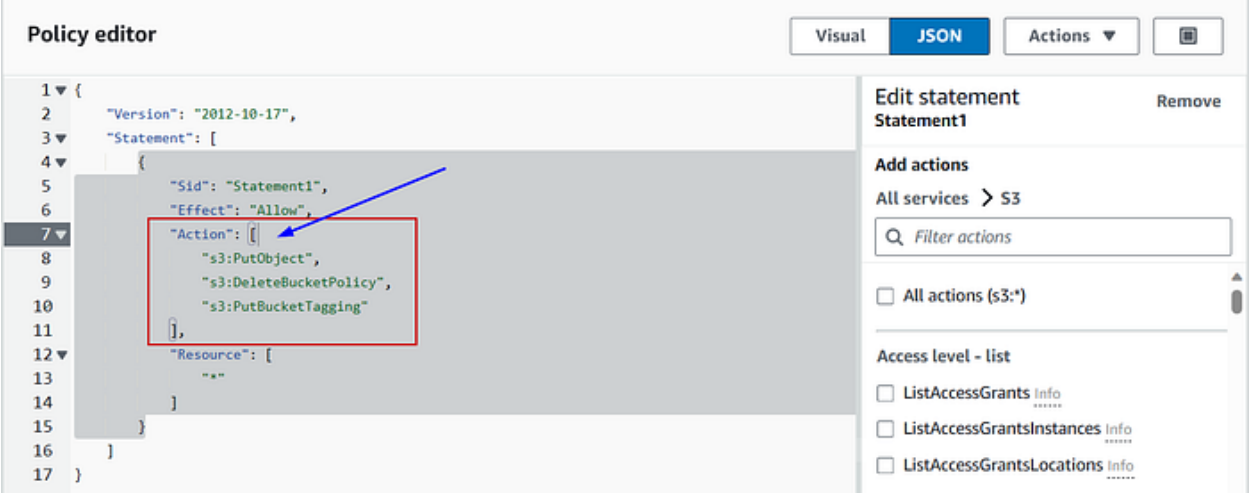
If you are using JSON, you need to write the policy.

⇨ Define Permissions:

Select the service (e.g., S3) and actions needed for bucket access control.

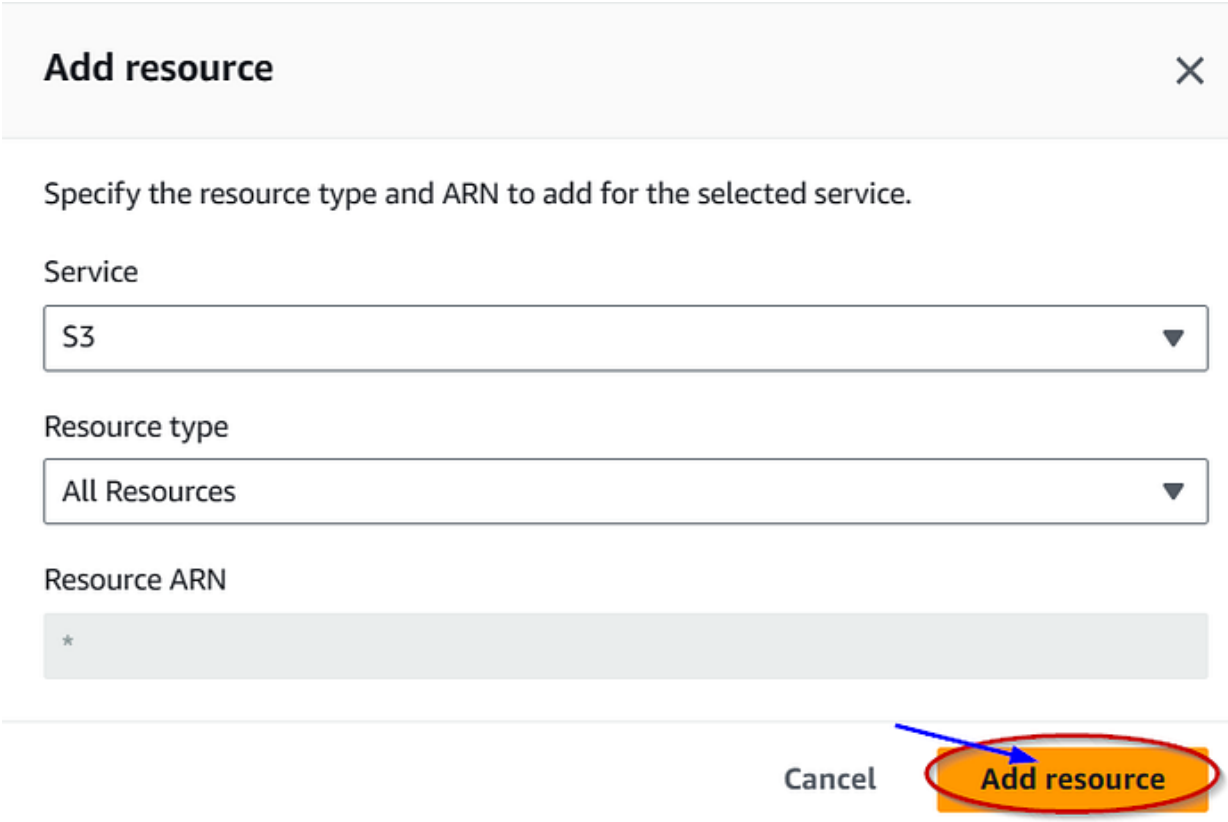


Specify actions like Put Object, Delete Bucket Policy, etc.

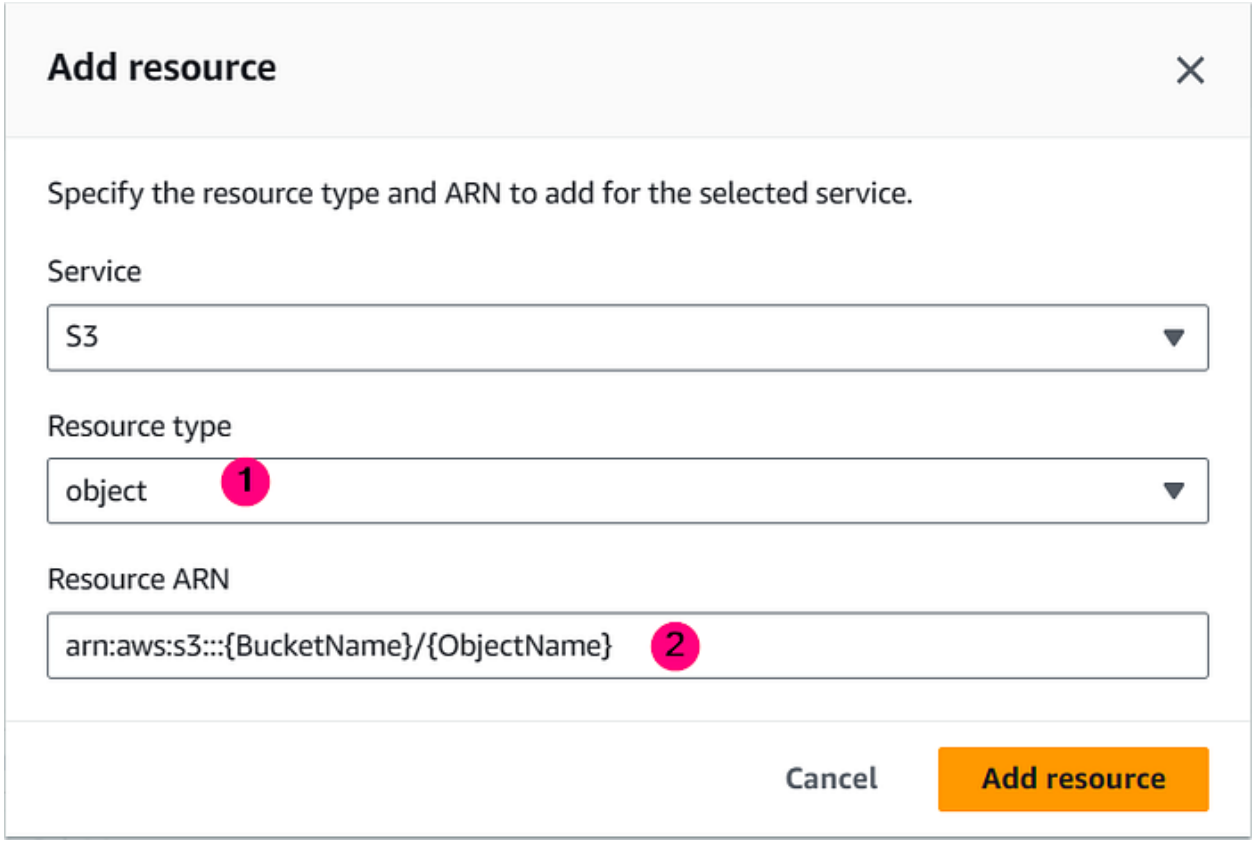


⇨ Select Resources:

Choose whether the policy applies to all S3 buckets or specific buckets.



If selecting specific buckets, specify the bucket ARN.



1. Resource type: object/bucket

2. Resource ARN:

Bucket Name: your Bucket Name

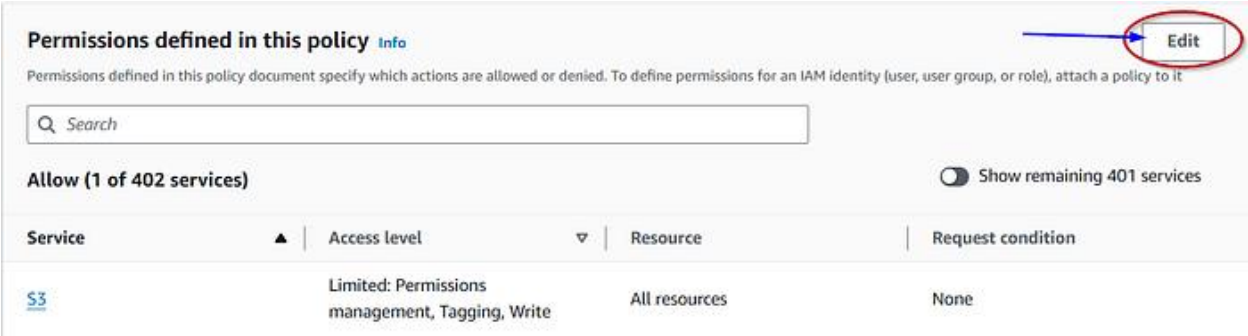
Object Name: your Object Name

⇨ Review and Create:

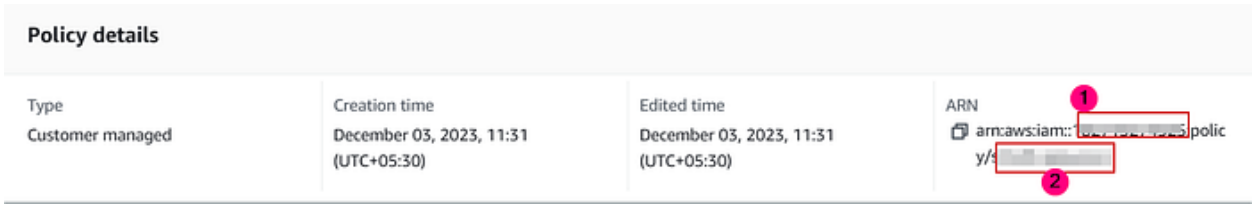
After configuring the policy, review the summary.

If you want to change the permissions, go to right side of tab and click the “Edit.”

Click on the “Add” button to generate the policy.



⇨ Policy details:



In ARN

arn:aws:iam::"Account ID":policy/"Policy Name"

1. The Account ID (who create the policy)

2. The Policy Name (Given by you)

The JSON Policy:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "Statement1",
            "Effect": "Allow",
            "Action": [
                "s3:PutObject",
                "s3:DeleteBucketPolicy",
                "s3:PutBucketTagging"
            ],
            "Resource": [
                "*"
            ]
        }
    ]
}
```

By following these step-by-step instructions for each use case, you can craft IAM policies tailored to your specific needs for EC2 snapshot management and S3 bucket access control.