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Contents

TASK 1- Accessing the console as an IAM user	2
DESCRIPTION.....	2
SCREENSHOT	3
TASK 2- Attempting read-level access to AWS services.....	3
DESCRIPTION.....	3
SCREENSHOT	4
REFLECTION	6
TASK 3- Analyzing the identity-based policy applied to the IAM user	7
DESCRIPTION.....	7
SCREENSHOT	7
REFLECTION	10
TASK 4- Attempting write-level access to AWS services.....	11
DESCRIPTION.....	11
SCREENSHOT	12

REFLECTION	13
TASK 5- Assuming an IAM role and reviewing a resource-based policy	14
DESCRIPTION.....	14
SCREENSHOT	14
REFLECTION	22
TASK 6- Understanding resource-based policies	23
DESCRIPTION.....	23
SCREENSHOT	24
REFLECTION	24
CHALLENGE TASK.....	25
REFLECTION	27
REFERNCES	27

TASK 1- Accessing the console as an IAM user

DESCRIPTION

In Task 1, I am going to access the AWS Management console an IAM (Identity and Access Management) user using **devuser**. The console will be displayed on my browser, and I will be able to perform various tasks and resources with my assigned permissions as an IAM user.

SCREENSHOT

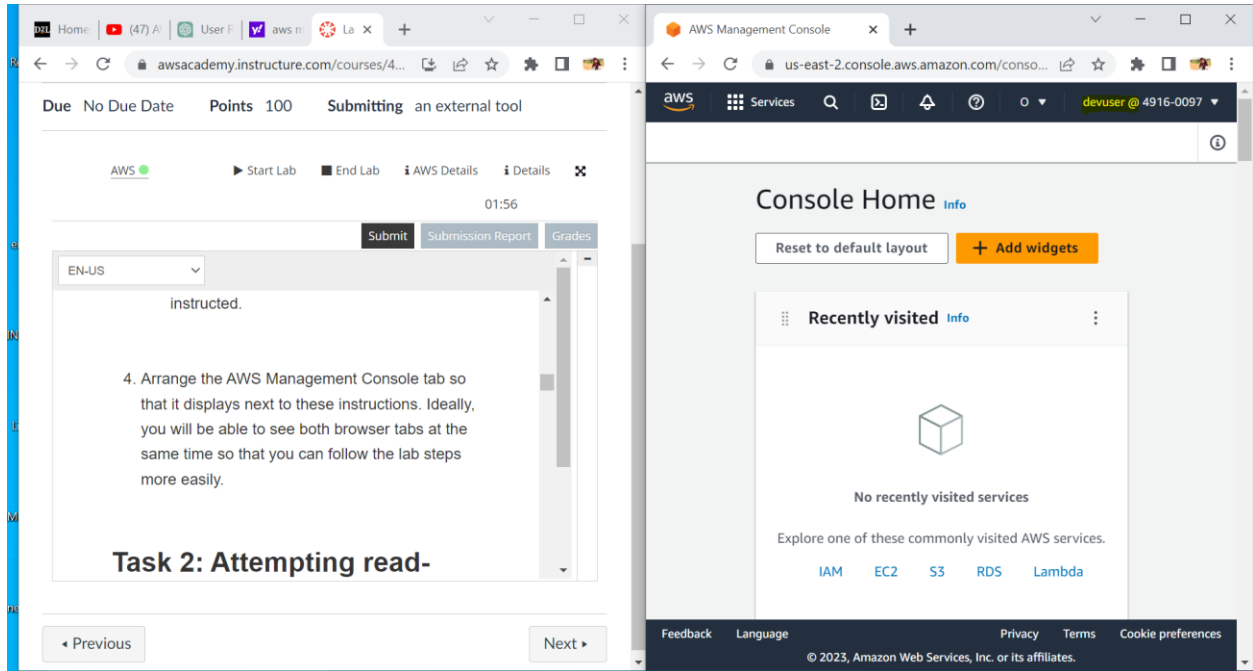


Fig 1 showing that I have access the console as devuser

TASK 2- Attempting read-level access to AWS services

DESCRIPTION

In this task, I will access the level of read-level access I have as IAM user named devuser to certain AWS services like Amazon EC2 and Amazon S3. I will be exploring the console and restrictions enforced by my current permissions.

SCREENSHOT

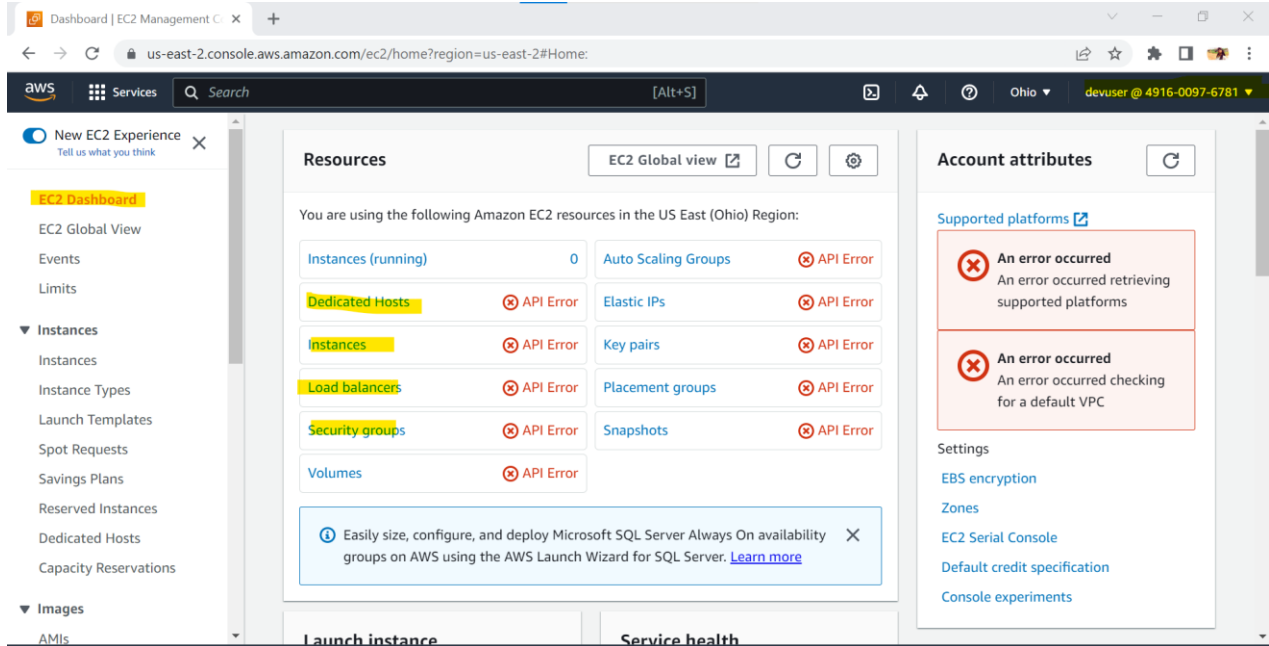


Fig 2 showing the API Error messages when I went to the EC2 dashboard.

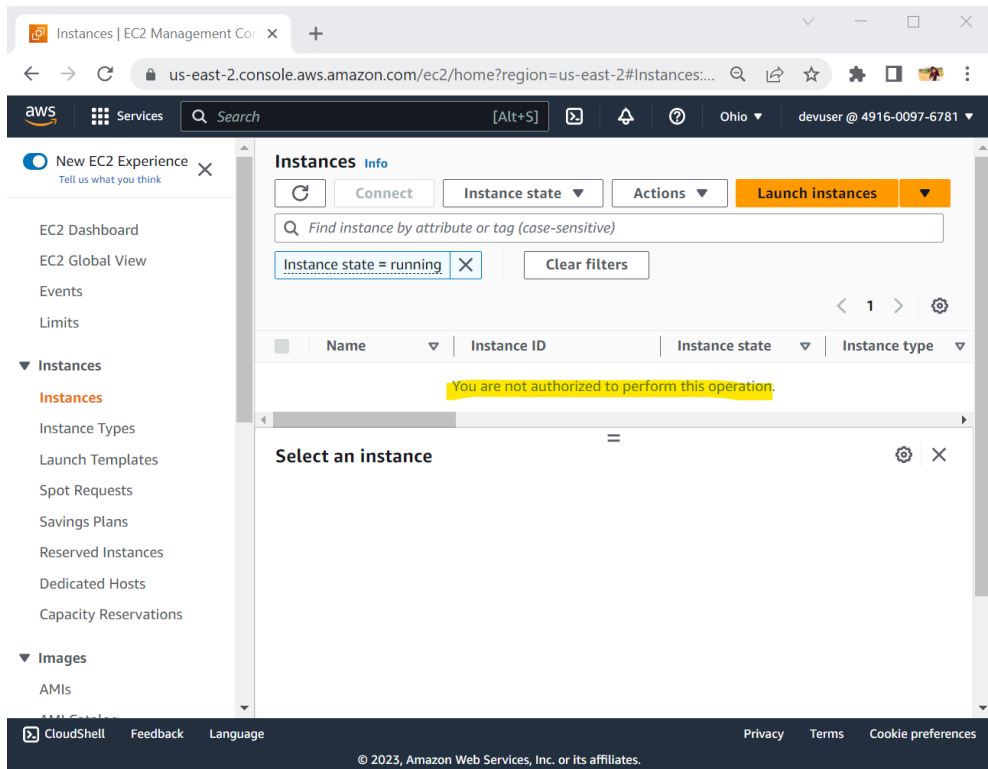


Fig 3 shows the display message.

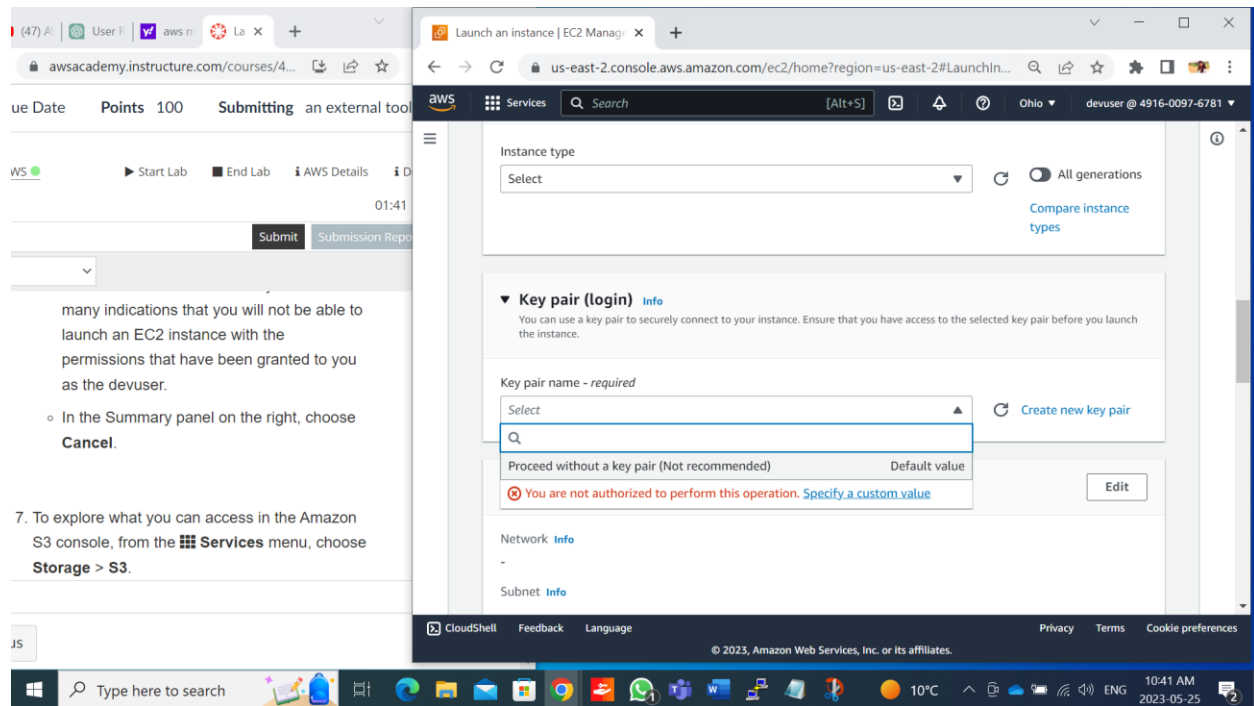


Fig 4 showing that I am authorized to perform this operation in the key pair name.

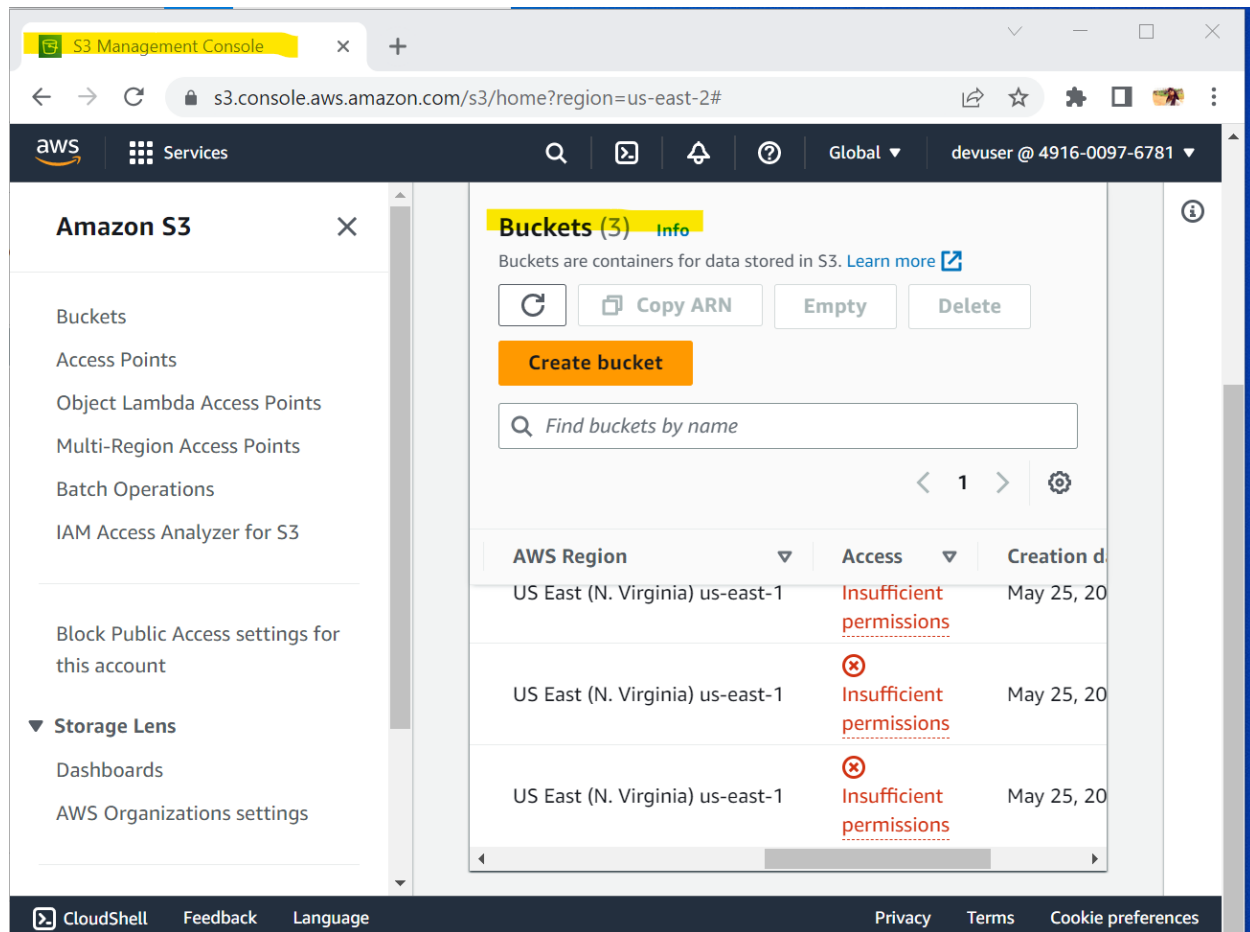


Fig 5 showing the display message in storage S3.

REFLECTION

I understood the access privileges and limitations associated with my IAM user account(devuser), providing me with valuable insights into your role's permissions within AWS. I navigated into Amazon EC2 console, I performed some operations such as viewing instances and launching instances to see error messages indicating that I am not authorized to perform those operations. I was able to know the extent of my access restrictions within the EC2 service. When I accessed the Amazon S3 console, I observed that the buckets listed showed me the

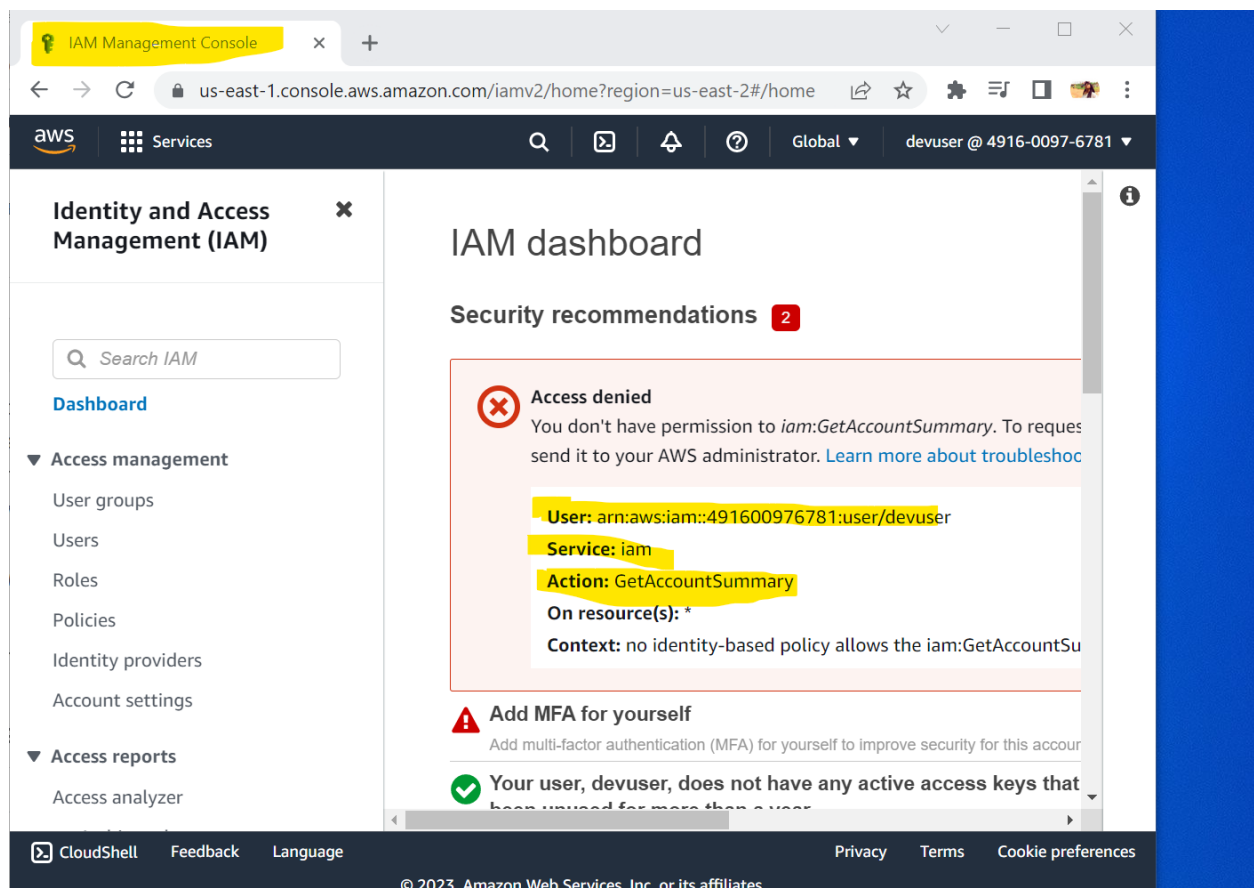
“insufficient permissions” in the access column. It shows that the S3 service has restricted my read-level access as the IAM user “devuser”.

TASK 3- Analyzing the identity-based policy applied to the IAM user

DESCRIPTION

In this Task, I will examine the identity-based policy that is applied to the IAM user “devuser” in order to understand the reasons for the restricted access in my pervious tasks.

SCREENSHOT



Flig 6 showing that I don't have permission to view certain parts of the page.

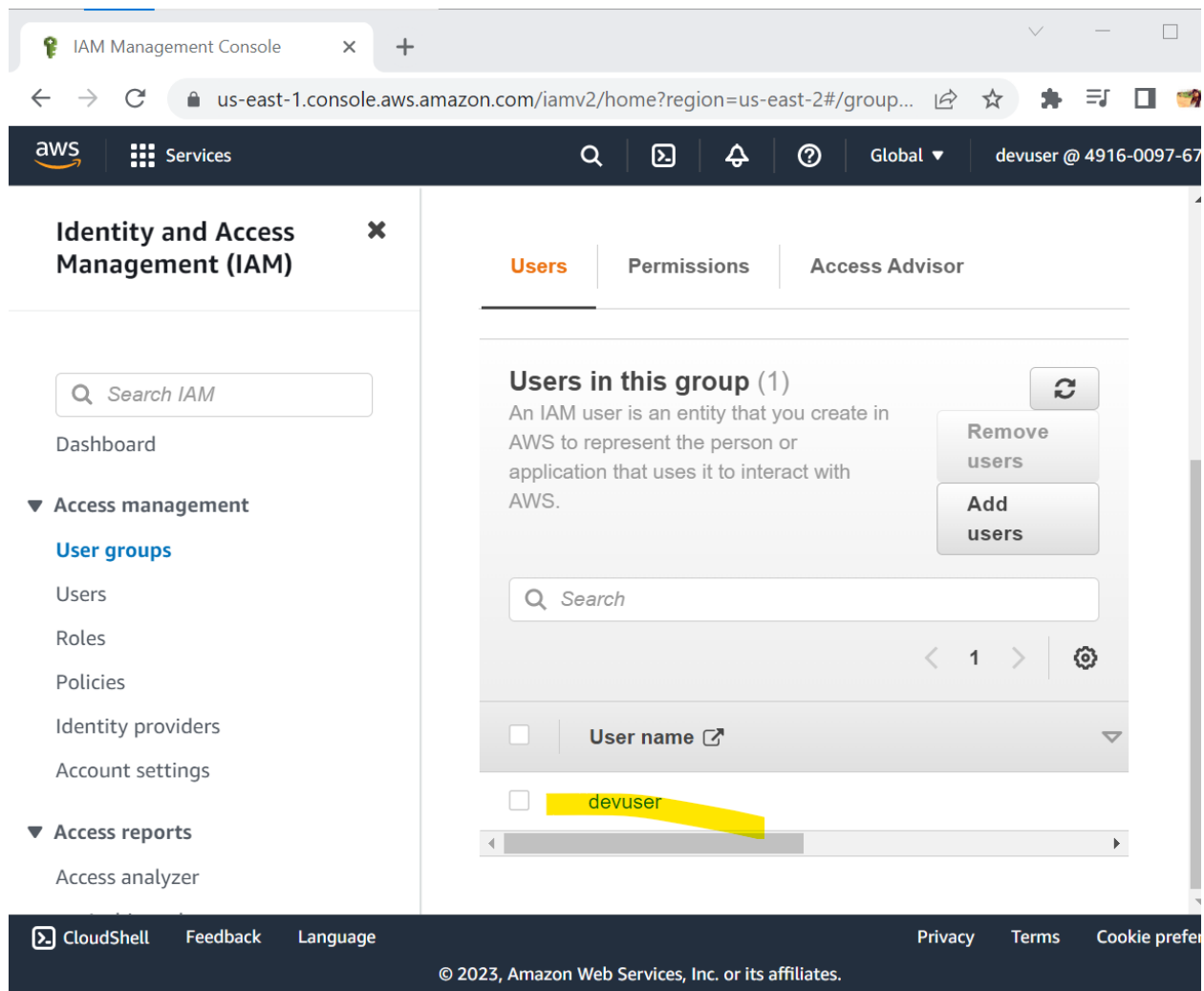


Fig 7 showing that devuser in a member of the IAM group.

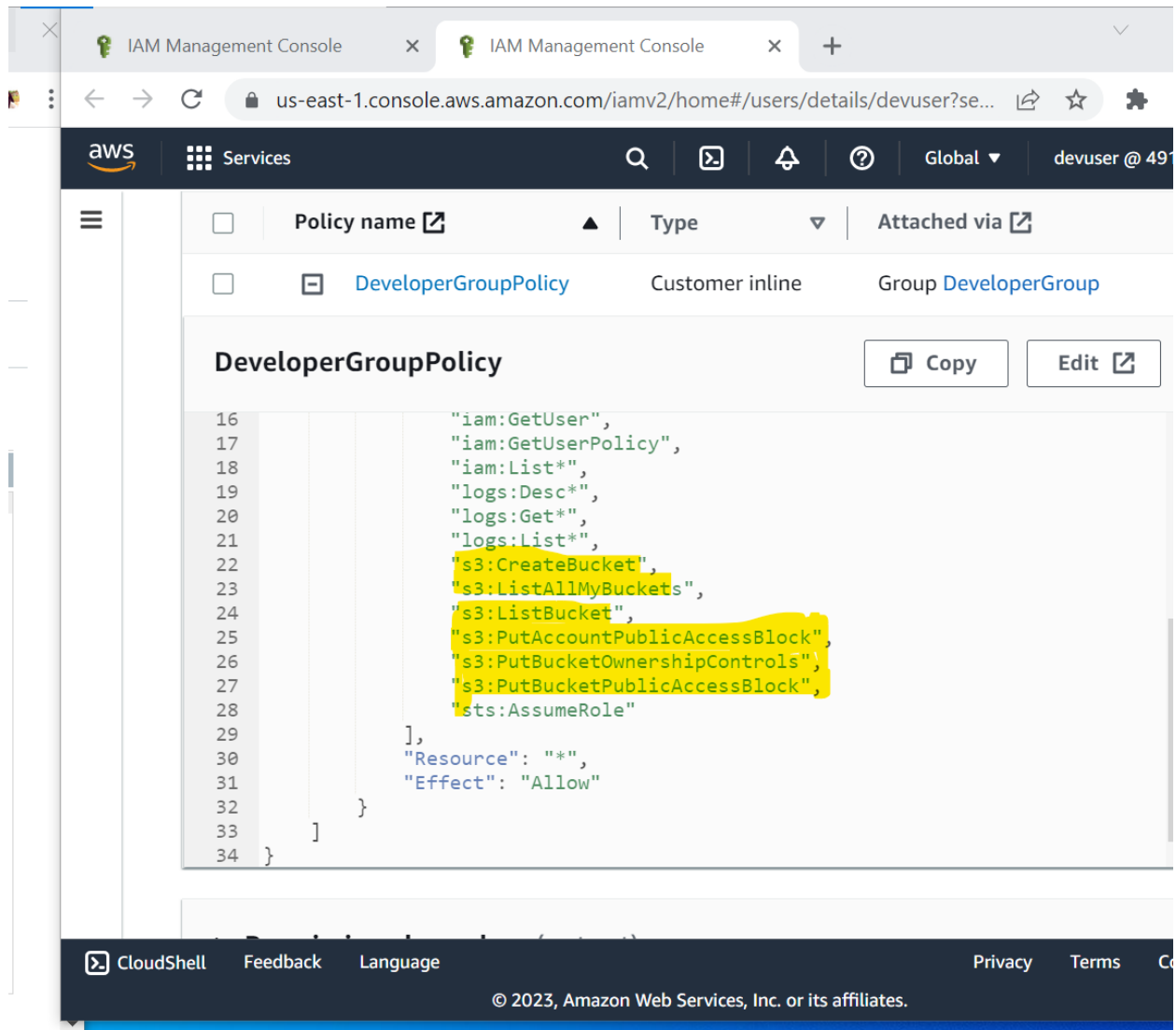


Fig 8 showing the policy details of developrgrouppolicy.

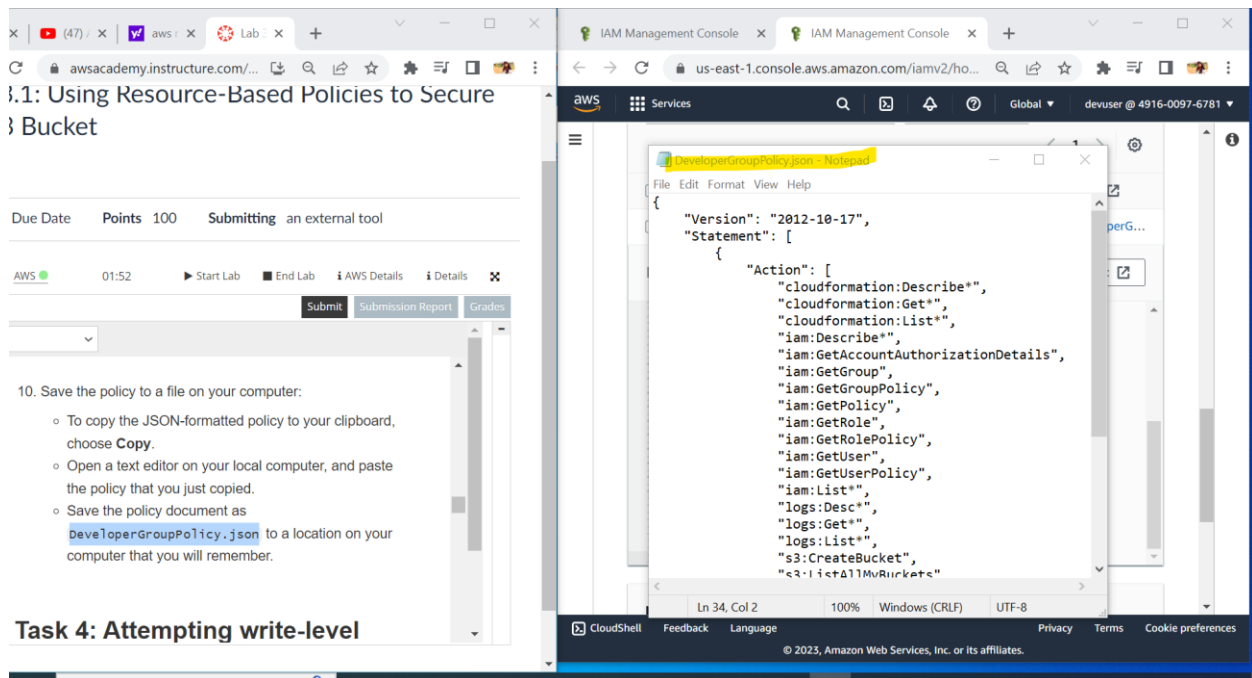


Fig 9 showing that I have saved the policy documents.

REFLECTION

Doing this lab, I was able to learn about the IAM group membership and the the IAM policy associated with the “DeveloperGroup” to which “devuser” belongs to, I observed JSON policy details to identify the permissions and restrictions enforced by the policy. In my User and group Membership settings, I saw message saying "User: arn:aws:iam::user/devuser is not authorized to perform: iam:GetAccountSummary on resource: when trying to view certain sections of the IAM dashboard. I can verify that ‘devuser’ belongs to the IAM group “DeveloperGroup.” In the IAM policy, I viewed the policy called “DeveloperGroupPolicy” that is a part of the “DeveloperGroup” IAM group. I notice the policy in the JSON policy saying that *“there are no Amazon EC2 actions permitted by the policy, the IAM actions that the policy allows, such as read-level IAM permissions, the Amazon S3 actions that the policy allows, specially related to*

buckets, but not object-related actions.” A set of regulations known as an IAM policy establishes restrictions in accessing Amazon EC2 and S3 services. This policy restricts me from accessing files in the Amazon S3 or launching new instances in the Amazon EC2, it ensures that that I only have access to the services and activities required for my work (*least privileges*). From my understanding, the IAM policy functions like a set of rules that govern what I can and cannot do in the AWS, it helps in securing the account and AWS resources by giving me only resources I need to do my job.

TASK 4- Attempting write-level access to AWS services

DESCRIPTION

In this Task 4, I will attempt write-level access to AWS services, especially Amazon S3. I will perform actions that require write-level access privileges by creating an mi9960(S3) bucket and upload a file to it. I will know the level of access granted by the IAM policy and to investigate why I cannot or can perform specific API calls.

SCREENSHOT

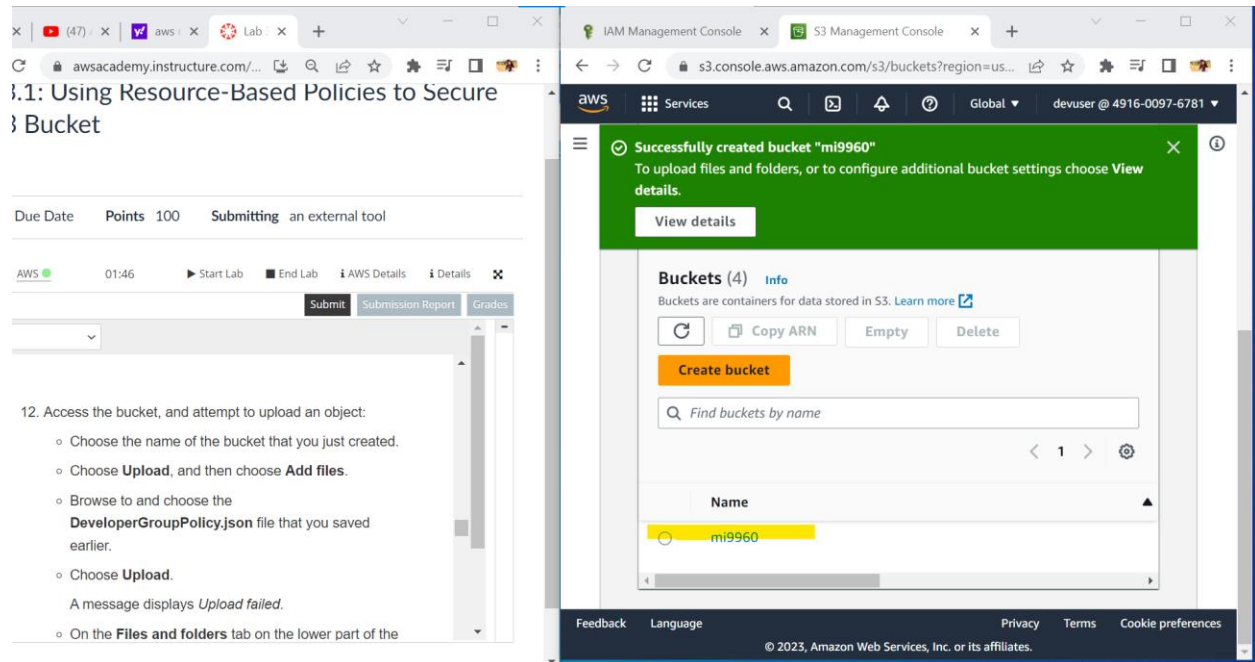


Fig 10 showing the bucket I created.

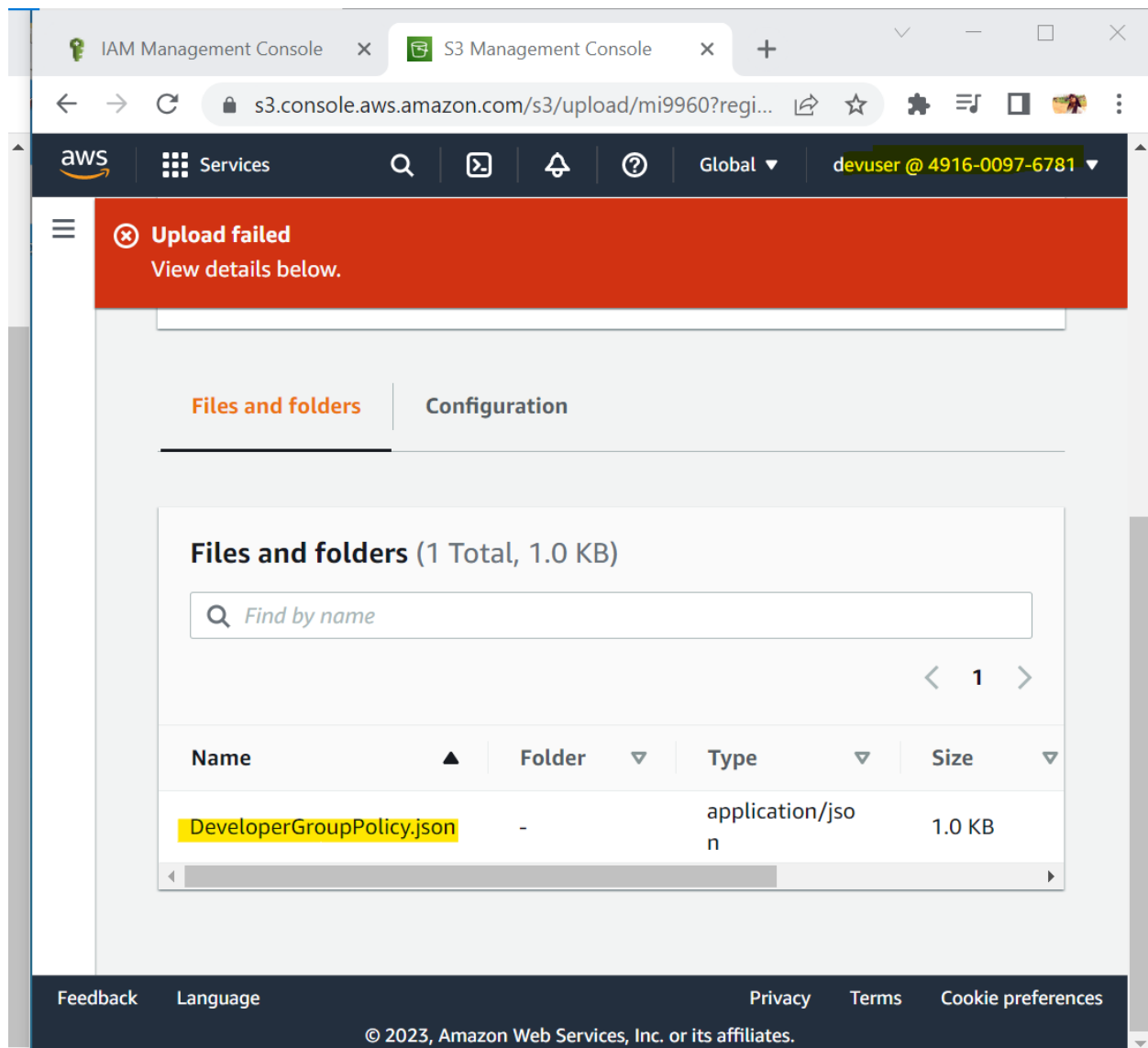


Fig 11 shows I was unable to upload the file because I don't have the permission to upload files and folders.

REFLECTION

Doing the task, I was able to learn about the permissions defined by the IAM policy that governs my access to AWS services. From the review policy details that I copied to my text editor and

named DeveloperGroupPolicy.json, I saw some list of policy like, s3: createbucket, that's y I was able to create a bucket, s3:listallmybuckets, s3:listbucket, s3:PutBucketOwnershipControls,s3:PutBucketPublicAccessBlock. But the policy does not allow s3:PutObjectaction, that was why I wasn't able to upload the file to S3buckets. The policy grants me permission to create and manage S3 buckets but does not provide write-level access to upload objects.

TASK 5- Assuming an IAM role and reviewing a resource-based policy

DESCRIPTION

In this task, I will perform some action on AWS S3 buckets using various IAM roles in this task. I will switch to a preconfigured IAM role for the lab, I will use it to control access to specific Amazon S3 bucket 1, I will be able to download objects but not in bucket 2. I will have a proper understanding of the IAM role.

SCREENSHOT

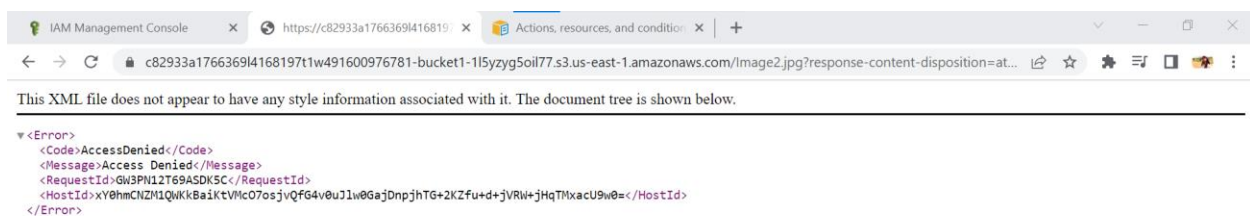


fig 12 showing that I don't have access to download image2 in bucket1.

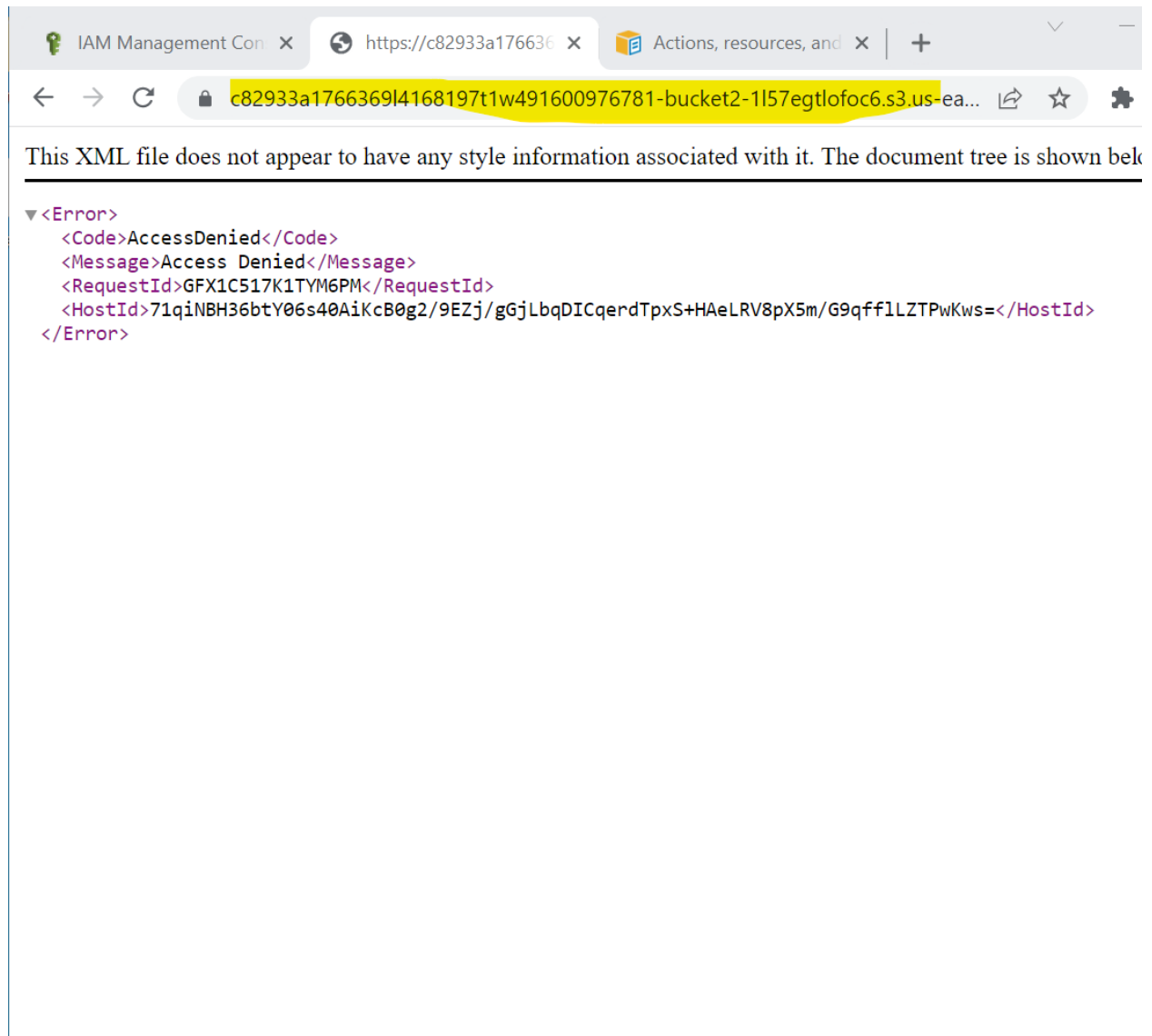


Fig 13 showing that I don't have access to download image1 in bucket2.

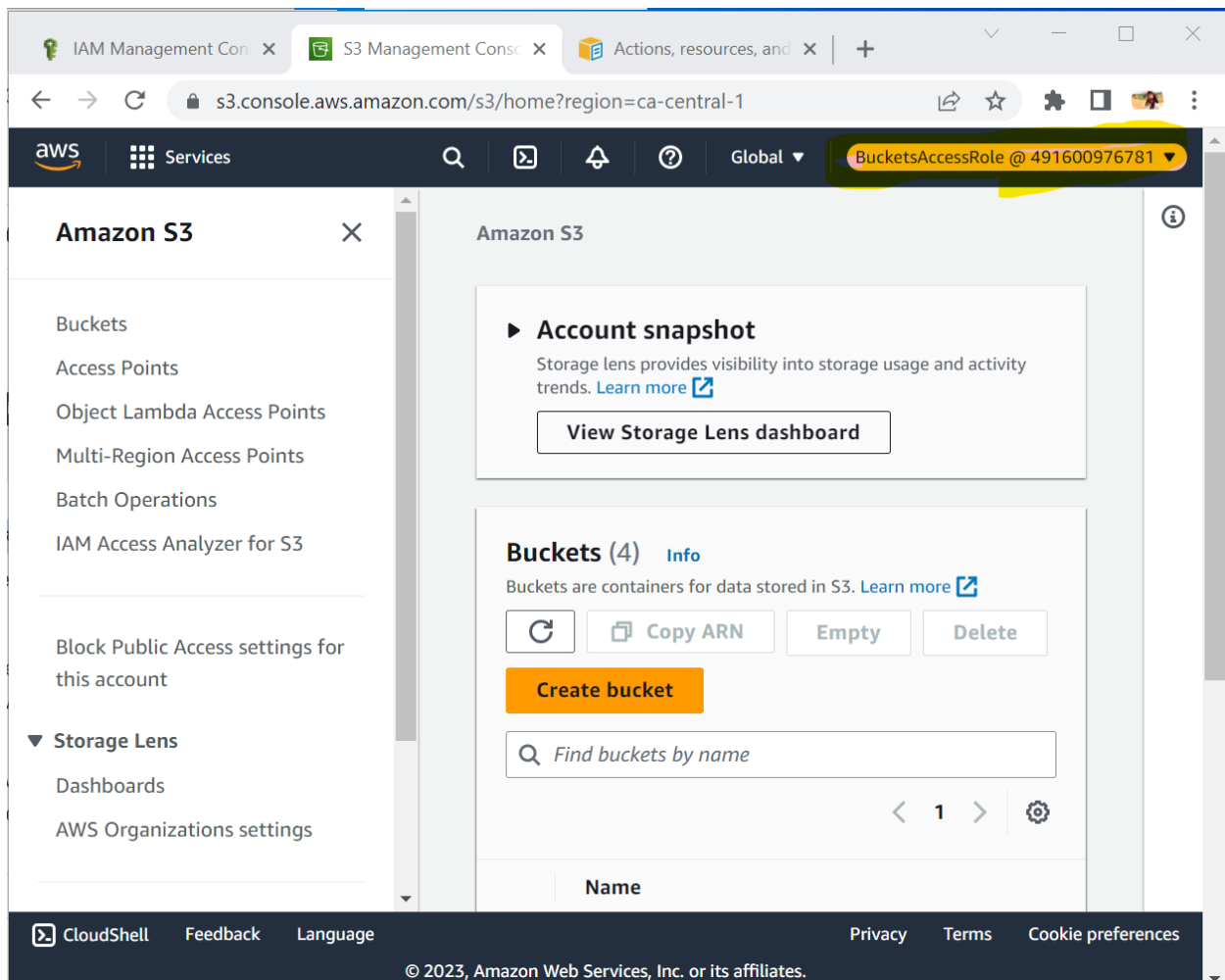


Fig 14 shows that I have switched roles.

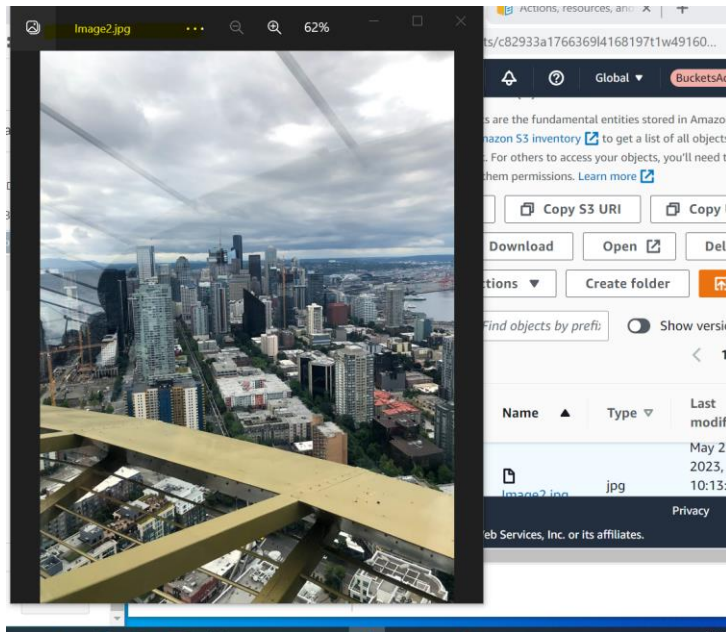


Fig 15 shows the image 2 I downloaded from bucket1.

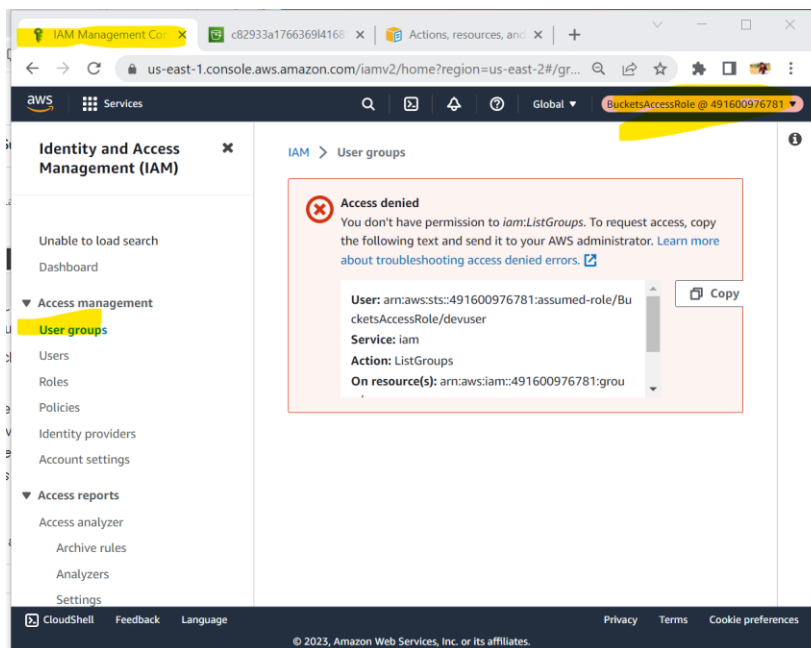


Fig 16 shows that I don't have permission to view the IAM user groups because the BucketAccessRole does not have the permission.

The screenshot shows the AWS IAM Management Console interface. The left sidebar contains the 'Identity and Access Management (IAM)' menu with options like Dashboard, Access management, Access reports, and Credential report. The main content area displays a table of policies for the 'BucketsAccessRole'. The 'ListAllBucketsPolicy' is selected, showing its JSON definition. The JSON includes a statement that allows the 's3:ListBucket' action on all resources. The user's profile 'devuser' is visible in the top right corner.

Policy name	Type	Description
GetBucketPolicy	Customer ini...	-
GrantBucket1Access	Customer ini...	-
ListAllBucketsPolicy	Customer ini...	-

```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Action": [
6         "s3:ListBucket"
7       ],
8       "Resource": "*",
9       "Effect": "Allow"
10    }
11  ]
12 }
```

Fig 17 shows that I can see S3 bucket when I assume bucketaccessrole.

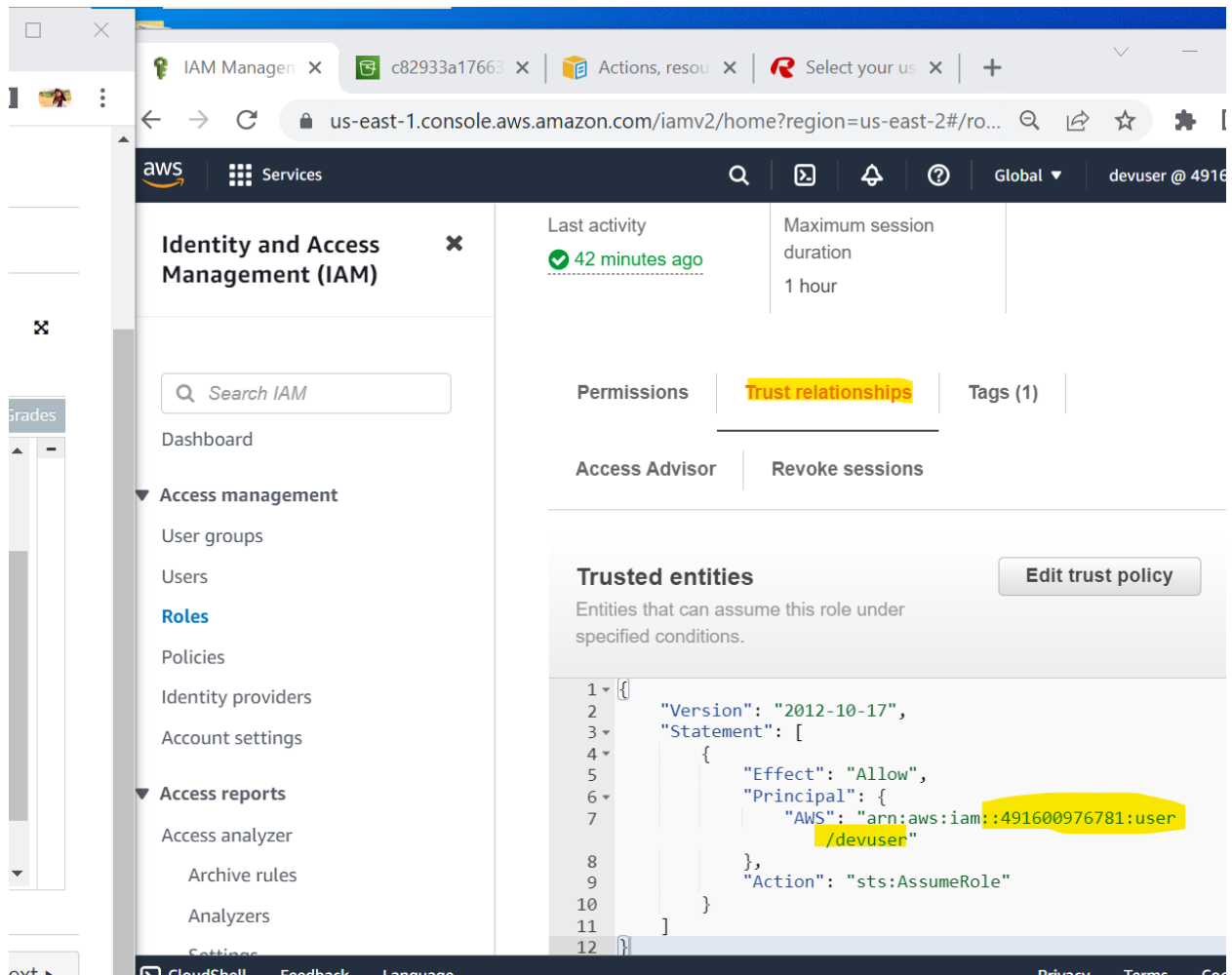


Fig 18 shows that devuser IAM user is listed as a trusted entity.

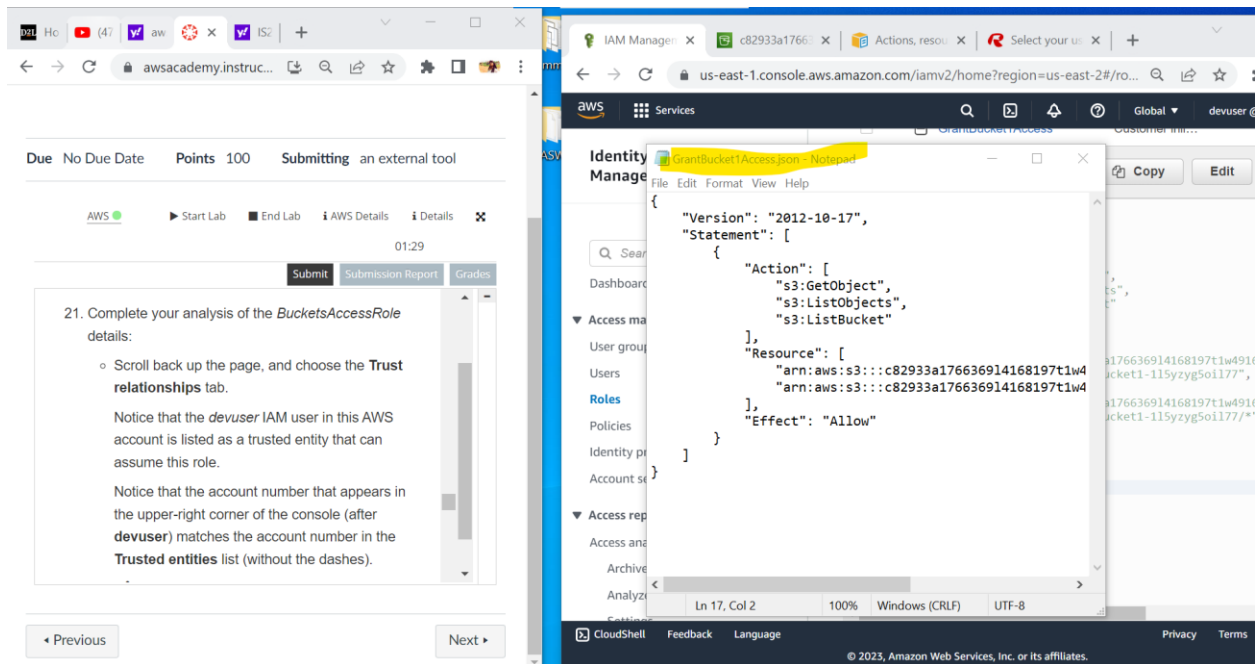


Fig 18 shows that I have saved the JSON-formatted policy.

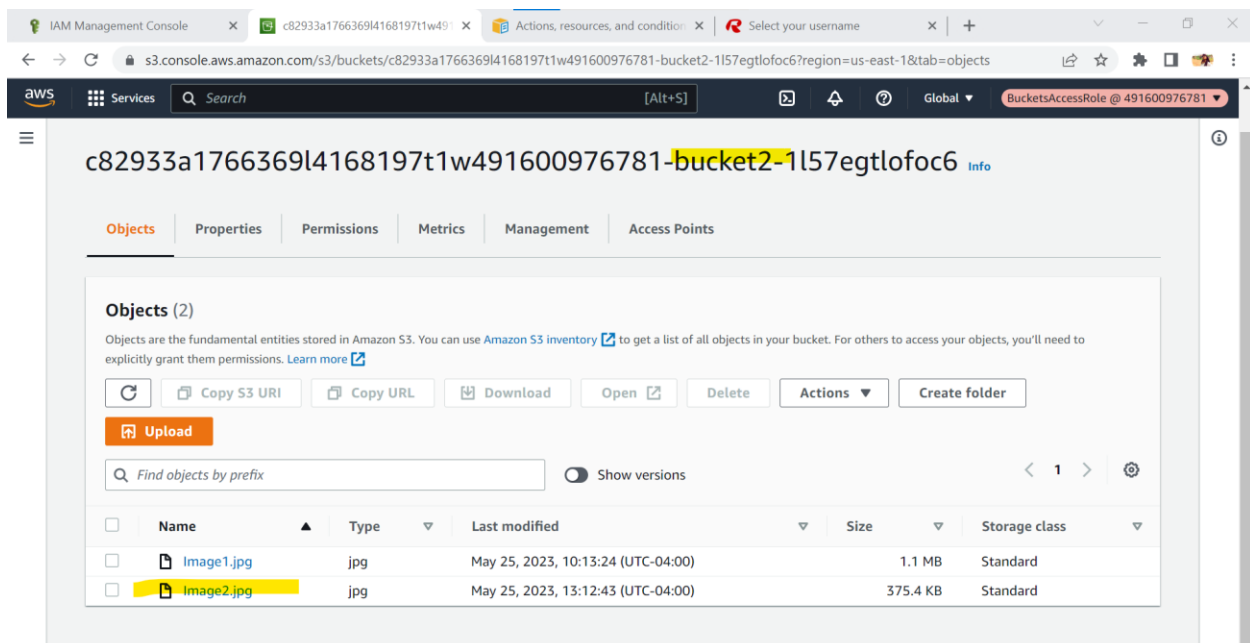
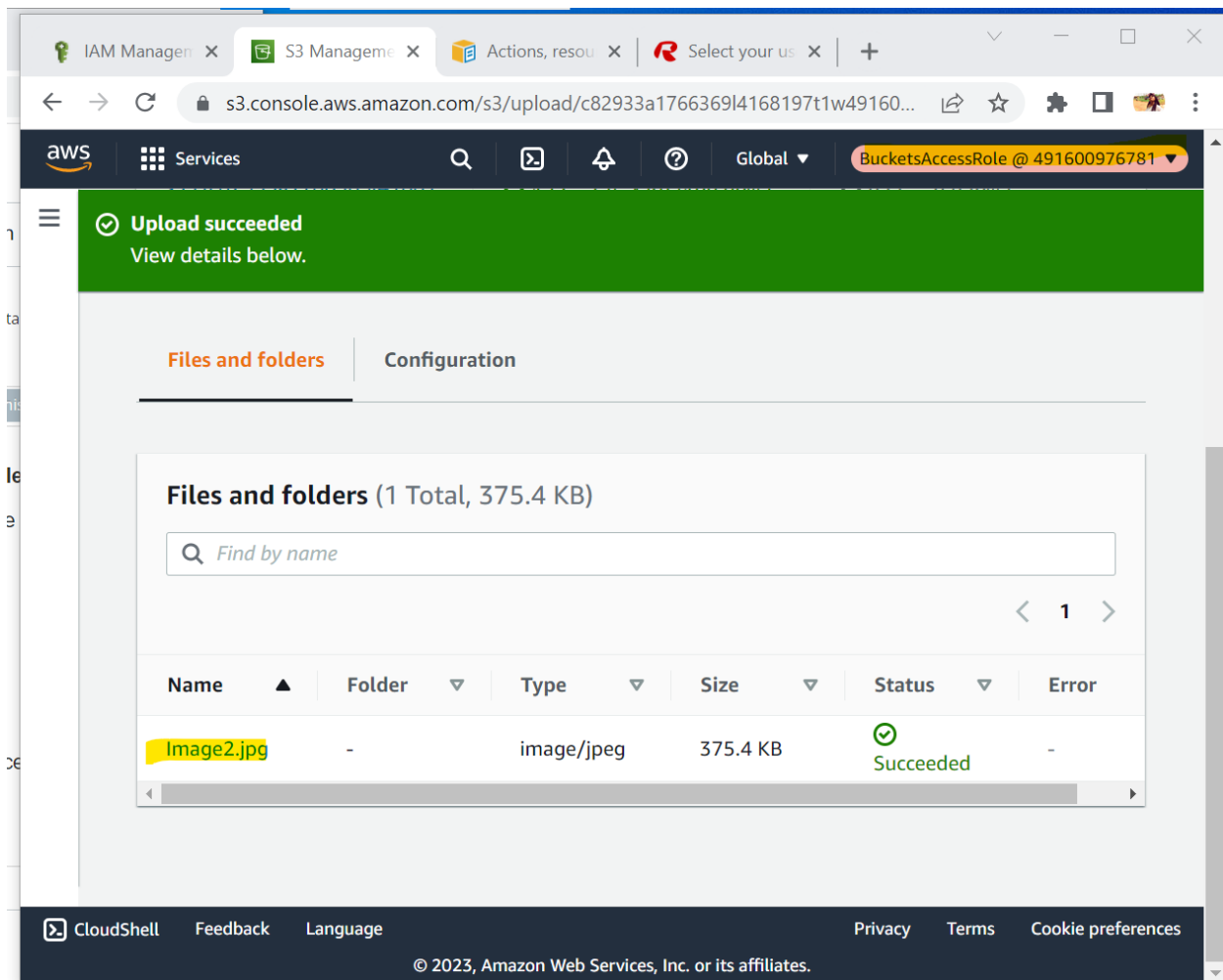


Fig 19 shows that I have uploaded image 2 to bucket2.

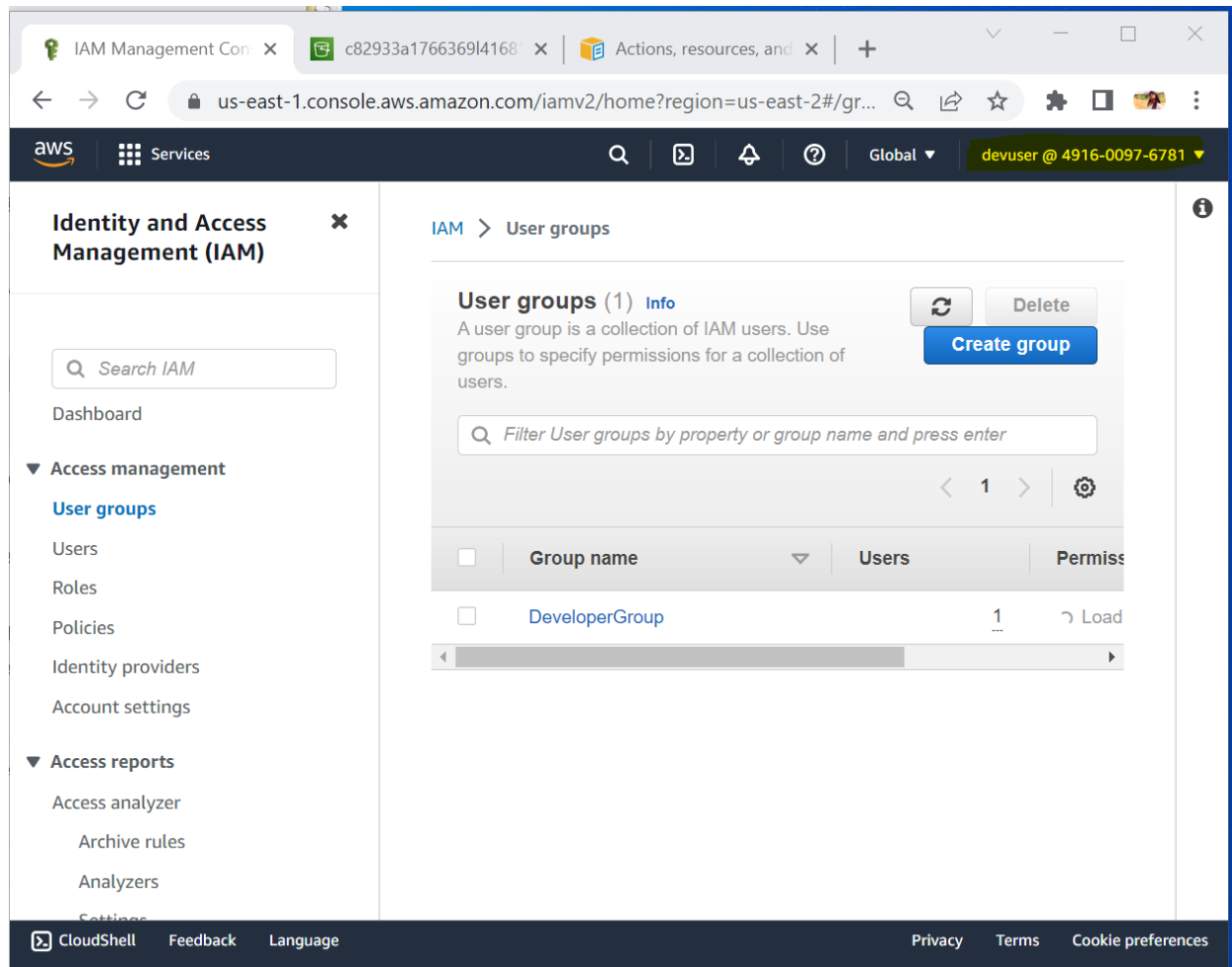


Fig 17 shows that the permission is back now I have switched back to devuser.

REFLECTION

Doing this, I had a proper understanding of the IAM role, I was able to download object from bucket1 but not bucket2 after assuming **BucketsAccessRole** because the IAM policies associated with the role allow specific actions on bucket1 only. The policy grants permissions for the s3:

GetObject, s3:ListObjects, and s3:ListBucket actions, but it is configured to apply to bucket1 and its objects (indicated by /* wildcard). Since Bucket2 isn't included in the policy, I won't be able to download objects from bucket2. I tried accessing the usergroup using **BucketAccessRole** but it showed me an error message because the bucketAccessRole does not have the necessary permission (**iam:ListGroups**) to view the IAM user groups page. The IAM role are similar to special permission sets that allow you to do specific things in the AWS. The **bucketAccessRole** does not have the ability to manage IAM user groups, which are managed by a separate AWS service, that was why I got an error message when I viewed the user group page. I was to check who can utilize a role by looking at the BucketAccessRole details, I saw that the bucketAccessRole is used by the devuser IAM user inside the same AWS account. It shows that the devuser has the ability to temporarily assume the BucketsAccessRole and gain its capabilities. The account number shown in the upper-right corner of the console matched the account number in the trust entities, it means that the devuser is trusted within the same AWS account. From my understanding, I believe that the STS (AWS security Token Service) helps to give temporary permissions to trusted users, so when devuser assumes **bucketsAccessRole**, they have access to its permissions.

TASK 6- Understanding resource-based policies

DESCRIPTION

In this final Task, I am going to understand resource-based policies associated with bucket 2. I will inspect the bucket policy to determine the permissions granted to the **BucketAccessRole** IAM role, which I assumed earlier.

SCREENSHOT

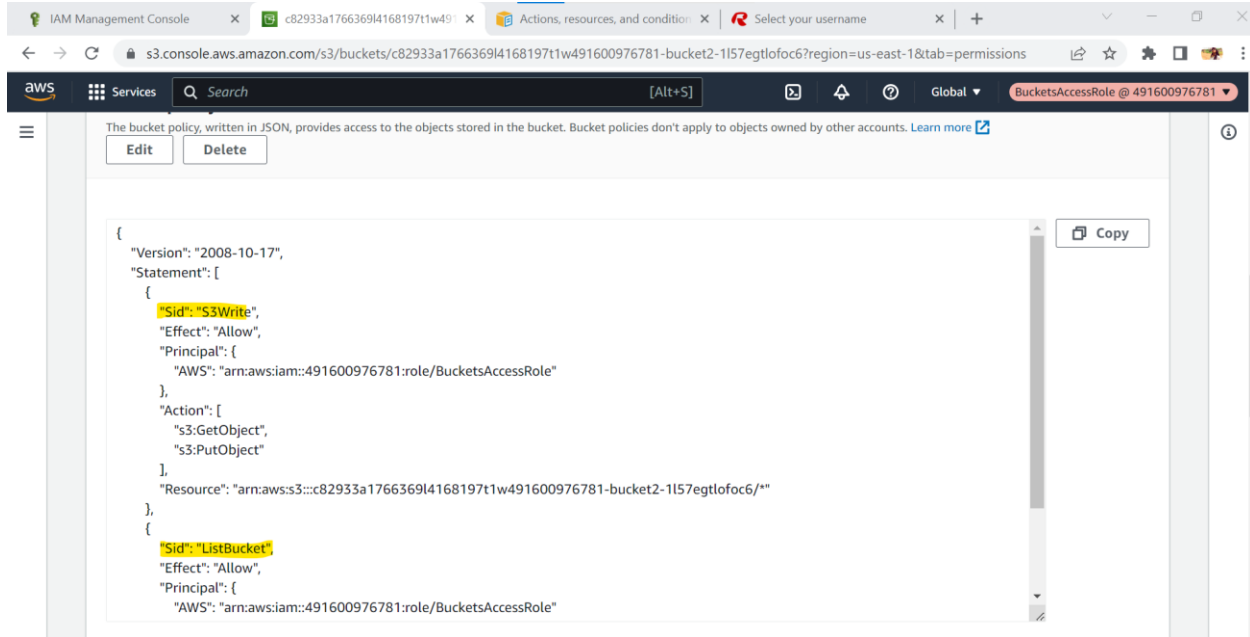


fig 18 shows the two policy statements in the bucket policy.

REFLECTION

When I reviewed the bucket policy, I discovered that it consists of two statements. The first statement, with the SID (Statement ID) "S3Write", enables the s3:GetObject and s3:PutObject activities to be carried out on bucket2 by the BucketAccessRole. The second sentence allows the BucketAccessRole to perform the s3:ListBucket action on bucket2 and has the SID "listBucket." I had a clear understanding of how resource resource-based policies (like s3 bucket policies) and role-based (connected to IAM role) cooperate with one another. Although access to bucket2 was implicitly denied by the role-based regulations, it was also not expressly granted. The BucketsAccessRole gives access to bucket2 and the ability to upload objects (s3:PutObject) by the resource-based bucket policy.

CHALLENGE TASK

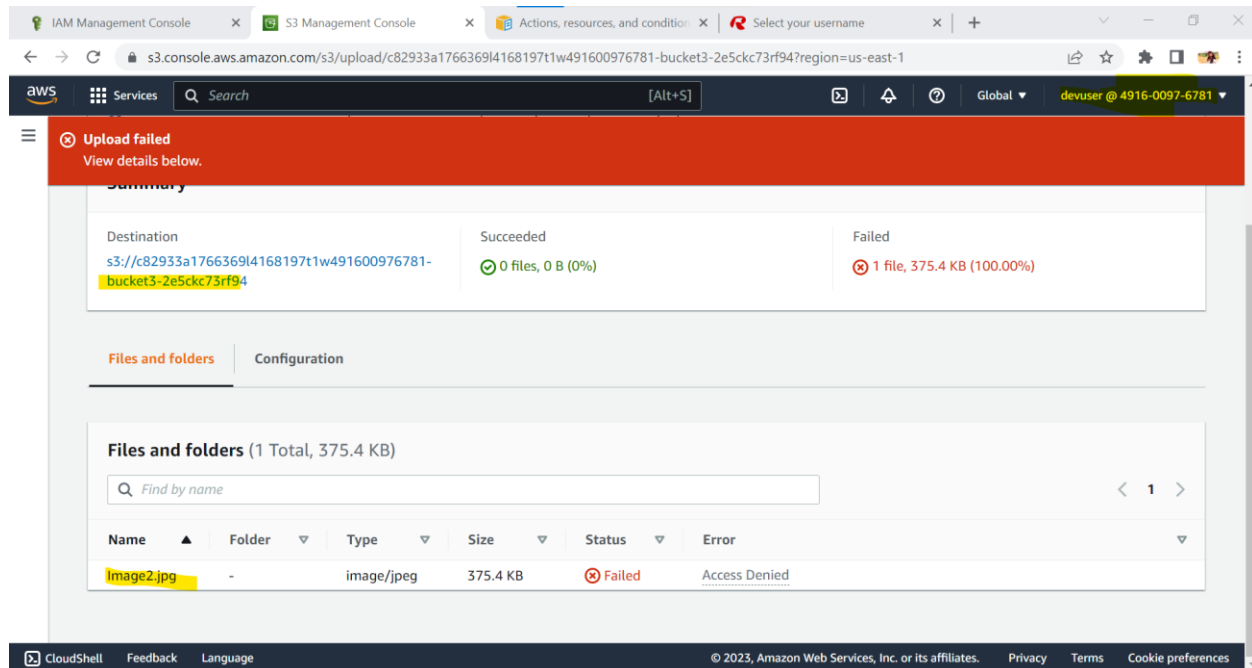


Fig 19 shows that I can't upload the image 2 to bucket 3.

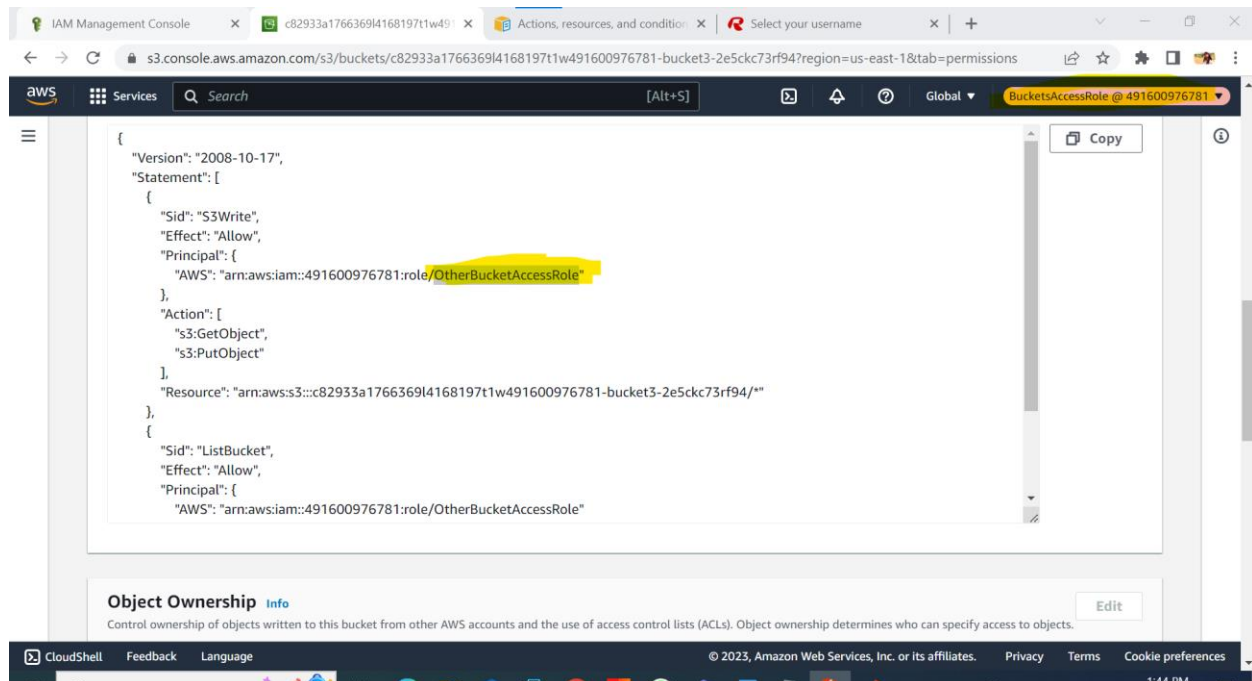


Fig 20 shows the policy for bucket 3 that will enable me to upload the Image.

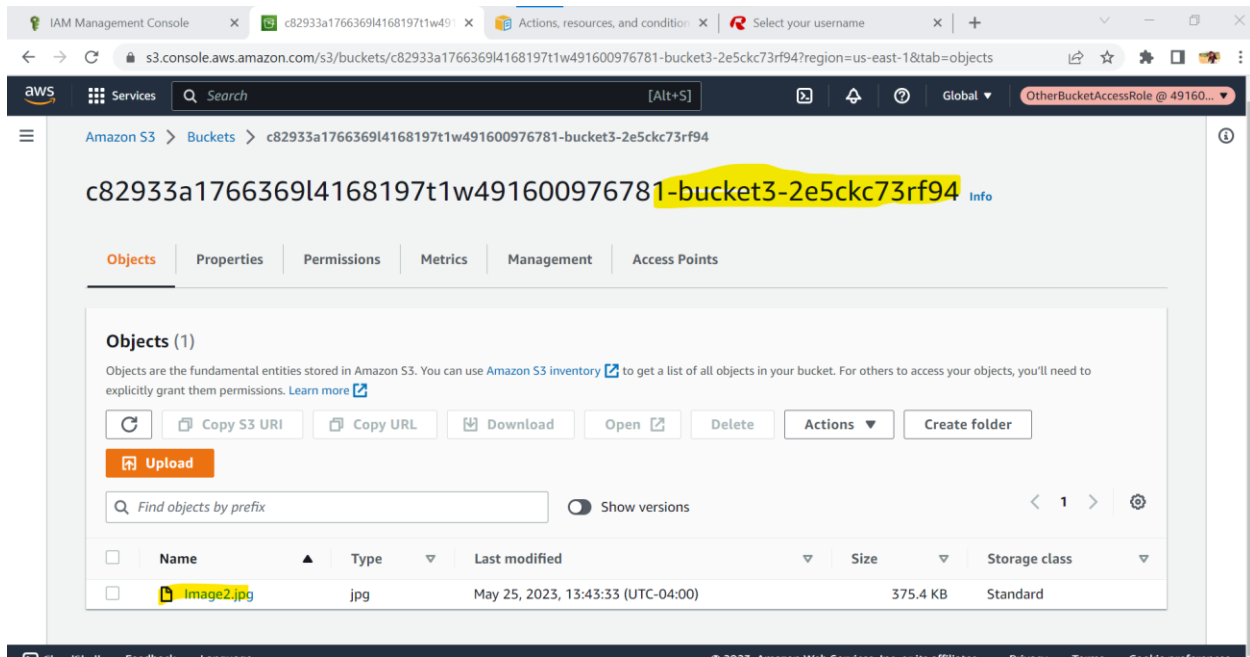


Fig 21 shows that I have successfully uploaded the image 2 to bucket 3.

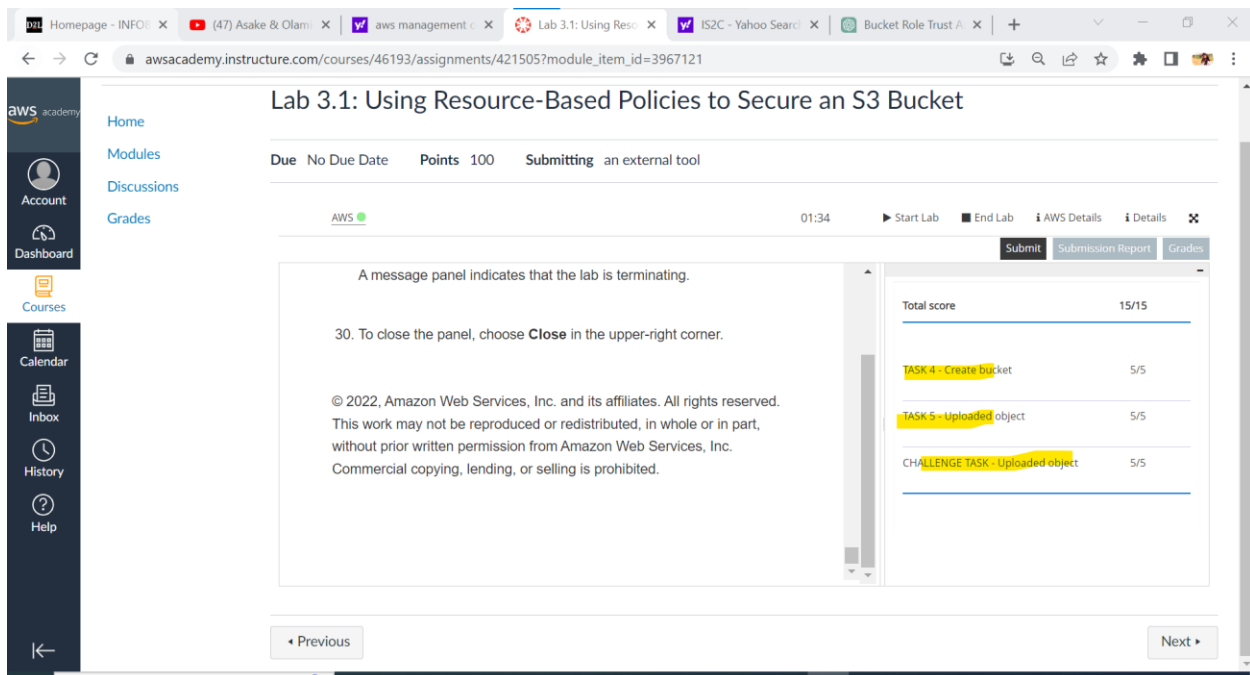


Fig 22 shows that I have completed the task.

REFLECTION

I was able to upload the image to bucket 3 because I switched the role to

“otherBucketAccessRole” permissions after viewing the policies in bucket 3 to perform the actions. These permissions enable me to upload the image because it has the permission to do it.

REFERNCES

Policies and permissions in IAM - AWS Identity and Access Management. (n.d.).

https://docs.aws.amazon.com/IAM/latest/UserGuide/access_policies.html