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Practical No. 1

A] Creating an AWS Account – A Step by Step Process

Creating an AWS Account is the first step you need to take in order to learn Amazon Web Services. Signing up for AWS provides you with all the tools you require to become an AWS professional.

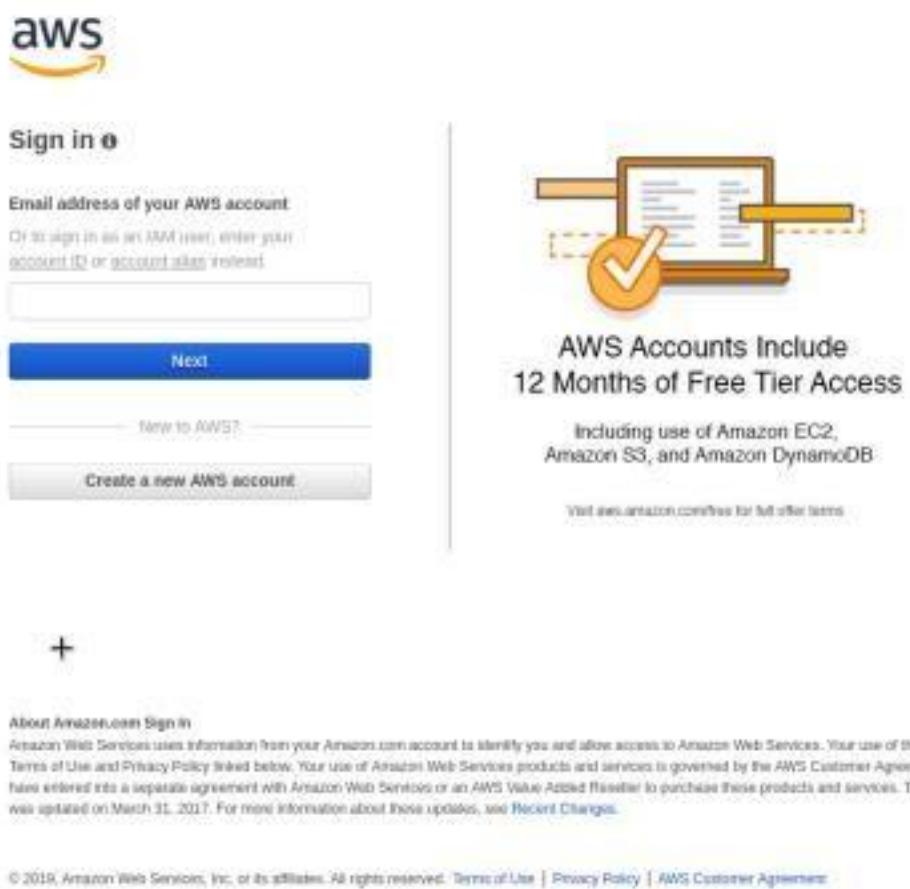
In this practical, we will look at the step-by-step process of Creating an AWS Account.

Step 1 – Visiting the Signup Page

Head over to the Amazon Web Services [website](#) for Creating an AWS Account. You should see something like below:



In order to continue, click the Complete Sign Up button in the middle of the screen or on the top right corner of the screen. You will see the below screen.



If you are an existing user, you can sign in. Or you can click on the Create a new AWS account button. On this screen, you can also select your language preference from the dropdown below.

Step 2 – Entering User Details

After you have chosen to Create a new AWS account, you will see the below screen asking for a few details.

The screenshot shows the 'Create an AWS account' page. At the top, there's a message: 'AWS Accounts Include 12 Months of Free Tier Access'. Below this, there are fields for 'Email address', 'Password', 'Confirm password', and 'AWS account name'. A large yellow 'Continue' button is prominently displayed. Below the button, there's a link 'Sign in to an existing AWS account' and a small note at the bottom right: 'AWS Account Creation - An AWS Service Agreement is required. Accept terms & conditions'.

You can fill up the details as per your requirements and click Continue.

Next you will be asked to fill up your contact details such as contact number, country, address and so on. You should fill them up properly because your contact number is important for further steps.

Please enter the account type information for this account and click Next Step.

Account type:

- Professional
- Personal

First name:

Last name:

Email address:

Phone number:

Country/Region:

Address:

City:

State / Province or region:

Postal code:

I check this to indicate that I've read and agree to the terms of the AWS Customer Agreement.

Create Account **Continue**

Note that unless you are creating an account for your organization, it is better to select Account Type as Personal.

After filling up the details, click on the Create Account and Continue button at the bottom of the form.

Step 3 – Filling up the Credit Card details

For Creating an AWS Account, you need to enter your Credit Card details.

Please type your payment information and card verify your identity. This will not charge you unless you usage goes beyond the AWS Free Tier limits. Review Frequently Asked Questions for more information.

This payment information is used to verify your AWS account and does not charge your credit card. You can cancel this payment method at any time via AWS Management Console or contact customer support.

Cardholder's name:

Card number:

Expiration date:

Cardholder's name:

However, don't worry. This will not charge anything from your account (except for a verification amount that will be refunded back). But this is required in case you exceed the free-tier limit available with a new AWS Account.

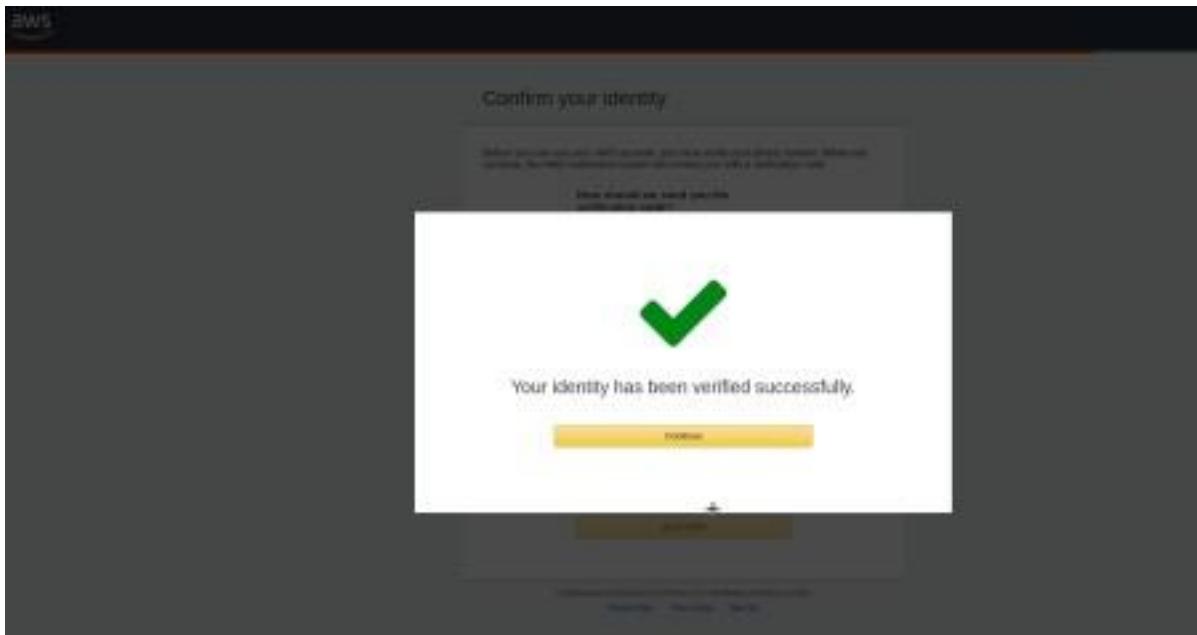
After entering the details, click on the Secure Submit button. It might take a while to process the request depending on your bank/credit card company servers.

Step 4 – Identity Confirmation

Once the credit card details are confirmed, you will need to complete the Identity Confirmation step. You will see the below screen:

Basically, you need to select a mode to confirm your identity. It could be a Text Message or a Voice call to your valid phone number.

Once you have verified successfully, you should see a screen like below:



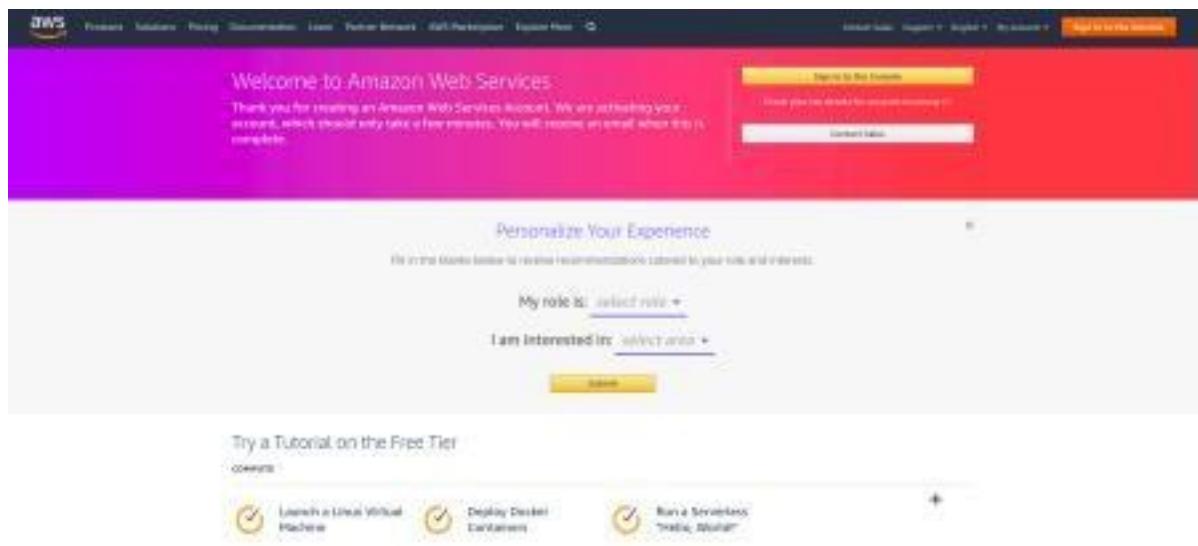
Click on Continue to proceed further.

Step 5 – Selecting a Support Plan

In the next step for creating an AWS Account, we need to select the plan for our AWS Account.

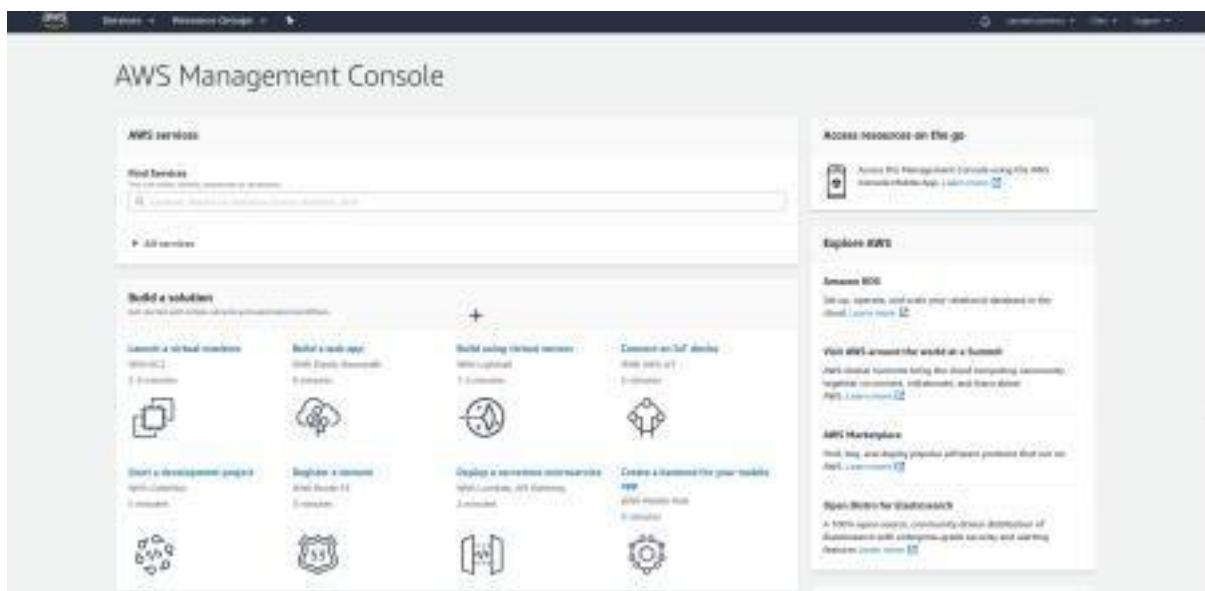
Unless you are planning to do some professional development, I would suggest selecting the Basic Plan. It is Free of cost and great for learning purposes.

The other plans are a Developer Plan and a Business Plan. But both of them are paid options. Once you select your plan, you will see the below Welcome screen. From here on, you can Sign in to your AWS Console.



Here, you also have the option of personalising your experience of using Amazon Web Services.

However, you can also simply continue by clicking Sign in to the Console. After this, you will be again presented with the sign in screen where you can now use your credentials to login. Finally, after logging in, you should be able to see the AWS Management Console as below:



If you have reached this far, you have successfully finished Creating an AWS Account.

Understand the AWS Free Tier

The great thing about Amazon Web Services is that you get a free tier when you create an account.

This is extremely useful if you want to learn AWS without spending money on provisioning servers and so on.

However, not all stuff available on AWS qualifies for Free. Also, there are categories such as Always Free and 12 Months Free.

You can get more details about them at this [link](#).

The screenshot shows the AWS Free Tier page. At the top, there are three main categories: 'Always Free', '12 months Free', and 'Trials'. Each category has a corresponding icon: a gear for 'Always Free', a calendar for '12 months Free', and a stopwatch for 'Trials'. Below each category, there is a brief description and a link to 'View Details'.

Offer Type	Description	Link
Always Free	More than 60 products and services are available for free. Learn more	View Details
12 months Free	Over 100 products and services are available for free for 12 months following your initial sign-up date to AWS. Learn more	View Details
Trials	Short-term trial offers are available through many different software solutions. Learn more	View Details

Free Tier details:

Filter by: Free Tier

Service	Free Tier	Learn more
Amazon EC2	750 Hours Unlimited compute capacity in the cloud.	Amazon EC2
Amazon S3	5 GB Unlimited storage, secure, durable, and low-cost storage for unstructured data.	Amazon S3
Amazon RDS	750 Hours An array of relational databases designed for the cloud. Learn more	Amazon RDS

In our series of learning AWS, we will try to keep ourselves within the free tier as much as possible.

Conclusion

We have now successfully finished creating an AWS Account and also verified it so that it can be used to learn AWS.

B] Getting Familiarized with the AWS Console :

Navigation bar -The search box in the navigation bar provides a unified search tool for tracking down AWS services and features, service documentation, and AWS Marketplace.

Navigation Pane -You can also get quick access to any of your applications, get an overview of applications in different states, and track the migration progress over time. To view the main dashboard, choose Dashboard from the navigation pane, which is on the left side of the Migration Hub console homepage.

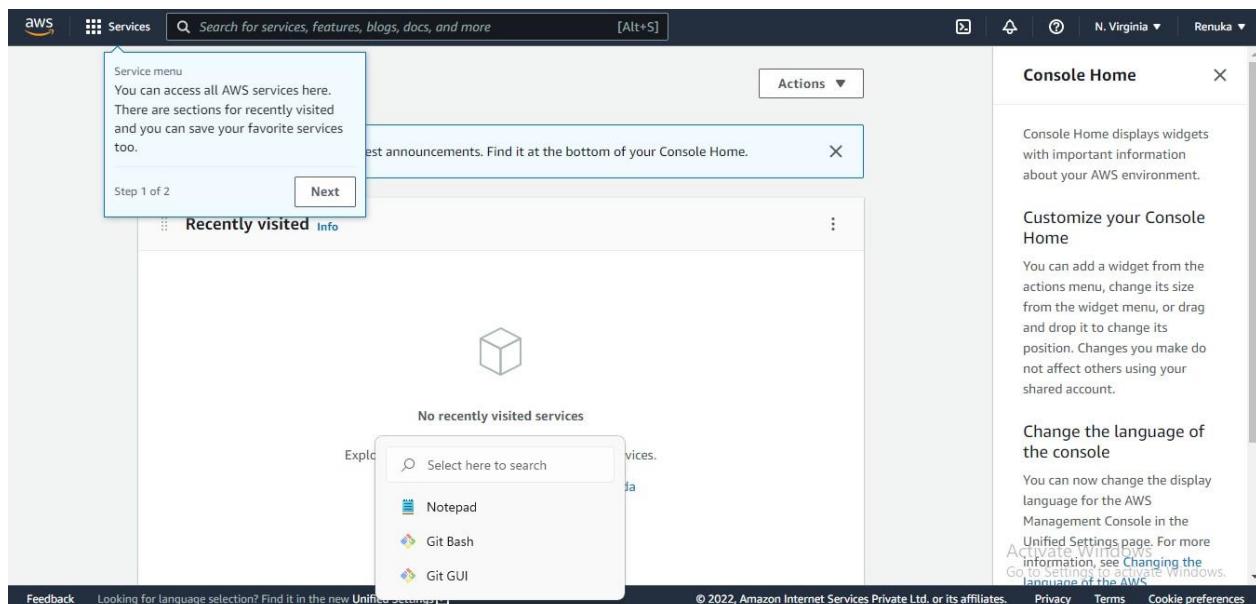
Current Page -An instance is a virtual server in the AWS Cloud. With Amazon EC2, you can set up and configure the operating system and applications that run on your instance. By using AWS EC2 helps users to avoid the investment in hardware up front, so the user can deploy and develop applications easier. It is used to launch many virtual servers, configure

networking and security, and manage storage.

Public DNS- A public (external) IPv4 DNS hostname takes the form ec2-public-ipv4-address.compute-1.amazonaws.com for the us-east-1 Region, and ec2-public-ipv4-address.region.compute.amazonaws.com for other Regions. The Amazon DNS server resolves a public DNS hostname to the public IPv4 address of the instance outside the network of the instance, and to the private IPv4 address of the instance from within the network of the instance. For more information, see Public IPv4 addresses and external DNS hostnames in the Amazon EC2 User Guide for Linux Instances.

Private DNS -You can use the Private IP DNS name (IPv4 only) hostname for communication between instances in the same VPC. You can resolve the Private IP DNS name (IPv4 only) hostnames of other instances in other VPCs as long as the instances are in the same AWS Region and the hostname of the other instance is in the private address space range defined by [RFC 1918](#): 10.0.0.0 - 10.255.255.255 (10/8 prefix), 172.16.0.0 - 172.31.255.255 (172.16/12 prefix), and 192.168.0.0 - 192.168.255.255 (192.168/16 prefix).

Zone - Availability Zones are multiple, isolated locations within each Region.Local Zones provide you the ability to place resources, such as compute and storage, in multiple locations closer to your end users.Wavelength Zones allow developers to build applications that deliver ultra-low latencies to 5G devices and end users. Wavelength deploys standard AWS compute and storage services to the edge of telecommunication carriers' 5G networks.



Navigation bar

Navigation pane

Current page

Region selector

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	More
Storage Gateway	i-001e9d	m1.small	us-west-2a	running	22 checks	View details
host0002	i-001e9d	m1.small	us-west-2a	running	22 checks	View details
PhyD000000	i-001e9d	m1.small	us-west-2a	running	22 checks	View details
RDS-1RPC2-test	i-001e9d	t1.micro	us-west-2a	running	22 checks	View details

Instance: host0002 Public DNS: i-001e9d

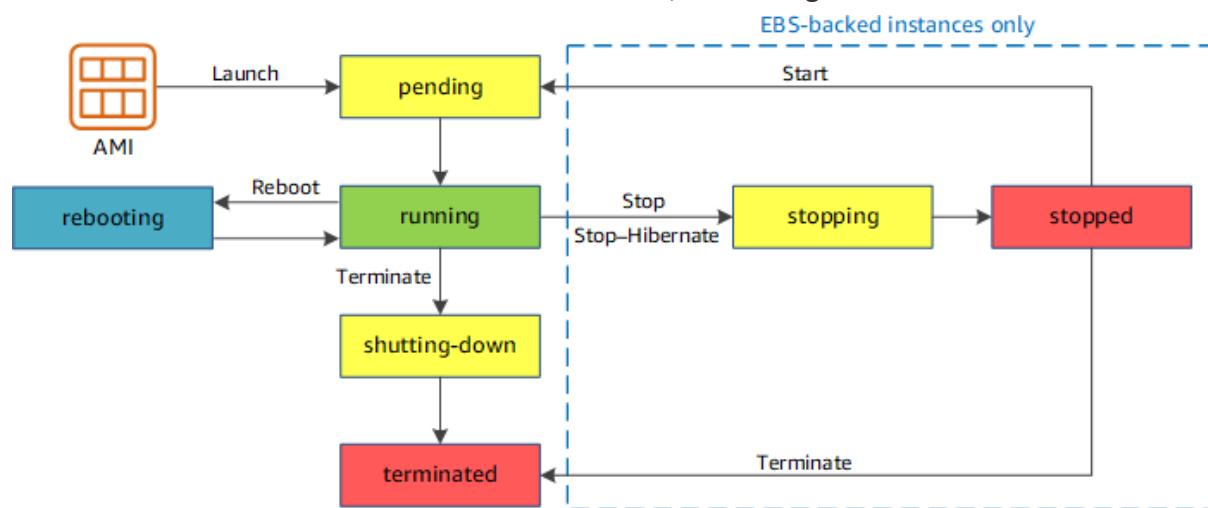
Description	Value	Description	Value
Instance ID	i-001e9d	Public DNS	
Instance state	stopped	Public IP	
Instance type	m1.small	Elastic IP	
Private DNS		Availability zone	us-west-2a
Private IPs		Security group	10.0.0.0/8, SecurityGroup: T1APQ3T1EKEI, Name: null
Secondary private IPs		Scheduled events	
VPC ID		AMI ID	amazonlinux

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Description of :

Instance ID : Instance ID **provides a unique ID per instance of your apps**. You can implement Instance ID for Android and iOS apps as well as Chrome apps/extensions

Instance State : The following illustration represents the transitions between instance states. Notice that you can't stop and start an instance store-backed instance. For more information about instance store-backed instances, see Storage for the root device.



Instance state	Description	Instance usage billing
pending	The instance is preparing to enter the running state. An instance enters the pending state when it launches for the first time, or when it is started after being in the stopped state.	Not billed

running	The instance is running and ready for use.	Billed
stopping	The instance is preparing to be stopped or stop-hibernated.	Not billed if preparing to stop Billed if preparing to hibernate
stopped	The instance is shut down and cannot be used. The instance can be started at any time.	Not billed
shutting-down	The instance is preparing to be terminated.	Not billed
terminated	The instance has been permanently deleted and cannot be started.	<p>Not billed</p> <p>Note</p> <p>Reserved Instances that applied to terminated instances are billed until the end of their term according to their payment option. For more information, see Reserved Instances</p>

Instance Type:

- General Purpose Instances:Amazon EC2 M6g instances are powered by Arm-based Amazon Web Services Graviton2 processors. They deliver up to 40% better price/performance over current generation M5 instances and offer a balance of compute, memory, and networking resources for a broad set of workloads.
- Compute Optimized Instances:Amazon EC2 C6g instances are powered by Arm-based Amazon Web services Graviton2 processors. They deliver up to 40% better price performance over current generation C5 instances for compute-intensive applications.
- Memory Optimized Instances:Amazon EC2 R6g instances are powered by Arm-based

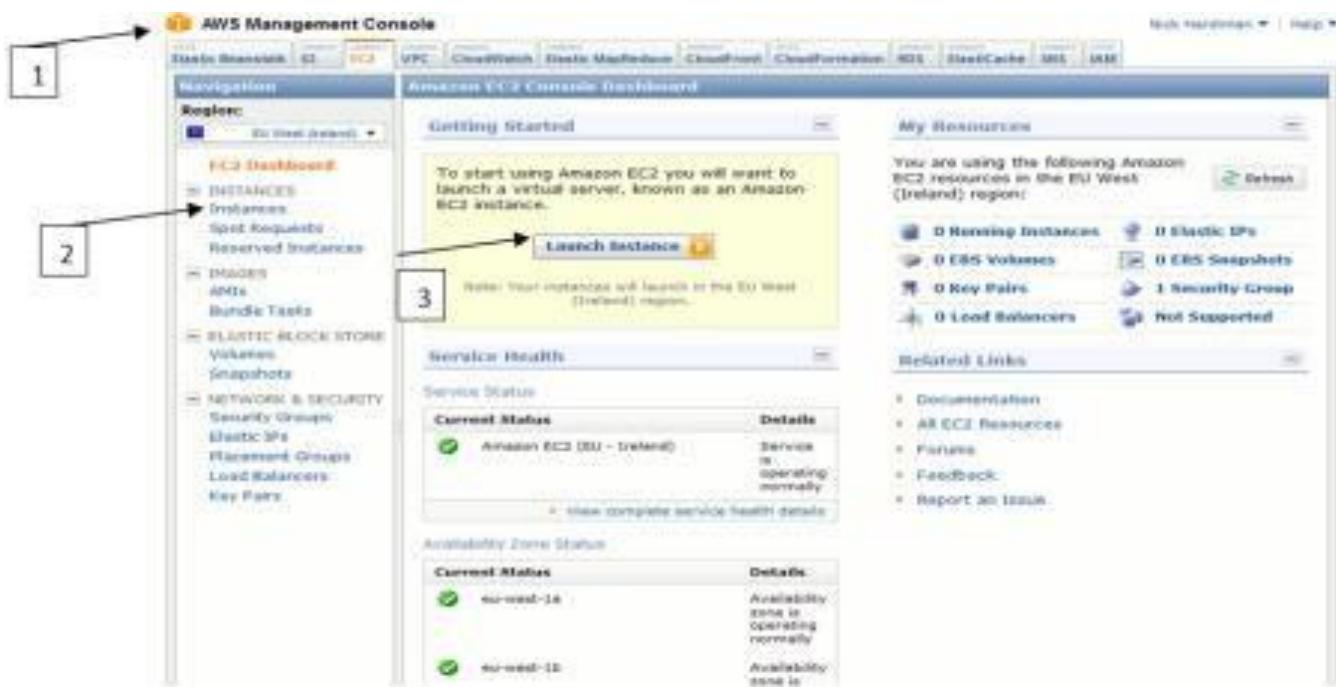
Amazon Web Services Graviton2 processors. They deliver up to 40% better price performance over current generation R5 instances for memory-intensive applications.

- **Storage Optimized Instances:** Instances of this family provide very high disk I/O performance or proportionally higher storage density per instance, and are ideally suited for applications that benefit from high sequential I/O performance across very large data sets. Storage-optimized instances also provide high levels of CPU, memory and network performance.
- **Accelerated Computing Instances:** Instances of this family provide access to workload accelerators such as GPU. They are ideal for applications such as machine learning, computational fluid dynamics, computational finance, seismic analysis, molecular modeling, genomics, and other high-performance computing workloads.
- **Micro Instances:** Micro instances (t1.micro) provide a small amount of consistent CPU resources and allow you to increase CPU capacity in short bursts when additional cycles are available. They are well suited for lower throughput applications and web sites that require additional compute cycles periodically. You can learn more about how you can use Micro instances and appropriate applications in the [Amazon EC2 documentation](#).

Public DNS: A typical Amazon EC2 public DNS name looks something like this: ec2-12-34-56-78.us-west-2.compute.amazonaws.com , where the name consists of the Amazon Web Services domain, the service (in this case, compute), the region, and a form of the public IP address.

Private IP's: A private IPv4 address is an IP address that's not reachable over the Internet. You can use private IPv4 addresses for communication between instances in the same VPC. For more information about the standards and specifications of private IPv4 addresses, see RFC 1918 .

Security Groups: A security group acts as a virtual firewall, controlling the traffic that is allowed to reach and leave the resources that it is associated with. For example, after you associate a security group with an EC2 instance, it controls the inbound and outbound traffic for the instance.



Description :

1.AWS Management Console: The AWS Management Console is a browser-based GUI for Amazon Web Services (AWS). Through the console, a customer can manage their cloud computing, cloud storage and other resources running on the Amazon Web Services infrastructure.

2.Instances: An instance is a virtual server in the AWS Cloud. With Amazon EC2, you can set up and configure the operating system and applications that run on your instance. When you sign up for AWS, you can get started with Amazon EC2 using the AWS Free Tier .

3.Launch instance: An instance is a virtual server in the AWS Cloud. You launch an instance from an Amazon Machine Image (AMI). The AMI provides the operating system, application server, and applications for your instance.

Practical No. 2

Introduction to AWS Identity and Access Management (IAM)

Aim:

Exploring pre-created IAM Users and Groups

Inspecting IAM policies as applied to the pre-created groups

Following a real-world scenario, adding users to groups with specific capabilities enabled

Locating and using the IAM sign-in URL

Experimenting with the effects of policies on service access

AWS Identity and Access Management

AWS Identity and Access Management (IAM) is a web service that enables Amazon Web Services (AWS) customers to manage users and user permissions in AWS. With IAM, you can centrally manage users, security credentials such as access keys, and permissions that control which AWS resources users can access.

AWS Identity and Access Management (IAM) can be used to:

Manage IAM Users and their access: You can create Users and assign them

individual security credentials (access keys, passwords, and multi-factor authentication devices). You can manage permissions to control which operations a User can perform.

Manage IAM Roles and their permissions: An IAM Role is similar to a User, in that it is an AWS identity with permission policies that determine what the identity can and cannot do in AWS. However, instead of being uniquely associated with one person, a Role is intended to be assumable by anyone who needs it.

Manage federated users and their permissions: You can enable identity federation to allow existing users in your enterprise to access the AWS Management Console, to call AWS APIs and to access resources, without the need to create an IAM User for each identity.

Task 1: Explore the Users and Groups

In this task, you will explore the Users and Groups that have already been created for you in IAM.

1. Start Lab and Open Console

End Lab 00:42:45

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

S3Bucket qls-48789626-37bcfe6bd:

InstanceId i-0eb1a8afb68bad63a

AdministratorPassword ==wFrFtCW43cFXp

Region us-west-2

← Introduction to AWS Identity and Access Management (IAM)

3. In the **AWS Management Console**, on the **Services** menu, click **IAM**.

4. In the navigation pane on the left, click **Users**.

The following IAM Users have been created for you:

- user-1
- user-2
- user-3

5. Click **user-1**.

This will bring to a summary page for user-1. The **Permissions** tab will be displayed.

6. Notice that user-1 does not have any permissions.

7. Click the **Groups** tab.

user-1 also is not a member of any groups.

8. Click the **Security credentials** tab.

user-1 is assigned a **Console password**

Lab Overview
Topics covered
Start Lab
Task 1: Explore the Users and Groups
Business Scenario
Task 2: Add Users to Groups
Task 3: Sign-In and Test Users
End Lab
Conclusion
Additional Resources

Activate Windows
Go to Settings to activate Windows.

09:05 22-06-2022

2. If you see the message, You must log out before logging into different AWS account To logout,click here

Click on here(hyperlink) to logout.

3. In the AWS Management Console, on the Services menu, click IAM.

The screenshot shows the AWS Cloud Home page. On the left, there's a sidebar titled "Recently visited" with icons for EC2, S3, ElastiCache, Lambda, VPC, Elastic Container Service, IAM, and API Gateway. To the right, there's a "Welcome to AWS" section with links to "Getting started with AWS", "Training and certification", and "What's new with AWS?". At the bottom, there's a "Feedback" bar and a status bar indicating "09:03 22-06-2022".

The screenshot shows the AWS IAM Management console. The left sidebar has sections for Identity and Access Management (IAM), Access management (User groups, Users, Roles, Policies, Identity providers, Account settings), and Access reports (Access analyzer, Archive rules, Analyzers, Settings). The main area shows a summary for a user named "user-1" with ARN, Path, and Creation time. Below it, there's a "Permissions policies" section with a "Get started with permissions" message and a "Add permissions" button. A "Global" dropdown and a status bar are at the bottom.

The screenshot shows the AWS IAM Users page. The left sidebar has 'Identity and Access Management (IAM)' selected. The main area shows a table of users:

User name	Groups	Last activity	MFA	Password a...	Active
awsstudent	QLReadOnly	None	None	2 minutes ago	Active
root-qwkl	None	None	None	None	Active
user-1	None	None	None	1 minute ago	Active
user-2	None	None	None	1 minute ago	Active
user-3	None	None	None	1 minute ago	Active

4. In the navigation pane on the left, click Users.

The following IAM Users have been created for you:

1.user-1

2.user-2

3.User-3

5.Click user-1.

This will bring to a summary page for user-displayed.

6.Notice that user-1 does not have any permissions.

7.Click the Groups tab.

user-1 also is not a member of any groups.

User ARN: arn:aws:iam::820385501234:user/spl66/user-1
Path: /spl66/
Creation time: 2022-06-22 09:01 UTC+0530

Security credentials

- Console sign-in link: https://820385501234.signin.aws.amazon.com/console
- Console password: Enabled (never signed in) | Manage
- Assigned MFA device: Not assigned | Manage
- Signing certificates: None

Access keys

Use access keys to make programmatic calls to AWS from the AWS CLI, Tools for PowerShell, AWS SDKs, or direct AWS API calls. You can have a maximum of two access keys (active or inactive) at a time.

8.Click the Security credentials tab. user-1 is assigned a Console password.

9.In the navigation pane on the left, click Groups.

The following groups have already been created for you:

1.EC2-Admin

2.EC2-Support

3.S3-Support

The screenshot shows the AWS IAM User Groups page. On the left, there's a sidebar with 'Identity and Access Management (IAM)' selected. Under 'Access management', 'User groups' is also selected. The main area displays a table of user groups:

Group name	Users	Permissions	Creation time
EC2-Admin	0	Defined	8 minutes ago
EC2-Support	0	Defined	8 minutes ago
QLReadOnly	1	Defined	8 minutes ago
S3-Support	0	Defined	8 minutes ago

10. Click the EC2-Support group.

11. This will bring you to the summary page for the EC2-Support group.
Click the Permissions tab.

The screenshot shows the AWS IAM EC2-Support group summary page. The sidebar on the left shows 'Identity and Access Management (IAM)' selected under 'Access management'. The main area has 'EC2-Support' selected. The 'Summary' tab is active. Below it, the 'Permissions' tab is selected. The 'Users' tab is also visible. The 'ARN' section shows:

User group name: EC2-Support
Creation time: June 22, 2022, 09:01 (UTC+05:30)
ARN: arn:aws:iam::820385501234:group/spl66/EC2-Support

This group has a Managed Policy associated with it, called AmazonEC2ReadOnlyAccess. Managed Policies are pre-built policies (built either by AWS or by your administrators) that can be attached to IAM Users and Groups.

The screenshot shows the AWS IAM Management console for the 'EC2-Support' user group. The 'Permissions' tab is active, showing a single managed policy named 'AmazonEC2ReadOnlyAccess'. This policy is of type 'AWS managed' and provides read-only access to EC2 resources.

Policy name	Type	Description
AmazonEC2ReadOnlyAccess	AWS managed	Provides read only access to

When the policy is updated, the changes to the policy are immediately apply against all Users and Groups that are attached to the policy.

12. Under Actions, click the Show Policy link.

13. A policy defines what actions are allowed or denied for specific AWS resources.

This policy is granting permission to List and Describe information about EC2, Elastic Load Balancing, CloudWatch and Auto Scaling. This ability to view resources, but not modify them, is ideal for assigning to a Support role.

The basic structure of the statements in an IAM Policy is:

Effect says whether to Allow or Deny the permissions.

Action specifies the API calls that can be made against an AWS Service (e.g. cloudwatch:ListMetrics).

Resource defines the scope of entities covered by the policy rule (eg. a specific Amazon S3 bucket or Amazon EC2 instance, or * which means any resource).

Close the Show Policy window.

14. In the navigation pane on the left, click Groups.

The screenshot shows the AWS IAM Groups page. The left sidebar is collapsed. The main area displays the 'S3-Support' group under the 'User groups' section. The 'Summary' tab is selected. Key details shown include:

- User group name: S3-Support
- Creation time: June 22, 2022, 09:01 (UTC+05:30)
- ARN: arn:aws:iam::820385501234:group/spl66/S3-Support

Below the summary, there are tabs for 'Users' (selected), 'Permissions', and 'Access Advisor'. A section titled 'Users in this group (0)' is present with buttons for 'Remove users' and 'Add users'. A search bar and a pagination control (page 1 of 1) are also visible.

The screenshot shows the AWS Policies page. The left sidebar is collapsed. The main area displays the 'AmazonEC2ReadOnlyAccess' policy under the 'Policies' section. The 'Summary' tab is selected. Key details shown include:

- Policy ARN: arn:aws:iam::aws:policy/AmazonEC2ReadOnlyAccess
- Description: Provides read only access to Amazon EC2 via the AWS Management Console.

Below the summary, there are tabs for 'Permissions' (selected), 'Policy usage', 'Policy versions', and 'Access Advisor'. A JSON code editor shows the policy definition:

```

1 - {
2     "Version": "2012-10-17",
3     "Statement": [
4         {
5             "Effect": "Allow",
6             "Action": "ec2:Describe*",
7             "Resource": "*"
8         },
9         {
10            "Effect": "Allow",
11            "Action": "elasticloadbalancing:Describe*",
12            "Resource": "*"
13        }
14    ]
}
  
```

A note at the bottom right indicates the file is 'read-only'.

15. Click the S3-Support Group.

16. The S3-Support group has the AmazonS3ReadOnlyAccess policy attached.

17. Below the Actions menu, click the Show Policy link.

This policy has permissions to Get and List resources in Amazon S3.

Close the Show Policy window.

In the navigation pane on the left, click Groups.

18. Since your user is part of the S3-Support Group in IAM, they have permission to view a list of Amazon S3 buckets and their contents.

Now, test whether they have access to Amazon EC2.

In the Services menu, click EC2.

Lab Restarted

Login with a new password and redo all the steps.

Navigate to the region that your lab was launched in by:

19. Clicking the drop-down arrow at the top of the screen, to the left of Support

Selecting the region value that matches the value of Region to the left of these instructions

In the left navigation pane, click Instances.

You cannot see any instances! Instead, it says An error occurred fetching instance data: You are not authorized to perform this operation.. This is because your user has not been assigned any permissions to use Amazon EC2.

You will now sign-in as user-2, who has been hired as your Amazon EC2 support person.

20. Sign user-1 out of the AWS Management Console by configuring the following:

At the top of the screen, click user-1

Click Sign Out

Paste the IAM users sign-in link into your private window and press Enter. This links should be in your text editor.

Sign-in with:

IAMUser name: user-2

Password: Paste the value of AdministratorPassword located to the left of these instructions.

In the Services menu, click EC2.

Navigate to the region that your lab was launched in by:

21. Clicking the drop-down arrow at the top of the screen, to the left of Support

Selecting the region value that matches the value of Region to the left of these instructions

You are now able to see an Amazon EC2 instance because you have Read Only permissions.

However, you will not be able to make any changes to Amazon EC2 resources.

Your EC2 instance should be selected. If it is not selected, select it.

In the Actions menu, click Instance State > Stop.

In the Stop Instances window, click Yes, Stop.

22. You will receive an error stating You are not authorized to perform this operation. This demonstrates that the policy only allows you to information, without making changes.

At the Stop Instances window, click Cancel. Next, check if user-2 can access Amazon S3.

In the Services, click S3.

You will receive an Error hace Denied because user-2 does not have permission to use Amazon S3.

You will now sign-in as user-3, who has been hired as your Amazon EC2 administrator.

Sign user-2 out of the AWS Management Console by configuring the following:

At the top of the screen, click user-2.

Click Sign Out.

The screenshot shows the AWS IAM Policies page with the 'AmazonS3ReadOnlyAccess' policy selected. The 'Permissions' tab is active, displaying the JSON code for the policy:

```

1  {
2    "Version": "2012-10-17",
3    "Statement": [
4      {
5        "Effect": "Allow",
6        "Action": [
7          "s3:Get*",
8          "s3>List*",
9          "s3-object-lambda:Get*",
10         "s3-object-lambda>List*"
11       ],
12       "Resource": "*"
13     }
  
```

23. Paste the IAM users sign-in link into your private window and press Enter.

Paste the sign-in link into your web browser address bar again. If it is not in your clipboard, retrieve it from the text editor where you stored it earlier.

Sign-in with:

IAM username: user-3

Password: Paste the value of AdministratorPassword located to the left of these instructions.

In the Services menu, click EC2.

Navigate to the region that your lab was launched in by:

Clicking the drop-down arrow at the top of the screen, to the left of Support

Selecting the region value that matches the value of Region to the left of these instructions

24. In the navigation pane on the left, click Instances.

As an EC2 Administrator, you should now have permissions to Stop the Amazon EC2 instance.

Your EC2 instance should be selected. If it is not, please select it.

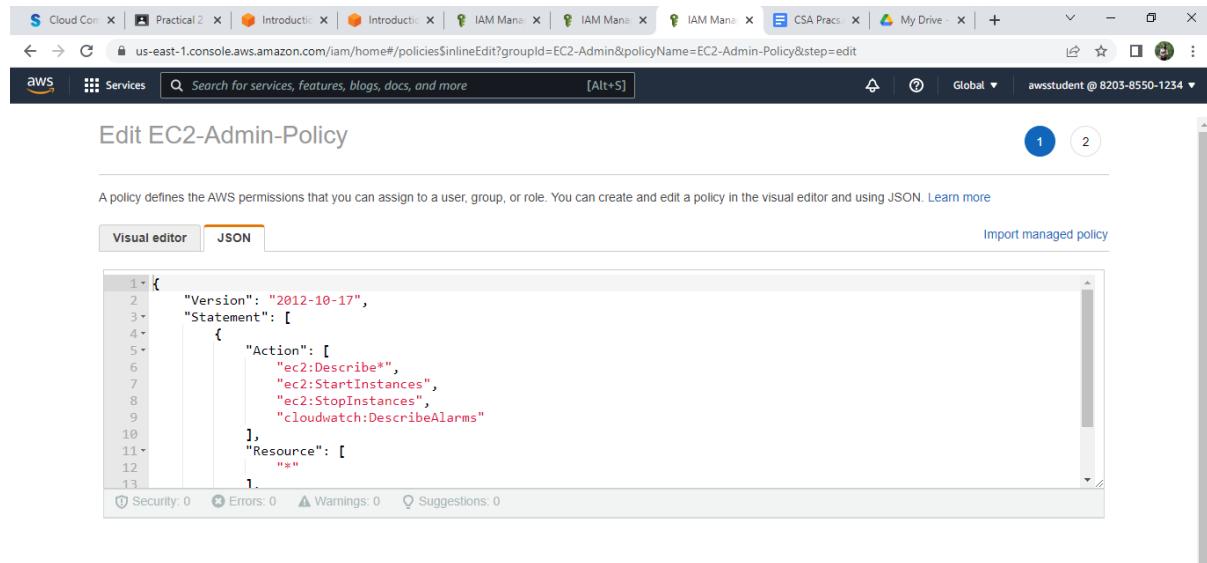
The screenshot shows the AWS IAM console with the 'User groups' section selected. A single user group, 'EC2-Admin', is listed. The 'Permissions' tab is active, showing one policy named 'EC2-Admin-Policy' attached to the group. The policy is described as a 'Customer inline' policy.

In the Actions menu, click Instance State > Stop

In the Stop Instances window, click Yes, Stop.

The instance will enter the stopping state and will shut down.

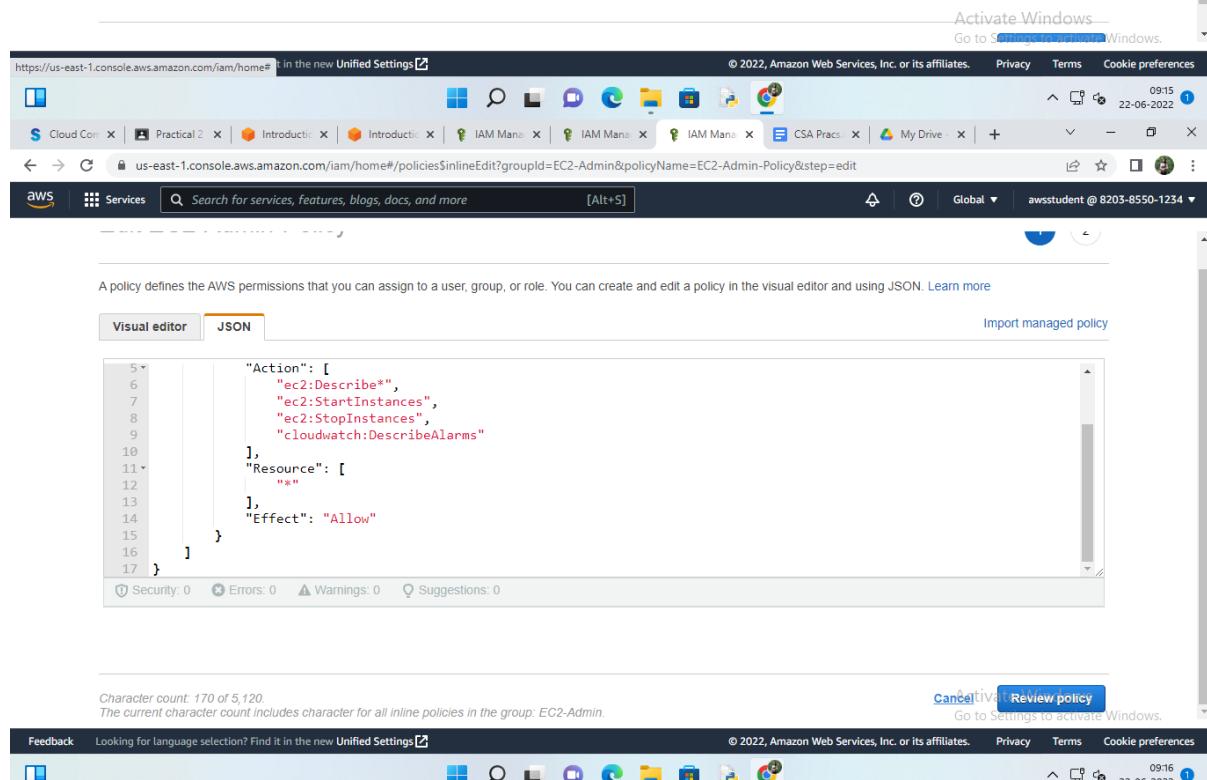
The screenshot shows the 'Edit EC2-Admin-Policy' page. The policy contains two actions: 'EC2 (136 actions)' and 'CloudWatch (1 action)'. The 'CloudWatch' action is currently selected. At the bottom right, there are 'Review policy' and 'Cancel' buttons.



```

1 {
2     "Version": "2012-10-17",
3     "Statement": [
4         {
5             "Action": [
6                 "ec2:Describe*",
7                 "ec2:StartInstances",
8                 "ec2:StopInstances",
9                 "cloudwatch:DescribeAlarms"
10            ],
11            "Resource": [
12                "*"
13            ]
14        }
15    ]
16 }
17 
```

Security: 0 Errors: 0 Warnings: 0 Suggestions: 0



```

5 {
6     "Action": [
7         "ec2:Describe*",
8         "ec2:StartInstances",
9         "ec2:StopInstances",
10        "cloudwatch:DescribeAlarms"
11    ],
12    "Resource": [
13        "*"
14    ],
15    "Effect": "Allow"
16 }
17 
```

Character count: 170 of 5,120
The current character count includes character for all inline policies in the group: EC2-Admin.

Cancel Review policy Go to Settings to activate Windows.

Feedback Looking for language selection? Find it in the new Unified Settings © 2022, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

The screenshot shows the AWS IAM User Groups page for the 'S3-Support' group. The group was created on June 22, 2022, at 09:01 (UTC+05:30). Its ARN is arn:aws:iam:820385501234:group/spl66/S3-Support. The 'Users' tab is selected, showing no users currently assigned to this group.

User name	Groups	Last activity	Creation time
			June 22, 2022, 09:01 (UTC+05:30)

The screenshot shows the 'Add users to S3-Support' page. It lists five other users in the account: awsstudent, root-qwkl, user-1, user-2, and user-3. The 'root-qwkl' user has a note indicating 'You need permissions'.

User name	Groups	Last activity	Creation time
awsstudent	1	None	4 years ago
root-qwkl	You need permissions	None	4 years ago
user-1	0	None	15 minutes ago
user-2	0	None	15 minutes ago
user-3	0	None	15 minutes ago

The image consists of three vertically stacked screenshots of the AWS IAM User Groups interface.

Screenshot 1: S3-Support Group

- Header:** Cloud Conn, Practical 2, Introductory, IAM, IAM, IAM, IAM, CSA Pracs, My Drive, Global, awsstudent @ 8203-8550-1234.
- Left Sidebar:** Identity and Access Management (IAM) > Access management > User groups. Sub-options: Users, Roles, Policies, Identity providers, Account settings.
- Content:**
 - Summary:** Shows the group "S3-Support" created on June 22, 2022, at 09:01 UTC+05:30. ARN: arn:aws:iam::820385501234:group/spl66/S3-Support.
 - Users Tab:** Shows 1 user in the group. Buttons: Delete, Edit, Remove users, Add users.
 - Permissions Tab:** Not visible.
 - Access Advisor Tab:** Not visible.

Screenshot 2: EC2-Support Group

- Header:** Cloud Conn, Practical 2, Introductory, IAM, IAM, IAM, IAM, CSA Pracs, My Drive, Global, awsstudent @ 8203-8550-1234.
- Left Sidebar:** Identity and Access Management (IAM) > Access management > User groups. Sub-options: Users, Roles, Policies, Identity providers, Account settings.
- Content:**
 - Summary:** Shows the group "EC2-Support" created on June 22, 2022, at 09:01 UTC+05:30. ARN: arn:aws:iam::820385501234:group/spl66/EC2-Support.
 - Users Tab:** Shows 0 users in the group. Buttons: Delete, Edit, Remove users, Add users.
 - Permissions Tab:** Not visible.
 - Access Advisor Tab:** Not visible.

Screenshot 3: Shared Header

- Header:** Feedback, Looking for language selection? Find it in the new Unified Settings, © 2022, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences.
- Right Sidebar:** 0917, 22-06-2022, Go to Settings to activate Windows.

The screenshots illustrate the steps to add users to an IAM user group:

- Screenshot 1: Adding users to EC2-Support**
Shows the "Add users to EC2-Support" dialog. The "user-2" checkbox is selected. Other users listed are awsstudent, root-qwkl, user-1, and user-3.
- Screenshot 2: Users added to this group**
Shows the "EC2-Support" user group details. The "user-2" checkbox is checked under the "Users in this group" section.
- Screenshot 3: Summary of EC2-Support user group**
Shows the "Summary" section of the user group details, listing the user group name (EC2-Support), creation time (June 22, 2022, 09:01 (UTC+05:30)), and ARN (arn:aws:iam:820385501234:group/spl66/EC2-Support).

The screenshot shows the AWS IAM User Groups page. The left sidebar is titled "Identity and Access Management (IAM)" and includes sections for "Access management" (User groups, Users, Roles, Policies, Identity providers, Account settings), "Access reports" (Access analyzer, Archive rules, Analyzers, Settings, Credential report, Organization activity), and navigation links (Feedback, Search for services, blogs, docs, and more, [Alt+S], Global, awsstudent @ 8203-8550-1234). The main content area is titled "EC2-Admin" and shows the "Summary" tab. It displays the user group name "EC2-Admin", creation time "June 22, 2022, 09:01 (UTC+05:30)", and ARN "arn:aws:iam:820385501234:group/spl66/EC2-Admin". Below the summary are tabs for "Users" (selected), "Permissions", and "Access Advisor". A section titled "Users in this group (0) Info" indicates that an IAM user is an entity created in AWS to represent a person or application. It includes buttons for "Remove users" and "Add users" and a search bar.

This screenshot shows the "Add users to EC2-Admin" step. The left sidebar is identical to the previous screenshot. The main content area is titled "Add users to EC2-Admin" and shows a table of "Other users in this account (Selected 1/5)". The table has columns for "User name" (awsstudent, root-qwkl, user-1, user-2, user-3), "Groups" (1 for all except user-3), "Last activity" (None for all), and "Creation time" (4 years ago for awsstudent, 4 years ago for root-qwkl, 17 minutes ago for user-1 and user-2, 17 minutes ago for user-3). The "user-3" row is selected, indicated by a blue border around the row. Buttons at the bottom right include "Cancel", "Add users", and "Activate Windows".

The screenshot shows the AWS Identity and Access Management (IAM) console. The left sidebar is collapsed, and the main area displays the details of the 'EC2-Admin' user group. The 'Summary' section shows the group was created on June 22, 2022, at 09:01 (UTC+05:30). It has an ARN of arn:aws:iam::820385501234:group/spl66/EC2-Admin. The 'Users' tab is selected, showing one user named 'EC2-Admin'. There are buttons for 'Delete' and 'Edit' at the top right of the summary section. Below the summary, there is a section titled 'Users in this group (1)' with a link to 'Info'. A search bar and buttons for 'Remove users' and 'Add users' are present. The bottom part of the screen shows a table with columns for 'User name', 'Groups', 'Last activity', and 'Creation time'. The table currently shows 0 users.

The screenshot shows the AWS IAM console interface. On the left, a sidebar menu is open under 'Access management' with 'User groups' selected. The main content area is titled 'Add users to EC2-Admin'. It displays a table of 'Other users in this account' with one user selected: 'user-3'. Below the table are 'Cancel' and 'Add users' buttons.

This screenshot shows the 'Users added to this group' page for the 'EC2-Admin' group. It lists 'user-3' as the only member. The 'Edit' button is visible at the top right of the summary section.

This screenshot shows the 'EC2-Admin' group details page. It includes sections for 'Summary' (with fields for User group name, Creation time, and ARN), 'Users' (selected tab), 'Permissions', and 'Access Advisor'. The 'Users in this group' section shows 'user-3' and includes 'Remove users' and 'Add users' buttons.

The image contains three screenshots of the AWS IAM (Identity and Access Management) service in the AWS Management Console.

Screenshot 1: User Groups

This screenshot shows the "User groups" page. It displays a list of four user groups: EC2-Admin, EC2-Support, QLReadOnly, and S3-Support. Each group has one user assigned and was created 17 minutes ago. The interface includes a search bar, a toolbar with "Create group" and "Delete" buttons, and a navigation bar at the top.

Group name	Users	Permissions	Creation time
EC2-Admin	1	>Loading	17 minutes ago
EC2-Support	1	>Loading	17 minutes ago
QLReadOnly	1	>Loading	17 minutes ago
S3-Support	1	>Loading	17 minutes ago

Screenshot 2: IAM Dashboard

This screenshot shows the IAM dashboard. It provides an overview of IAM resources: 4 User groups, 5 Users, 20 Roles, 2 Policies, and 0 Identity providers. It also features a "Security recommendations" section with a red warning icon for "Add MFA for root user". The dashboard includes a "What's new" section with updates for features like IAM Access Analyzer and Amazon S3 Object Ownership.

Screenshot 3: IAM Dashboard (Second View)

This screenshot shows another view of the IAM dashboard. It displays the same resource counts and security recommendations. A sidebar on the right titled "AWS Account" shows the account ID (820385501234), account alias (820385501234), and sign-in URL (https://820385501234.signin.amazonaws.com/console). It also includes a "Tools" section with a "Policy simulator" link.

The screenshot displays two separate browser windows. The top window shows the AWS Management Console's 'New AWS Console Home' page, which is a beta feature. It includes a 'Switch now' button, a preview of the new interface, and a note about staying connected on-the-go. The bottom window shows the 'Sign in as IAM user' page, where a user is signing in with account ID 820385501234 and IAM user name user-1. To the right of the sign-in form is a promotional banner for AWS DeepRacer, featuring a racing car and a trophy, with a 'Learn more' button.

The screenshot shows the AWS S3 Management Console. On the left, a sidebar lists options like Buckets, Storage Lens, and Feature spotlight. The main area displays an 'Account snapshot' with total storage of 447.0 B, object count of 1, and avg. object size of 447.0 B. It also includes a note about enabling advanced metrics and a 'Create bucket' button. Below this is a table for 'Buckets (3) info'.

Name	AWS Region	Access

The screenshot shows the AWS EC2 Management Console. The left sidebar includes 'EC2 Dashboard' and sections for Instances, Images, and New EC2 Experience. The main area displays a grid of EC2 resources: Instances (running), Dedicated Hosts, Elastic IPs, Instances, Key pairs, Load balancers, Placement groups, Security groups, Snapshots, and Volumes. A message encourages using the AWS Launch Wizard for Microsoft SQL Server Always On availability groups. Below this are sections for 'Launch instance' and 'Service health'.

The screenshot displays two side-by-side views of the AWS Management Console. The left view shows the 'Instances' page under the 'EC2' service, with a message stating 'You are not authorized to perform this operation.' The right view shows the 'New AWS Console Home' interface, which includes sections for 'AWS services', 'Build a solution', and information about the AWS Console Mobile App.

AWS Management Console - Instances Page (Left):

- Page Title: Instances | EC2 Management Console
- URL: us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#Instances
- Header: Search for services, features, blogs, docs, and more [Alt+S]
- Actions: Connect, Instance state, Actions, Launch instances
- Message: You are not authorized to perform this operation.
- Left sidebar:
 - New EC2 Experience (Toggle)
 - EC2 Dashboard
 - EC2 Global View
 - Events
 - Tags
 - Limits
 - Instances
 - Instances New
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances New
 - Dedicated Hosts
 - Scheduled Instances
 - Capacity Reservations
 - Images

New AWS Console Home (Right):

- Page Title: Instances | EC2 Management Console
- URL: us-west-2.console.aws.amazon.com/console/home?region=us-west-2#
- Header: Search for services, features, blogs, docs, and more [Alt+S]
- Actions: Connect, Instance state, Actions, Launch instances
- Message: The new AWS Console Home will replace your existing experience soon. Starting June 2022, the new AWS Console Home will replace your current experience. Switch now to customize your Console Home and view valuable insights. Learn more or let us know what you think.
- Switch now button
- Section: New AWS Console Home

See valuable insights for your account and services with the new customizable Console Home experience. Learn more
- Section: Stay connected to your AWS resources on-the-go

AWS Console Mobile App now supports four additional regions. Download the AWS Console Mobile App to your iOS or Android mobile device.
- Feedback: Looking for language selection? Find it in the new Unified Settings
- Footer: © 2022, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

The screenshot displays two views of the AWS Management Console:

- New AWS Console Home:** The top view shows the transition from the old console to the new one. It includes a message about the replacement, account information (Account ID: 8203-8550-1234, IAM user: user-2), and navigation links for Account, Organization, Service Quotas, Billing Dashboard, Security credentials, and Settings.
- Instances Page:** The bottom view shows the EC2 Management Console under the Services tab. The left sidebar lists EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, and Images. The main area shows a table for Instances (1) with one item: i-0eb1a8afb68bad63a, which is Running, t3.micro, and has 2/2 checks passed. A "Launch Instances" button is visible. A "Select an instance" dropdown is open below the table.

You are using the following Amazon EC2 resources in the US West (Oregon) Region:

Instances (running)	1	Dedicated Hosts	0
Elastic IPs	0	Instances	1
Key pairs	1	Load balancers	0
Placement groups	0	Security groups	3
Snapshots	0	Volumes	1

Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Service health

Instances (1) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
-	i-0eb1a8afb68bad63a	Running	t3.micro	2/2 checks passed	No alarms	us-west-2a

Select an instance

Activate Windows
Go to Settings to activate Windows.

Failed to stop the instance i-0eb1a8afb68bad63a

You are not authorized to perform this operation. Encoded authorization failure message: pAKXrOeirGbuBmlpot4QuwDsyCPgWzrtTRek5dFDqrnFDsVuzyY3BQbCsQyx54Vsn-9z0DFfwM3NbskHwI0G6eCSSLNxudKeyL4A99USJ8dOpv8YB_1vqQQCBQswVwIS7bz-JHap28wMKfZDfshlcXk6f4qeRZnWZcpCmTw7iEMoHhfDgJyBV-_QbMRaw8yWTYmx0Kpl1y_Qp9FGxlmYPPllyHScAFGOKbGv59J4dGzIA5X-zlHEED-ZnQjzD4cCB19R1M7AjUoAcO_JTaYt45BAg-uddEgTAlamj4WCnifR5f6l0FypC4MLFoWLnEneR_V_1cNSEFyEMzWqk19qdRp0zZu8qu01Q-d-sNLszd1MKmuqqC00UCSocfvEM3zgfDt79enGpdpWP9MqfKQ-xEy5ymzdrFrLqWh5sbaPcy-B7gYYTBWldrhk-08w7JCrCUL6ExeGCvnGOK0U1ldGzuwouSr1XSMQmyBNITA2TVuBhg5nilQateli2sOBizFGMNB83WZs5B1F8xgnVJ|Lixfrdi9F4zNVsp1MAuJVM6lwAlZ4g5kL_uJKAfwlmHqWbdJ79Z-wDQJITjrvnDncqf95j3xVv_AJpEoyg5tmFHyJ9w2_b_m6IW9uMcgp0l9ryVyrubJbjpDXWCS12JUcl0XF_ifXtoHLOs4P4PEs-lPrCs54P7xE02KM_pSY8UNelrOM13sRYRmYTGAmMUFLewYrcfEzJvDf_sKYClavM1Xsi7zFP9KDIIQt5ccTVEK_Vfz-g5vldW3WNh_CylsNhWVKcMaag6l9hr0iYsvdA26IEZT6rJ80f2YwClcTKG-8gv4c

Instances (1/1) Info

Networking

Feedback Looking for language selection? Find it in the new Unified Settings [Feedback](#)

Amazon S3

Buckets

- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- Access analyzer for S3

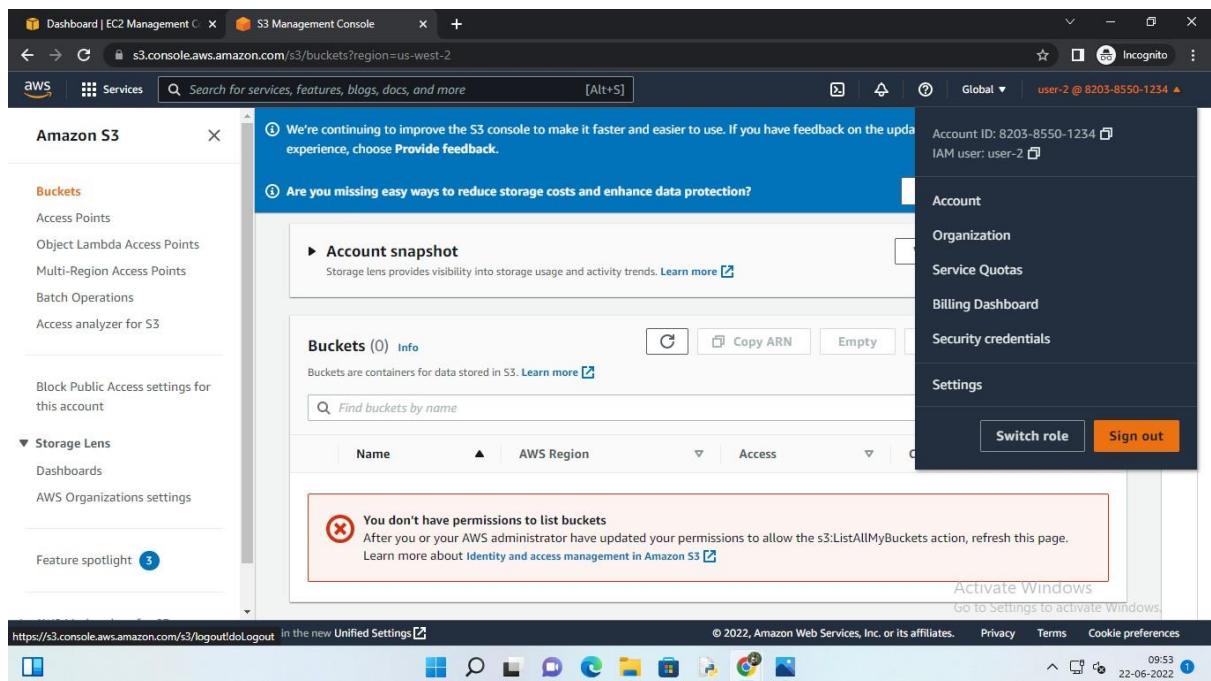
Block Public Access settings for this account

Storage Lens

- Dashboards
- AWS Organizations settings

Feature spotlight [Feedback](#)

Feedback Looking for language selection? Find it in the new Unified Settings [Feedback](#)



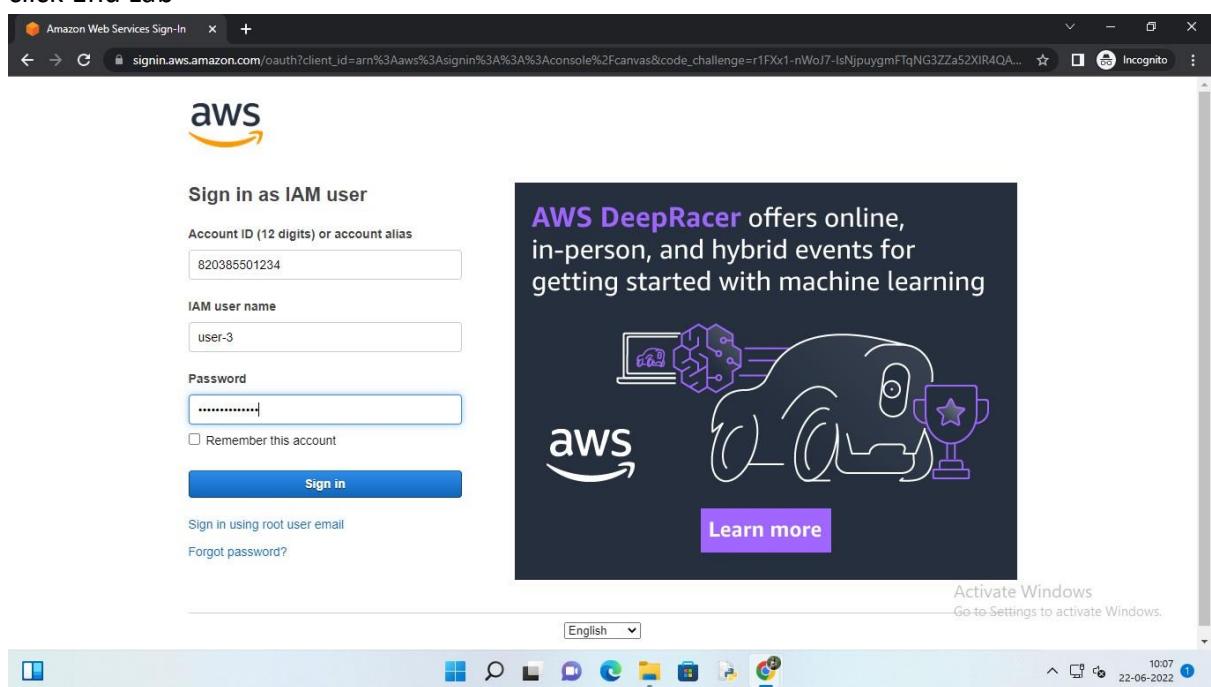
Close your private window. End Lab

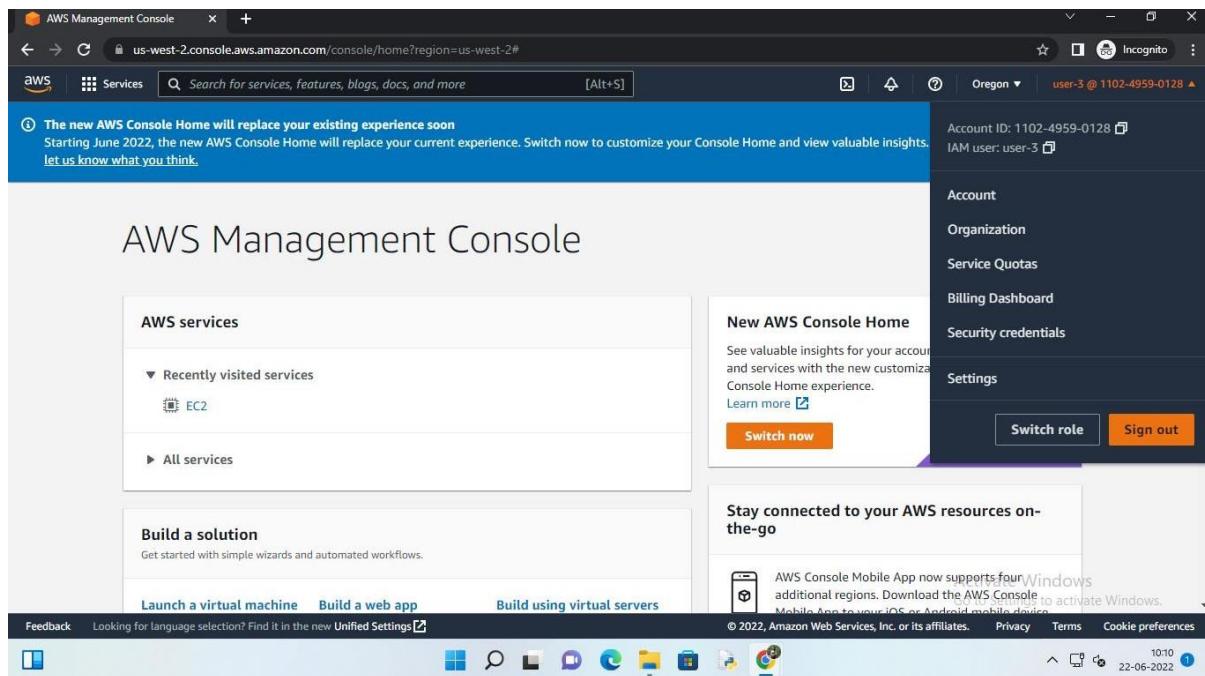
Follow these steps to close the console, end your lab, and evaluate the experience.

Return to the AWS Management Console.

On the navigation bar, click awsstudent@<AccountNumber>, and then click Sign Out.

click End Lab





Conclusion:

Congratulations! You now have successfully:
Explored pre-created IAM users and groups
Inspected IAM policies as applied to the pre-created groups
Followed a real-world scenario, adding users to groups with specific capabilities enabled
Located and used the IAM sign-in URL
Experimented with the effects of policies on service access

Practical No. 3

Introduction to Amazon Simple Storage Service (S3)

Start Lab

1. At the top of your screen, launch your lab by choosing Start Lab

Start Lab

This starts the process of provisioning your lab resources. An estimated amount of time to provision your lab resources is displayed. You must wait for your resources to be provisioned before continuing.

If you are prompted for a token, use the one distributed to you (or credits you have purchased).

2. Open your lab by choosing Open Console

This automatically logs you into the AWS Management Console.

A Do not change the Region unless instructed.

Common Login Errors

Error: Federated login credentials

Your unique, federated login credentials are being created. Please try again in 30 seconds.

If you see this message:

• Close the browser tab to return to your initial lab window • Wait a few seconds •

Choose Open Console again

You should now be able to access the AWS Management Console.

Error: You must first log out

Amazon Web Services Sign In

You must first log out before logging into a different AWS account.

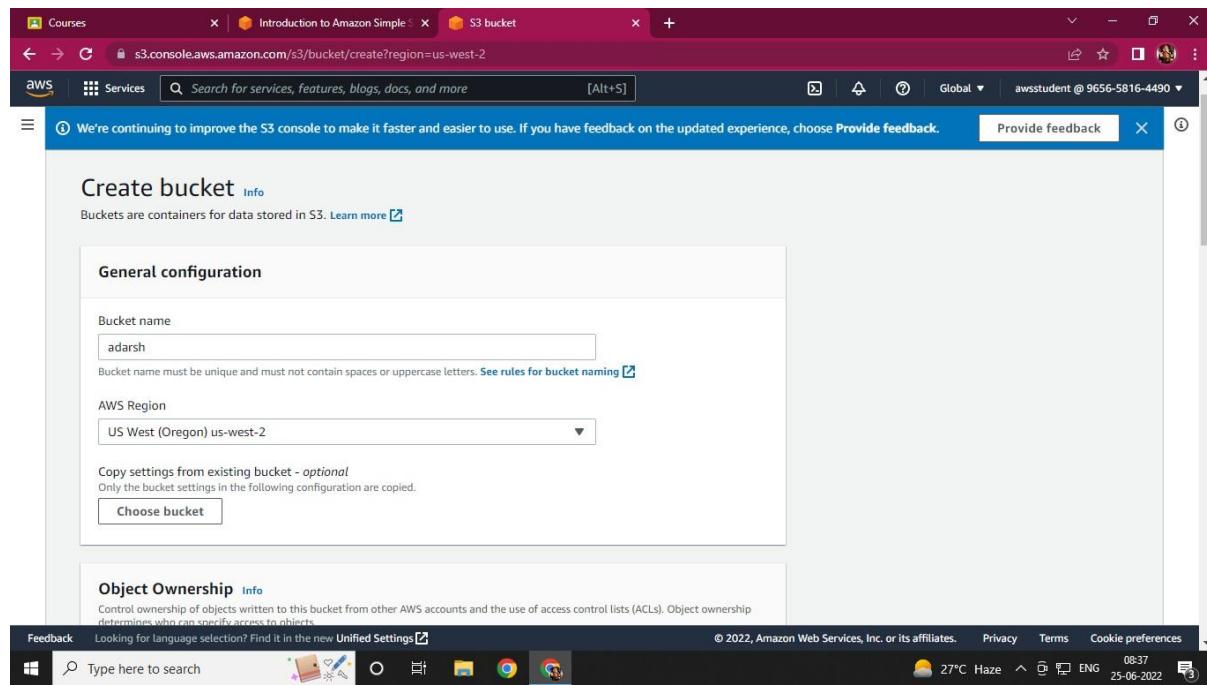
To logout, [click here](#)

If you see the message, You must first log out before logging into a different AWS account:

- Choose here
- Close your browser tab to return to your initial lab window
- Choose Open Console again

Lab Scenario

You work for a company using Amazon S3 for data storage. An application residing on an EC2 instance needs to push reporting data to an S3 bucket daily. You are tasked with creating an S3 bucket for your company to use for storing this report data. For a successful deployment, you need to ensure the EC2 instance has enough privileges to be able to upload and retrieve data from the S3 bucket. For security reasons, only the EC2 instance can write data to the S3 bucket. The files in the S3 bucket also require protection against accidental deletion. This lab follows the Getting Started with Amazon S3 digital course.



Task 1: Create a bucket

You are new to Amazon S3 and want to test the features and security of S3 as you configure the environment to hold the EC2 report data. You know that every object in Amazon S3 is stored in a bucket so creating a new bucket to hold the reports is the first thing on your task list.

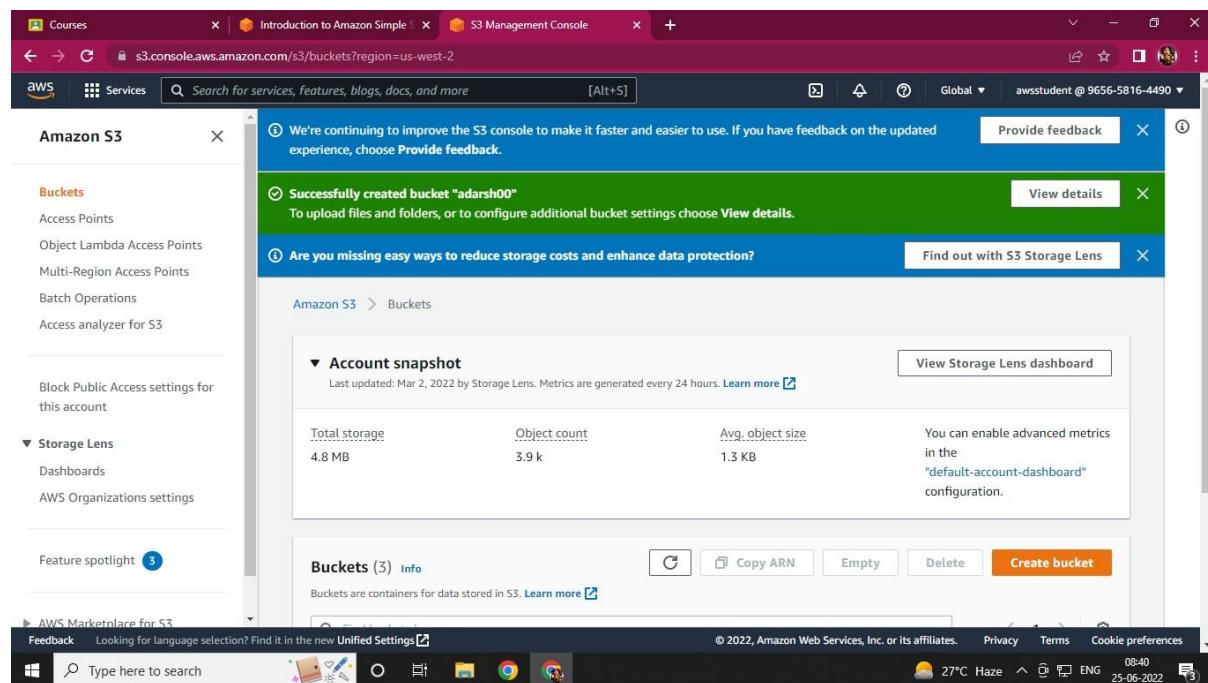
In this task, you create a bucket to hold your EC2 report data and then examine the different bucket configuration options.

3. At the top-left of the AWS Management Console, on the Services menu choose S3.

You can also search for S3 at the top of the services menu.

4. Choose Create bucket

Bucket names must be between 3 and 63 characters long and consist of only lowercase letters, numbers, or hyphens. The bucket name must be globally unique across all of Amazon S3, regardless of account or region, and cannot be changed after the bucket is created. As you enter a bucket name, a help box displays showing any violations of the naming rules. Refer to the Amazon S3 bucket naming rules in the Additional



bucket is created. As you enter a bucket name, a help box displays showing any violations of the naming rules. Refer to the Amazon S3 bucket naming rules in the Additional resources section at the end of the lab for more information.

5. Under the General configuration section, name your bucket:

reportbucket (NUMBER)

Replace NUMBER in the bucket name with a random number. This ensures that you have a unique name. * Example Bucket Name - reportbucket987987

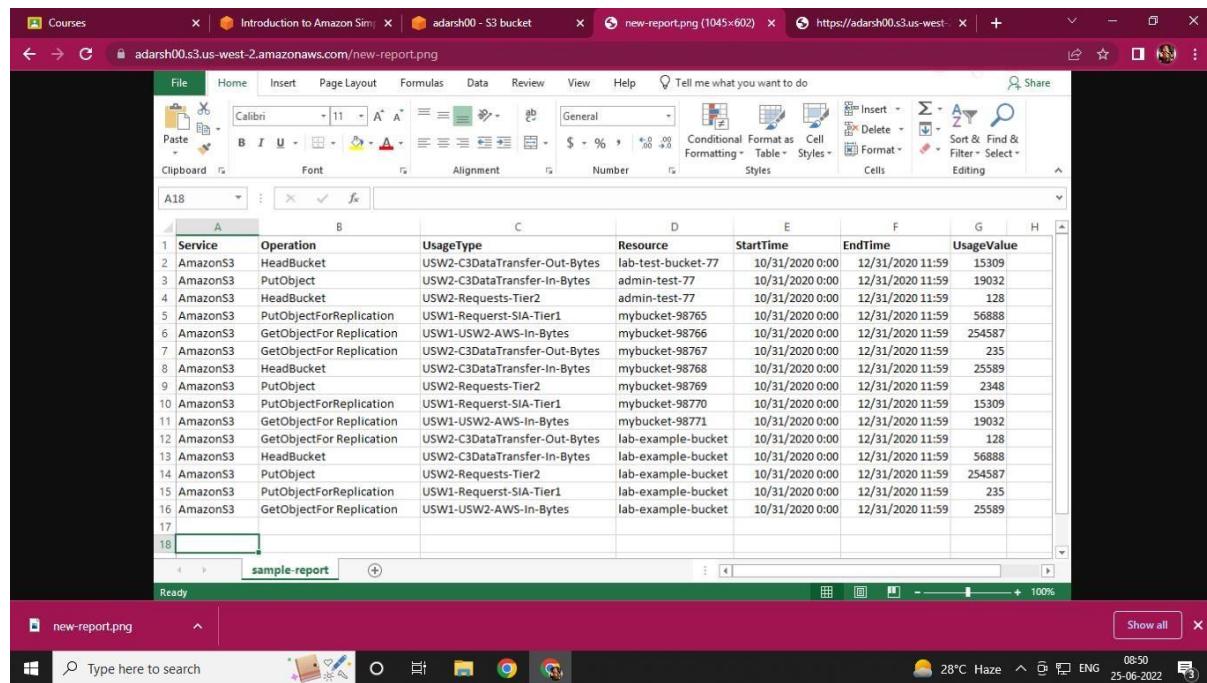
6. In the Object Ownership section, configure:

- O ACLs enabled • Object writer

7. Leave Region at its default value.

Selecting a particular region allows you to optimize latency, minimize costs, or address regulatory requirements. Objects stored in a region never leave that region unless you explicitly transfer them to another region.

8. Scroll to the button and choose to create bucket.



The screenshot shows a Microsoft Excel spreadsheet titled "sample-report". The table contains 18 rows of data with the following columns: Service, Operation, UsageType, Resource, StartTime, EndTime, and UsageValue. The data is as follows:

	A	B	C	D	E	F	G	H
1	Service	Operation	UsageType	Resource	StartTime	EndTime	UsageValue	
2	AmazonS3	HeadBucket	USW2-C3DataTransfer-Out-Bytes	lab-test-bucket-77	10/31/2020 0:00	12/31/2020 11:59	15309	
3	AmazonS3	PutObject	USW2-Requests-In-Bytes	admin-test-77	10/31/2020 0:00	12/31/2020 11:59	19032	
4	AmazonS3	HeadBucket	USW2-Requests-Tier2	admin-test-77	10/31/2020 0:00	12/31/2020 11:59	128	
5	AmazonS3	PutObjectForReplication	USW1-Requestst-SIA-Tier1	mybucket-98765	10/31/2020 0:00	12/31/2020 11:59	56888	
6	AmazonS3	GetObjectFor Replication	USW1-USW2-AWS-In-Bytes	mybucket-98766	10/31/2020 0:00	12/31/2020 11:59	254587	
7	AmazonS3	GetObjectFor Replication	USW2-C3DataTransfer-Out-Bytes	mybucket-98767	10/31/2020 0:00	12/31/2020 11:59	235	
8	AmazonS3	HeadBucket	USW2-C3DataTransfer-In-Bytes	mybucket-98768	10/31/2020 0:00	12/31/2020 11:59	25589	
9	AmazonS3	PutObject	USW2-Requests-Tier2	mybucket-98769	10/31/2020 0:00	12/31/2020 11:59	2348	
10	AmazonS3	PutObjectForReplication	USW1-Requestst-SIA-Tier1	mybucket-98770	10/31/2020 0:00	12/31/2020 11:59	15309	
11	AmazonS3	GetObjectFor Replication	USW1-USW2-AWS-In-Bytes	mybucket-98771	10/31/2020 0:00	12/31/2020 11:59	19032	
12	AmazonS3	GetObjectFor Replication	USW2-C3DataTransfer-Out-Bytes	lab-example-bucket	10/31/2020 0:00	12/31/2020 11:59	128	
13	AmazonS3	HeadBucket	USW2-C3DataTransfer-In-Bytes	lab-example-bucket	10/31/2020 0:00	12/31/2020 11:59	56888	
14	AmazonS3	PutObject	USW2-Requests-Tier2	lab-example-bucket	10/31/2020 0:00	12/31/2020 11:59	254587	
15	AmazonS3	PutObjectForReplication	USW1-Requestst-SIA-Tier1	lab-example-bucket	10/31/2020 0:00	12/31/2020 11:59	235	
16	AmazonS3	GetObjectFor Replication	USW1-USW2-AWS-In-Bytes	lab-example-bucket	10/31/2020 0:00	12/31/2020 11:59	25589	
17								
18								

The screenshot shows the AWS S3 console interface. At the top, there are several tabs open, including 'Courses', 'Introduction to Amazon Sim...', 'adarsh00 - S3 bucket', 'new-report.png (1045x602)', and 'https://adarsh00.s3.us-west-2.amazonaws.com/'. The main content area displays a green success message: 'Successfully edited public access' with a link to 'View details below.' Below this, a section titled 'Make public: status' shows a summary table. The table has three columns: 'Source' (s3://adarsh00), 'Successfully edited public access' (1 object, 84.0 KB), and 'Failed to edit public access' (0 objects). At the bottom of the page, there are tabs for 'Failed to edit public access' and 'Configuration', with 'Failed to edit public access' being the active tab.

The screenshot shows the AWS S3 console interface, specifically the object details view for 'new-report.png'. The top navigation bar includes tabs for 'Courses', 'Introduction to Amazon Sim...', 'adarsh00 - S3 bucket', 'new-report.png (1045x602)', and 'https://adarsh00.s3.us-west-2.amazonaws.com/'. The main content area shows the file 'new-report.png' with its 'Info' tab selected. Above the file preview, there are buttons for 'Copy S3 URI', 'Download', 'Open', and 'Object actions'. Below the file preview, there are tabs for 'Properties', 'Permissions', and 'Versions', with 'Properties' being the active tab. The 'Object overview' section displays detailed information about the file, including its owner (aws04158), AWS Region (US West (Oregon) us-west-2), last modified date (June 25, 2022, 08:45:08 (UTC+05:30)), S3 URI (s3://adarsh00/new-report.png), Amazon Resource Name (ARN) (arn:aws:s3:::adarsh00/new-report.png), and Entity tag (Etag) (75acf5a0dd2f6bdd67c36fa2748a1a19).

Console Home [Info](#)

Introducing the new widget Latest announcements. Find it at the bottom of your Console Home.

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28°C Light rain 09:46 28-06-2022

← Introduction to Amazon Simple Storage Service (S3)

01:29:47 [End Lab](#)

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)

[Open Console](#)

[Download PEM](#) [Download PPK](#)

This starts the process of provisioning your lab resources. An estimated amount of time to provision your lab resources is displayed. You must wait for your resources to be provisioned before continuing.

If you are prompted for a token, use the one distributed to you (or credits you have purchased).

2. Open your lab by choosing [Open Console](#)

This automatically logs you in to the AWS Management Console.

⚠ Do not change the Region unless instructed.

Common Login Errors

Error: Federated login credentials

Your unique, federated login credentials are being created. Please try again in 30 seconds.

If you see this message:

Start Lab

Task 1: Create a bucket

Task 2: Upload an object to the bucket

Task 3: Make an object public

Task 4: Test connectivity from the EC2 instance

Task 5: Create a bucket policy

Task 6: Explore versioning

Summary:

Conclusion

End Lab

Additional resources

2 new notifications

28°C Light rain 09:46 28-06-2022

The screenshot shows the AWS S3 Management Console. At the top, there are tabs for 'Introduction to Amazon Simple' (two instances), 'S3 Management Console', and 'Renuka_16_CSA_pracs3 - Google'. The main content area displays an 'Account snapshot' with metrics: Total storage (456.2 KB), Object count (265), and Avg. object size (1.7 KB). A note says 'You can enable advanced metrics in the "default-account-dashboard" configuration.' Below this is a table for 'Buckets (2)'. The table includes columns for 'Info', 'Copy ARN', 'Empty', 'Delete', and 'Create bucket'. A search bar at the bottom of the table says 'Find buckets by name'. The left sidebar has sections for 'Buckets', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', 'Access analyzer for S3', 'Block Public Access settings for this account', 'Storage Lens' (with 'Dashboards' and 'AWS Organizations settings'), and 'Feature spotlight'.

The screenshot shows the 'Create bucket' wizard in the AWS S3 Management Console. The title is 'Create bucket' with an 'Info' link. It says 'Buckets are containers for data stored in S3. Learn more'. The 'General configuration' section contains fields for 'Bucket name' (set to 'myawsbucket') and 'AWS Region' (set to 'US West (Oregon) us-west-2'). Below these, there's a note about 'Copy settings from existing bucket - optional' with a 'Choose bucket' button. The bottom of the page includes a 'Feedback' link, a search bar, and a footer with copyright information and weather details (28°C, Light rain).

Object Ownership Info

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

ACLs disabled (recommended)
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

ACLs enabled
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

Object Ownership

Bucket owner preferred
If new objects written to this bucket specify the bucket-owner-full-control canned ACL, they are owned by the bucket owner. Otherwise, they are owned by the object writer.

Object writer
The object writer remains the object owner.

If you want to enforce object ownership for new objects only, your bucket policy must specify that the bucket-owner-full-control canned ACL is required for object uploads. [Learn more](#)

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Windows Type here to search 28°C Light rain 09:51 28-06-2022

Amazon S3

Buckets

- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- Access analyzer for S3

Block Public Access settings for this account

Storage Lens

- Dashboards
- AWS Organizations settings

Feature spotlight

Buckets (4) Info

Buckets are containers for data stored in S3. [Learn more](#)

Total storage	Object count	Avg. object size	
456.2 KB	265	1.7 KB	You can enable advanced metrics in the "default-account-dashboard" configuration.

Create bucket

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Windows Type here to search 28°C Light rain 09:52 28-06-2022

Task 2: Upload an object to the bucket

Now that you have a bucket created for your report data, you are ready to work with objects. An object can be any kind of file: a text file, a photo, a video, a zip file, and so on. When you add an object to Amazon S3, you have the option of including metadata with the object and setting permissions to control access to the object.

In this task you test uploading objects to your reportbucket. You have a screen capture of a daily report and want to upload this image to your S3 bucket.

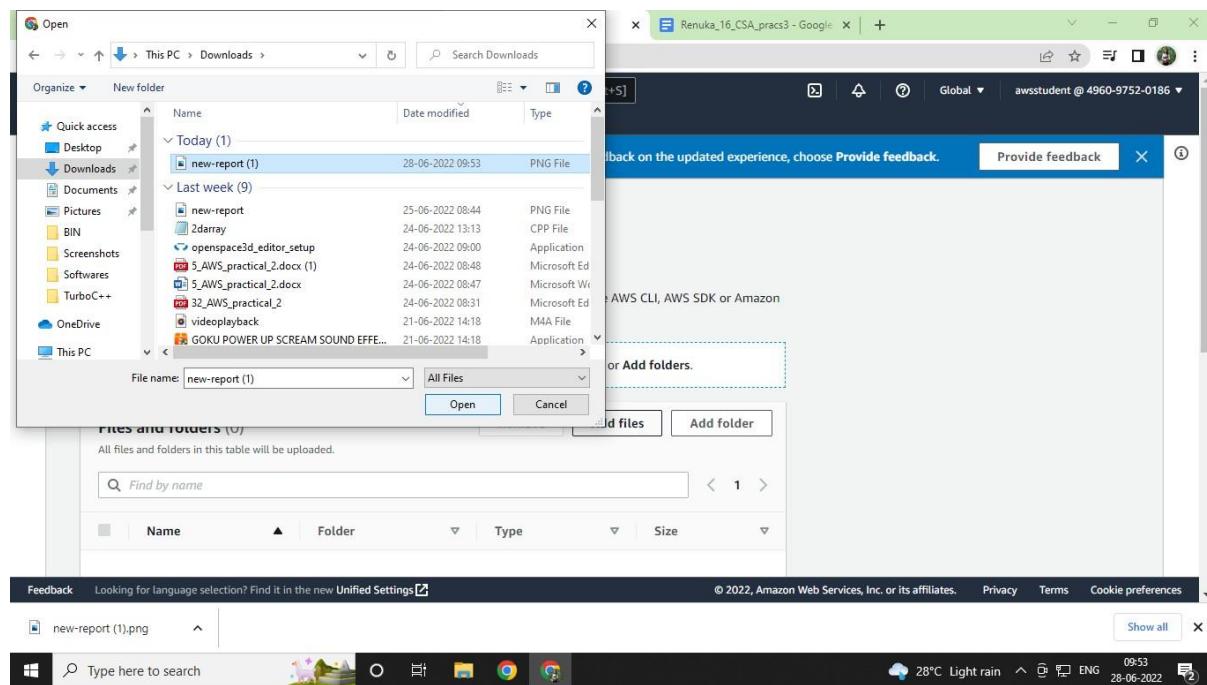
9. Right click this link new-report.png, choose Save link as, and save the file locally.

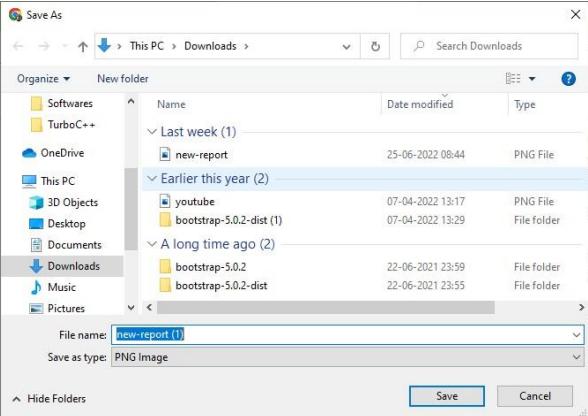
10. In the S3 Management Console, find and select the bucket that starts with the name

reportbucket

11. Choose Upload

This launches an upload wizard. Use this wizard to upload files either by selecting them from a file chooser or by dragging them to the S3 window.





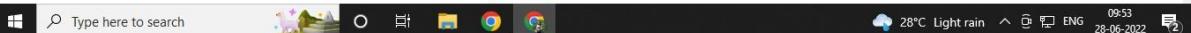
11. Choose **Upload**

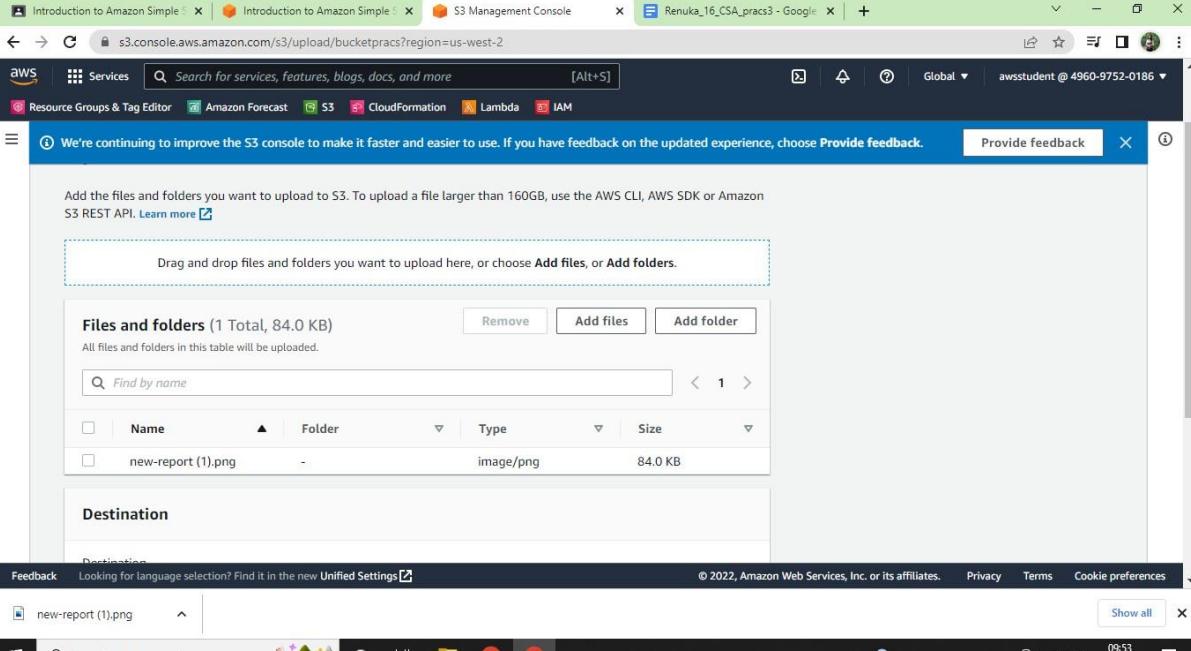
This launches an upload wizard. Use this wizard to upload files either by selecting them from a file chooser or by dragging them to the S3 window.

12. Choose **Add files**

13. Browse to and select the **new-report.png** file that you downloaded previously.

14. Scroll down and choose **Upload**





Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more [\[?\]](#)

Drag and drop files and folders you want to upload here, or choose **Add files**, or **Add folders**.

Files and folders (1 Total, 84.0 KB)

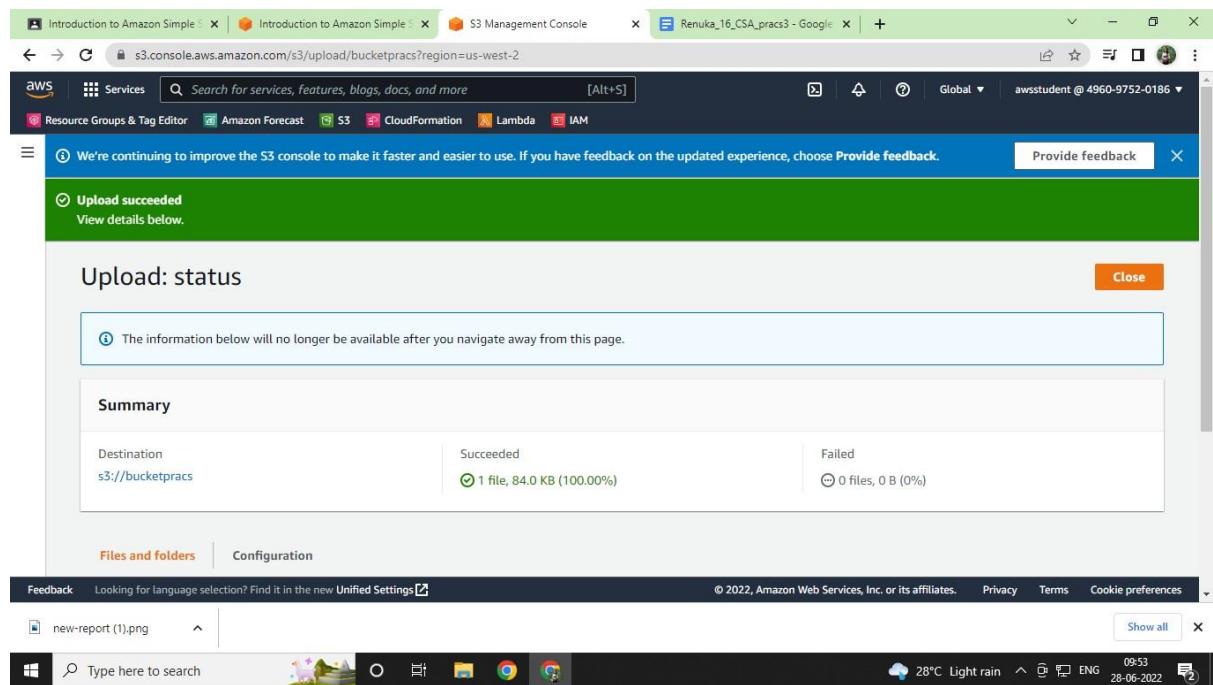
	Name	Folder	Type	Size
<input type="checkbox"/>	new-report (1).png	-	image/png	84.0 KB

Destination

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This launches an upload wizard. USE this wizard to upload file either by selecting them from a file chooser or by dragging them to the S3 window.

12. Choose Add files

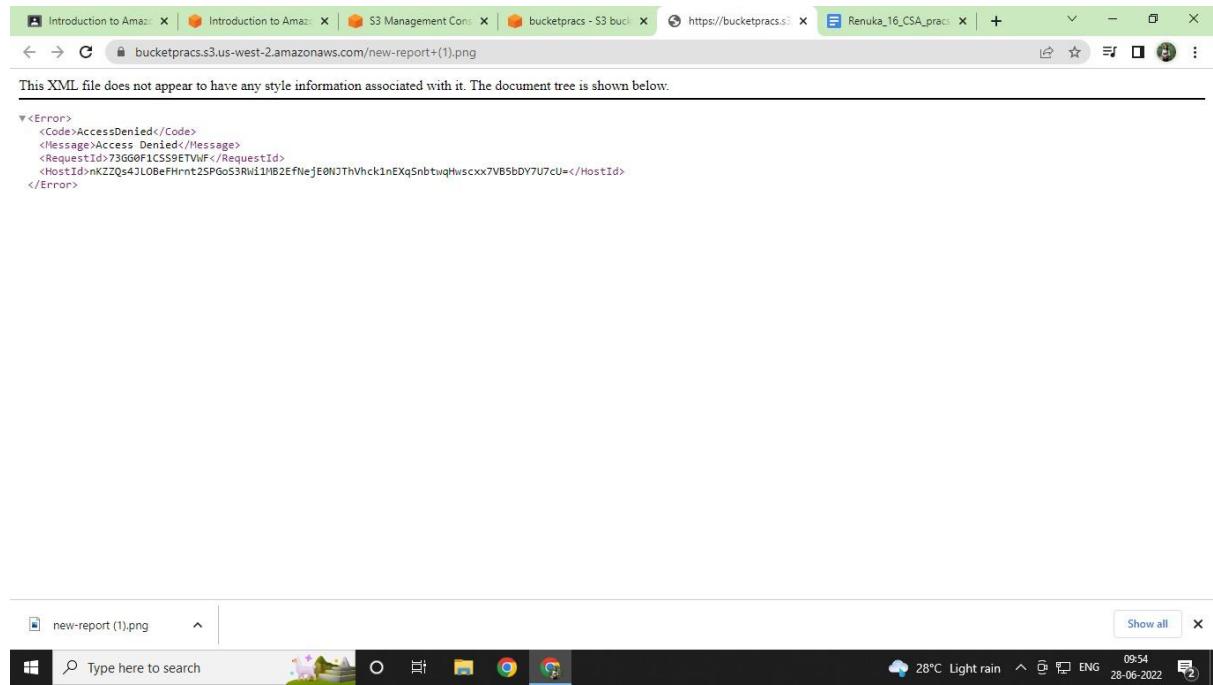
13. Browse to and select the new-report.png file that you downloaded previously.

14. Scroll down and choose Upload

Your file is successfully uploaded when the green bar indicating Upload succeeded appears.

If the file does not display in the bucket within a few seconds of uploading it, you may need to choose the refresh button at the top-right.

15. In the Upload: status section, choose Close



Task 3: Make an object public

Security is a priority in Amazon S3. Before you configure your EC2 instance to connect to the reportbucket, you want to test the bucket and object settings for security.

In this task, you configure permissions on your bucket and your object to test accessibility

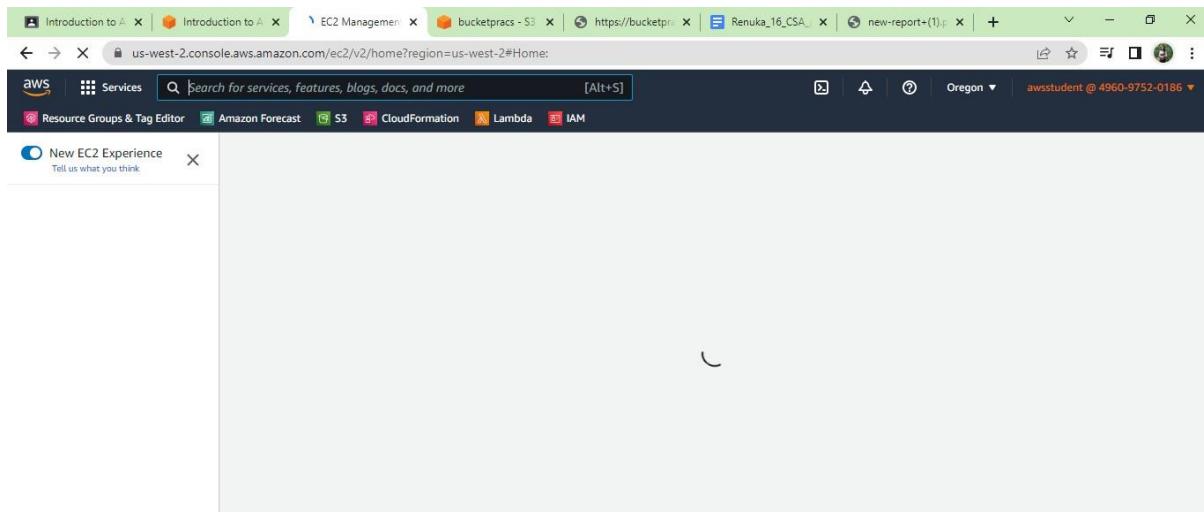
First, you attempt to access the object to confirm that it is private by default.

16. In the reportbucket overview page, on the objects tab, locate the new-report.png object, and choose the new-report.png file name.

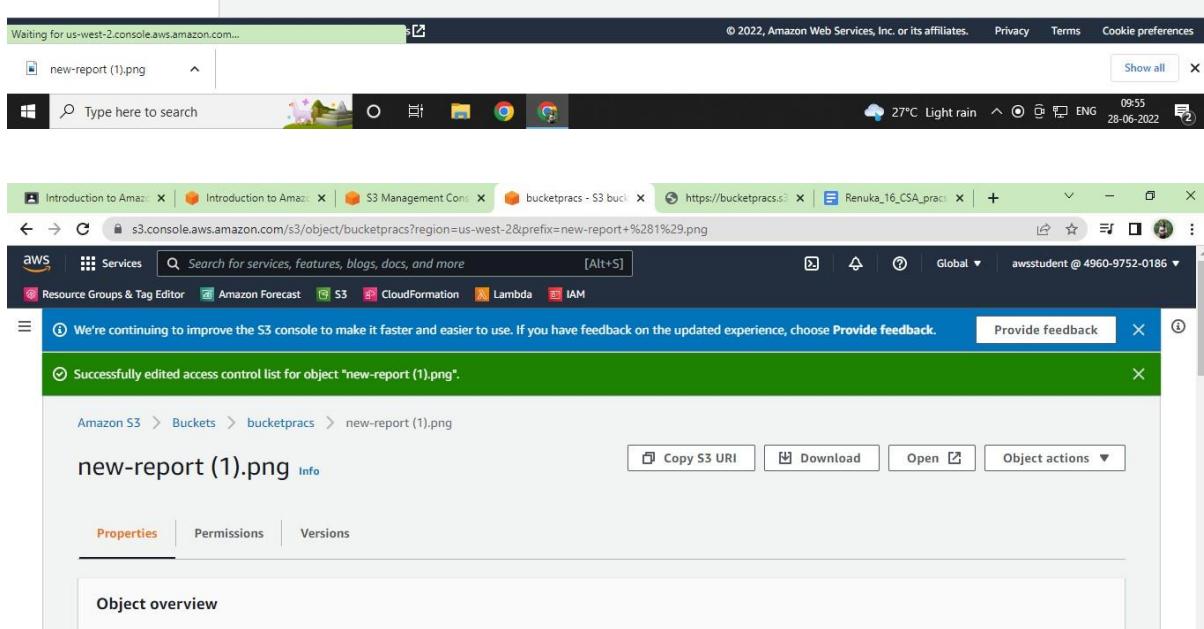
The new-report.png overview page opens. Notice that the navigation in the top-left updates with a link to return to the bucket overview page.

17. In the Object overview section, locate and copy the Object URL link.

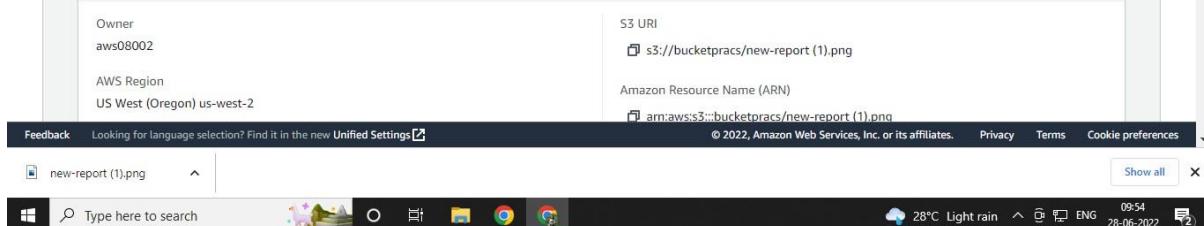
The link should look similar to: <https://reportbucket987987.s3-us-west2.amazonaws.com/new-report.png>



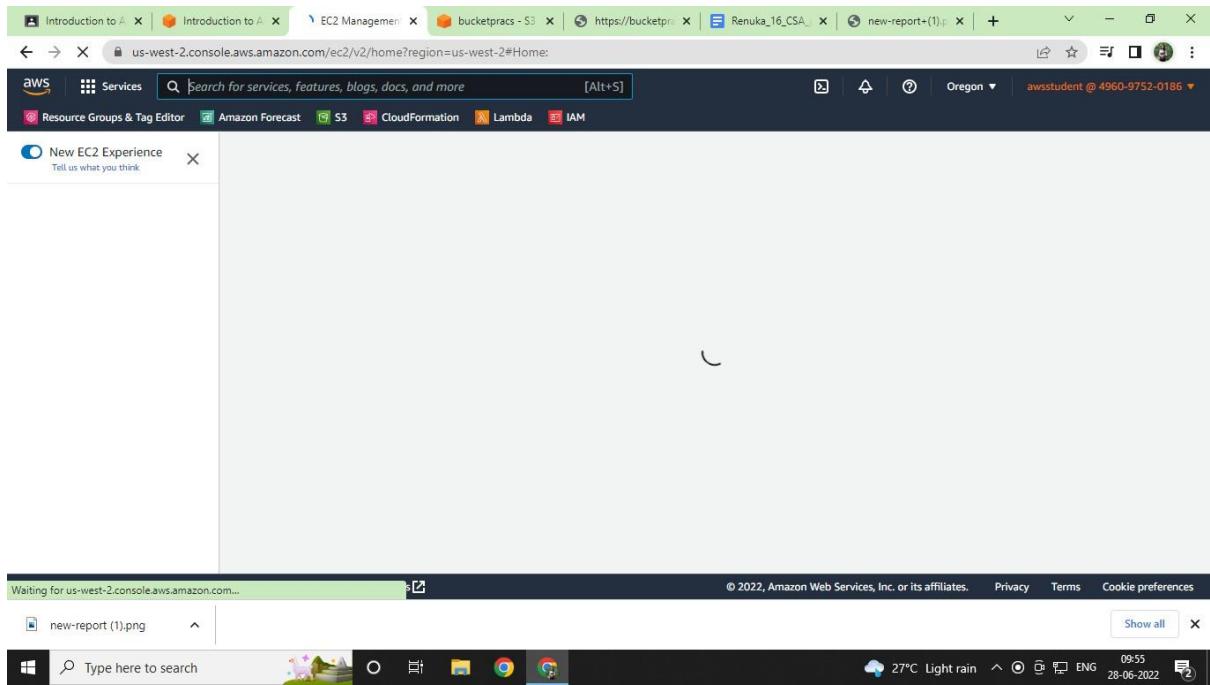
The screenshot shows a browser window with several tabs open, including "Introduction to AWS", "Introduction to AWS", "EC2 Management", "bucketpracs - S3", "https://bucketpracs...", "Renuka_16_CSA_...", "new-report+(1).png", and "CloudFormation". The main content area is currently empty. A search bar at the top says "Search for services, features, blogs, docs, and more [Alt+S]". The AWS logo and navigation menu are visible.



The screenshot shows the AWS S3 Management Console. A green success message box says "Successfully edited access control list for object 'new-report (1).png'." Below it, the file "new-report (1).png" is listed with options to "Copy S3 URI", "Download", "Open", and "Object actions". The "Properties" tab is selected. The object overview section shows the owner as "aws08002" and the AWS Region as "US West (Oregon) us-west-2". The S3 URI is listed as "s3://bucketpracs/new-report (1).png".



The screenshot shows the Windows taskbar with the AWS S3 Management Console window open. The taskbar also includes icons for File Explorer, Task View, and other applications like Google Chrome and Microsoft Edge. The system tray shows the date and time as "28-06-2022 09:54".



18. Open a new browser tab and paste the Object URL link into the address field, and then

press Enter

You receive an Access Denied error. This is because objects in Amazon S3 are private by default.

Now that you've confirmed the default security of S3 is private, you want to test how to make the object publicly accessible.

19. Keep the browser with the Access Denied error open and return to the web

browser tab

with the S3 Management Console.

20. You should still be on the new-report.png Object Overview tab.

21. Choose the Object actions button and Make public via ACL, which will be the last item in the list.

Notice the warning Public access is blocked because Block Public Access settings are turned on for this bucket. This error displays because this bucket is configured not to allow public access. The bucket settings override any permissions applied to individual objects. If you want the object to viewable by the general public, you need to turn off Block Public Access (BPA).

22. Choose Make public and read the warning at the top of the window indicating that it

"Failed to edit public access again this is due to BPA being enabled."

22. Choose Make public and read the warning at the top of the window indicating that it

"Failed to edit public access' again this is due to BPA being enabled.

23. Choose Close to return to the object overview.

24. Use the navigation at the top to go back to the main reportbucket overview page.

25. Choose the Permissions tab.

26. Under Block public access (bucket settings), choose Edit to change the settings.

27. Deselect the Block all public access option, and then leave all other options deselected.

Notice that all of the individual options remain deselected. When deselecting all public access, you must then select the individual options that apply to your situation and security objectives. Both ACLs and bucket policies are used later in the lab, so they all remain deselected in this task. In a production environment, it is recommended to use the least permissive settings possible. Refer to the Amazon S3 block public access link in the Additional Resources section at the end of the lab for more information.

28. Choose Save changes

29. A dialogue box opens asking you to confirm your changes. Type confirm in the field,

and then choose Confirm

A Successfully edited bucket settings for Block Public Access message displays at the top of the window.

30. Choose the objects tab.

31. Choose the new-report.png file name.

32. On the new-report.png overview page, choose the object actions button and select

Make public via ACL

Notice the warning: When public read access is enabled and not blocked by Block Public Access settings, anyone in the world can access the specified objects. This is designed to remind you that if you make the object public then everyone in the world will be able to read the object.

33. Choose Make public and you should see the green banner Successfully edited public

access at the top of the window.

34. Choose Close to return to the object overview.

35. Return to the other browser tab that displayed Access Denied for the new-report.png

and refresh the page.

The screenshot shows the AWS CloudWatch Metrics Insights interface. A search bar at the top contains the query: "new-report(1).png". Below the search bar, there's a table with columns: Metric Name, Metric Value, and Metric Unit. The table shows two rows of data:

Metric Name	Metric Value	Metric Unit
new-report(1).png	1	Count
new-report(1).png	1	Count

Task 4: Test connectivity from the EC2 instance

In this task, you connect to your Amazon Elastic Compute Cloud (Amazon EC2) instance to test connectivity and security to the S3 reportbucket.

You should already be logged into the AWS Management Console. If not, follow the steps in the Start Lab section to log in to the AWS Management Console.

37. On the Services - menu, choose EC2.

38. On the EC2 Dashboard, under the Resources section, choose Instances (running).

39. Select

Bastion Host and choose Connect

40. In the Connect to instance window:

- For the Connection method, select Session Manager.

Session Manager enables you to connect to the bastion host instance without the need for specific ports to be open on your firewall or Amazon Virtual Private Cloud (Amazon VPC) Security group. Refer to AWS Systems Manager Session Manager in the Additional resources section at the end of this lab for more information

41. Choose Connect

```

Session ID: awssstudent-05e35f974d1709410 Instance ID: i-08b74a6158941853f
sh-4.2$ pwd
/usr/bin
sh-4.2$ cd
sh-4.2$ pwd
/home/ssm-user
sh-4.2$ aws s3 ls
2022-06-28 04:22:30 bucketpracs
2022-06-28 04:19:29 pracs1
2022-06-28 04:13:45 ql-cf-templates-1656389624-56a2aaee87582af9-us-west-2
2022-06-28 04:13:49 qltrail-lab-4849-1656389627
sh-4.2$ aws s3 ls s3 ://bucketpracs

Unknown options: ://bucketpracs
sh-4.2$ aws s3 ls s3://bucketpracs
2022-06-28 04:23:44     86065 new-report (1).png
sh-4.2$ cd reports
sh-4.2$ ls
dolphins.jpg files.zip report-test1.txt report-test2.txt report-test3.txt whale.jpg
sh-4.2$ aws3 cp report-test1.txt s3://bucketpracs
sh: aws3: command not found
sh-4.2$ aws s3 cp report-test1.txt s3://bucketpracs
upload failed: ./report-test1.txt to s3://bucketpracs/report-test1.txt An error occurred (AccessDenied) when calling the PutObject operation: Access Denied
sh-4.2$ 

```

You are now connected to the EC2 instance that holds the reporting application.

Because Session Manager uses https port 443, it does not require you to open SSH port 22 to the outside world, you are satisfied with this security feature. Now you want to see how EC2 interacts with your S3 bucket.

42. In the bastion host session, enter the following command to change to home directory (/home/ssm-user/):

cd

The output returns you to the command prompt.

43.

Enter the following command to verify you are in the home directory:

pwd

The output should be:

/home/sam-user

You are now in the sam-user's home directory where you will run all of the commands in this lab.

44.

Enter the following command to list all of your S3 buckets.

44.

Enter the following command to list all of your S3 buckets.

aws s3 ls

The output should look similar to this:

2020-11-11 22:27:28 ql-cf-templates-1603924046-5d95cf473a39fe4e-us-west-2

2820-11-11 22:27:49 qltrail-lab-59350-1683924067 2820-11-11 22:34:46

reportbucket987987

You see the reportbucket you created as well as lab auto-generated buckets.

Note: During the creating of the lab environment, both an Instance Profile (which defines who you are for authentication) and a Role (which defines what you can do after you authenticate), have been automatically added for the EC2 instance to allow the EC2 instance to list the S3 buckets and objects.

45. Enter the following command to list all objects in your reportbucket. Remember to

change the number at the end of the reportbucket name, to match the name of the bucket you created.

aws s3 ls s3://reportbucket (NUMBER)

The command looks similar to this: aws s3 ls s3://reportbucket987987

46. Type the following to change directories into the reports directory

cd reports

The output returns you to the command prompt.

47. Type the following to list the contents of the directory.

ls

The output shows some files created in your reports directory to test the application

dolphins.jpg files.zip report-test.txt report-test1.txt report-test2.txt report-test3.txt

whale.jpg

48. Type the following to see if you can copy a file to the S3 bucket.

aws s3 cp report-test1.txt s3://reportbucket (NUMBER)

The command looks similar to this: aws s3 cp report-test1.txt s3://reportbucket987987

The output indicates an error upload failed. This is because we have read-only rights to the bucket and do not have the permissions to perform the PutObject operation. The output indicates an error upload failed. This is because we have read-only rights to the bucket and do not have the permissions to perform the PutObject operation.

49. Leave this window open and go back to the AWS Console tab.

In the next task you create a bucket policy to add the PutOperation.

Task 5: Create a bucket policy

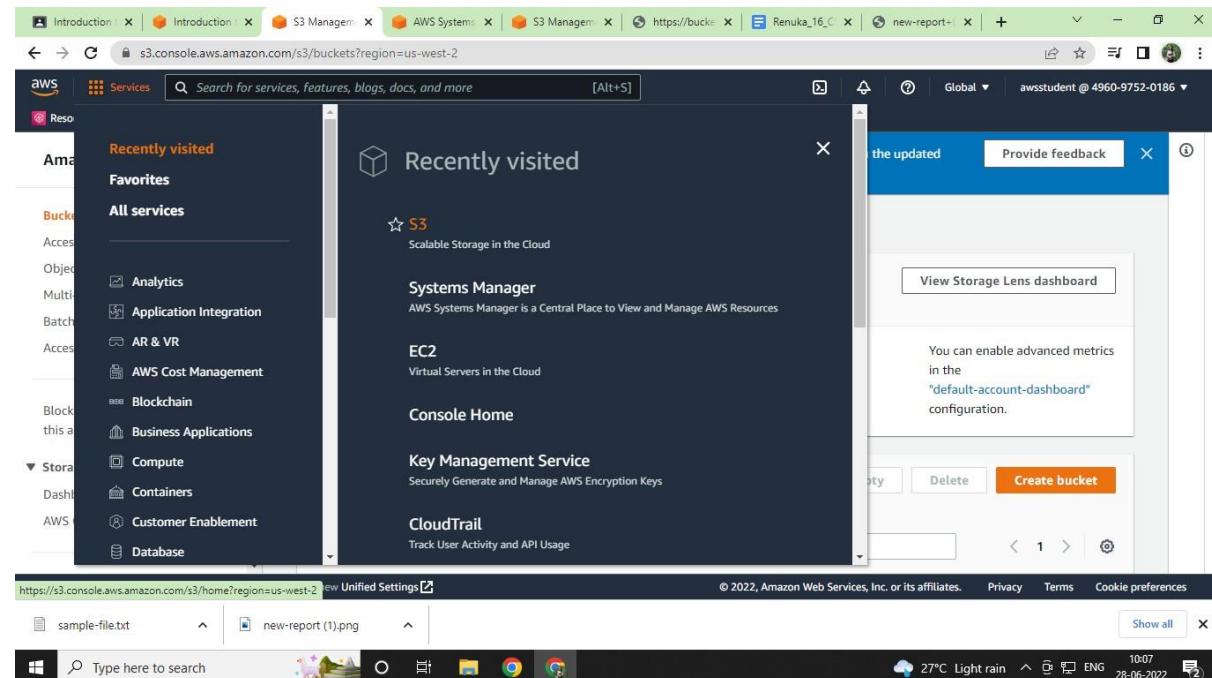
A bucket policy is a set of permissions associated with an S3 bucket. It is used to control access to an entire bucket or to specific directories within a bucket.

In this task, you use the AWS Policy Generator to create a bucket policy to enable read and write access from the EC2 instance to the bucket to ensure your reporting application can successfully write to S3.

50. Right-click this link sample-file.txt, choose Save link as, and save the file locally.

51. Return to the AWS Management Console, go to the Services - menu and select S3.

52. In the S3 Management Console tab, select the name of your bucket.



51. Return to the AWS Management Console, go to the Services

- menu and select S3.
52. In the S3 Management Console tab, select the name of your bucket.
53. Choose Upload and use the same upload process as in the previous task to upload the sample-file.txt
54. Choose the sample-file.txt file name. The sample-file.txt overview page opens.
55. Under the object overview section, locate and copy the object URL link.
56. In a new browser tab, paste the link into the address field, and then press Enter. Once again, Access Denied will be displayed. You need to configure a bucket policy to grant access to all objects in the bucket without having to specify permissions on each object individually.
57. Keep this browser tab open, but return to the tab with the S3 Management Console.
58. Go to Services - > IAM > Roles.
59. In the Search field type EC2InstanceProfileRole . This is the Role that the EC2 instance used to connect to S3.
60. Select EC2InstanceProfileRole. On the Summary page, copy the Role ARN to a text file to be used in a later step.
It should look similar to this:
`arn:aws:iam::596123517671:role/EC2InstanceProfileRole`

The screenshot shows the AWS S3 Management Console. On the left, a sidebar lists 'Buckets', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', and 'Access analyzer for S3'. Below that is 'Block Public Access settings for this account' and 'Storage Lens' with 'Dashboards' and 'AWS Organizations settings'. A central panel displays an 'Account snapshot' with a link to 'View Storage Lens dashboard'. Below it is a table titled 'Buckets (4) Info' showing four buckets, with 'bucketpracs' selected. The table includes columns for 'Name', 'AWS Region', 'Access', and 'Creation date'. At the bottom of the table, it says 'June 28, 2022, 09:52:30 (UTC+05:30) June 28, 2022, 09:40:29'. The status bar at the bottom right shows '27°C Light rain' and the date '28-06-2022'.

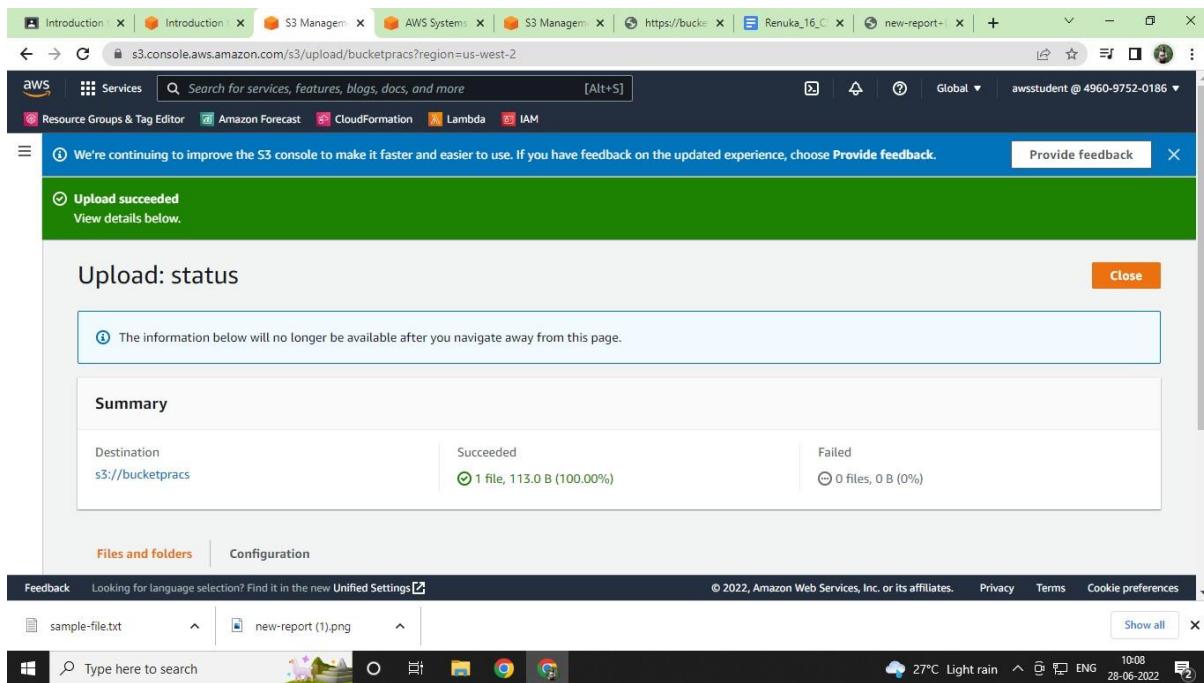
This screenshot shows the same AWS S3 Management Console interface as above, but with a file upload dialog overlaid. The dialog is titled 'Open' and shows a file selection window from 'This PC > Downloads'. It lists several files: 'sample-file' (Text Document, 28-06-2022 10:06), 'new-report (1)' (PNG File, 28-06-2022 09:53), 'new-report' (PNG File, 25-06-2022 08:44), '2darray' (CPP File, 24-06-2022 13:13), 'openspace3d_editor_setup' (Application, 24-06-2022 09:00), '5_AWS_practical_2.docx (1)' (Microsoft Word Document, 24-06-2022 08:48), '5_AWS_practical_2.docx' (Microsoft Word Document, 24-06-2022 08:47), '32_AWS_practical_2' (Microsoft Word Document, 24-06-2022 08:31), '32_AWS_practical_2' (Microsoft Word Document, 24-06-2022 08:31), and 'videoplayback' (M4A File, 21-06-2022 14:18). The 'File name:' dropdown is set to 'sample-file'. The status bar at the bottom right shows '27°C Light rain' and the date '28-06-2022'.

61. Choose Services - s3 and return to the S3 Management Console.

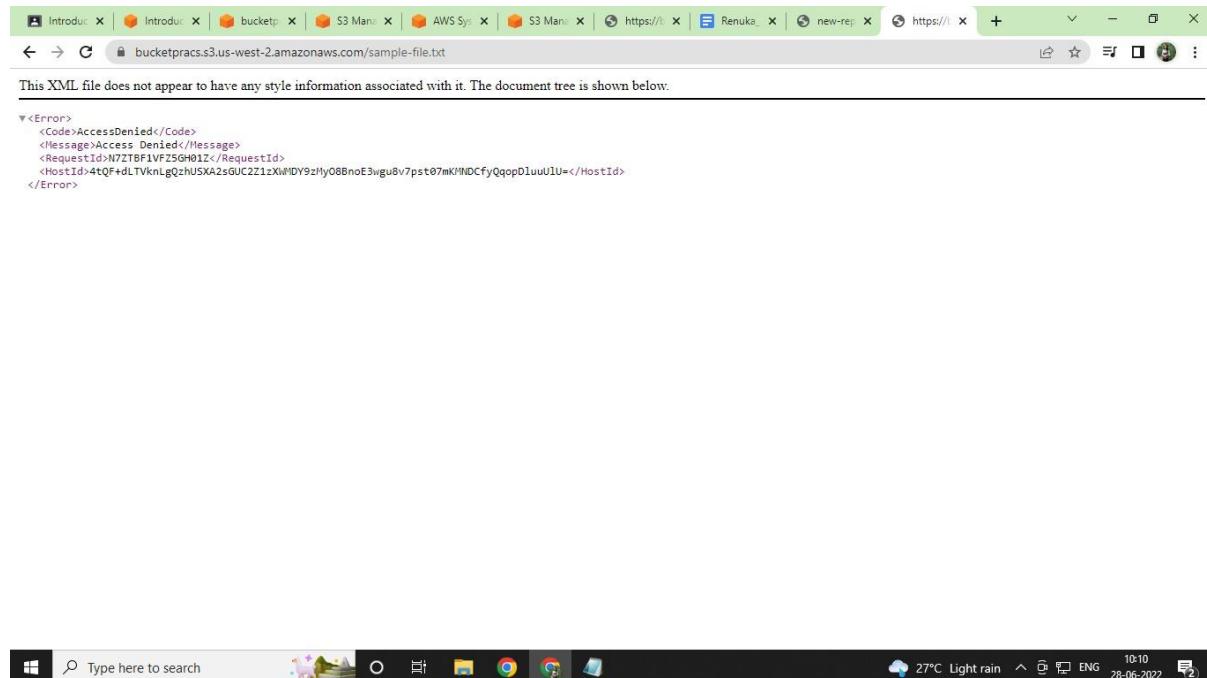
62. Choose the reportbucket.

You should see the two objects you uploaded. If not, navigate back to your bucket so that you see the list of objects you have uploaded.

63. Choose the Permissions tab.

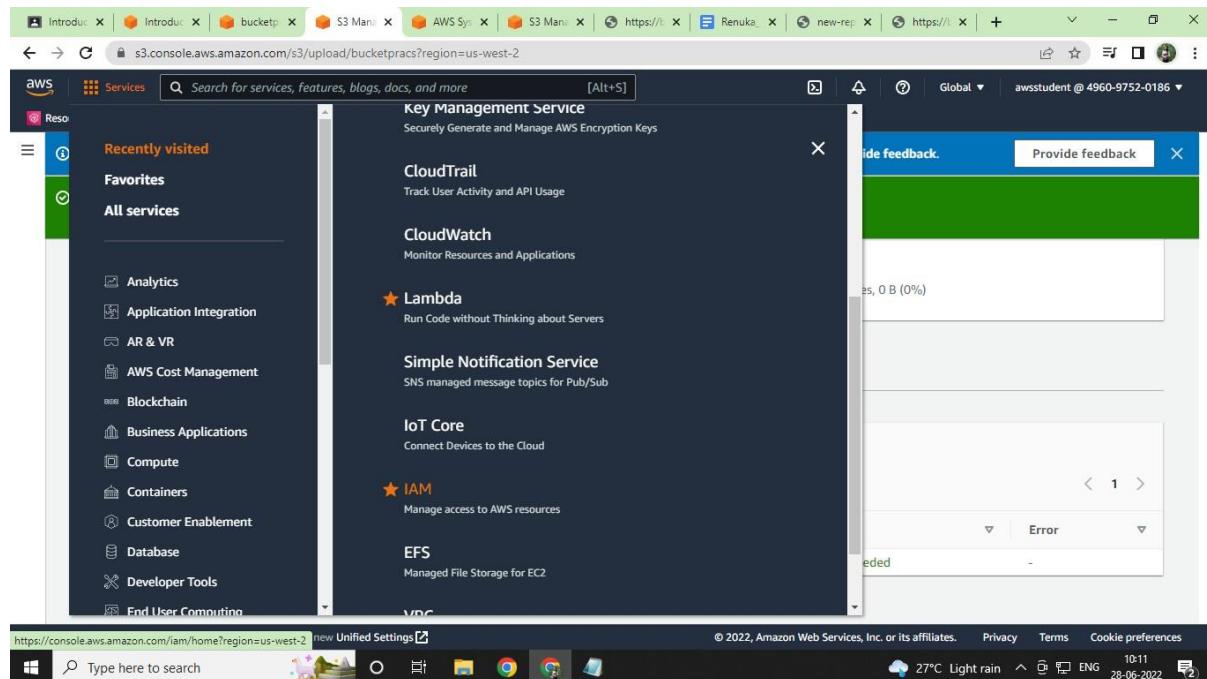


64. In the Permissions tab, scroll to the Bucket Policy section, choose Edit
A blank Bucket policy editor is displayed. Bucket policies can be created manually, or
they can be created with the assistance of the AWS Policy generator.
Amazon Resource Names (ARN)s uniquely identify AWS resources across all of AWS.
Each section of the ARN is separated by a ":" and represents a specific piece of the
path to the specified resource. The sections can vary slightly depending on the
service being referenced, but generally follows this format:
arn.partition service region account-id resource
Amazon S3 does not require region or account-id parameters in ARNs, so those
sections are left blank. However, the ":" to separate the sections is still used, so it
looks similar to arn:aws:s3.reportbucket 987987



Amazon S3 does not require region or account-id parameters in ARNs, so those sections are left blank. However, the ":" to separate the sections is still used, so it looks similar to arnaws:s3.reportbucket987987

Refer to the Amazon Resource Names (ARNS) and AWS Service Namespaces documentation link in the Additional Resources section at the end of the lab for more information.



65. Copy the Bucket ARN to a text file to be used in a later step.

It is displayed below the Policy examples and Policy generator buttons.

It looks like this:

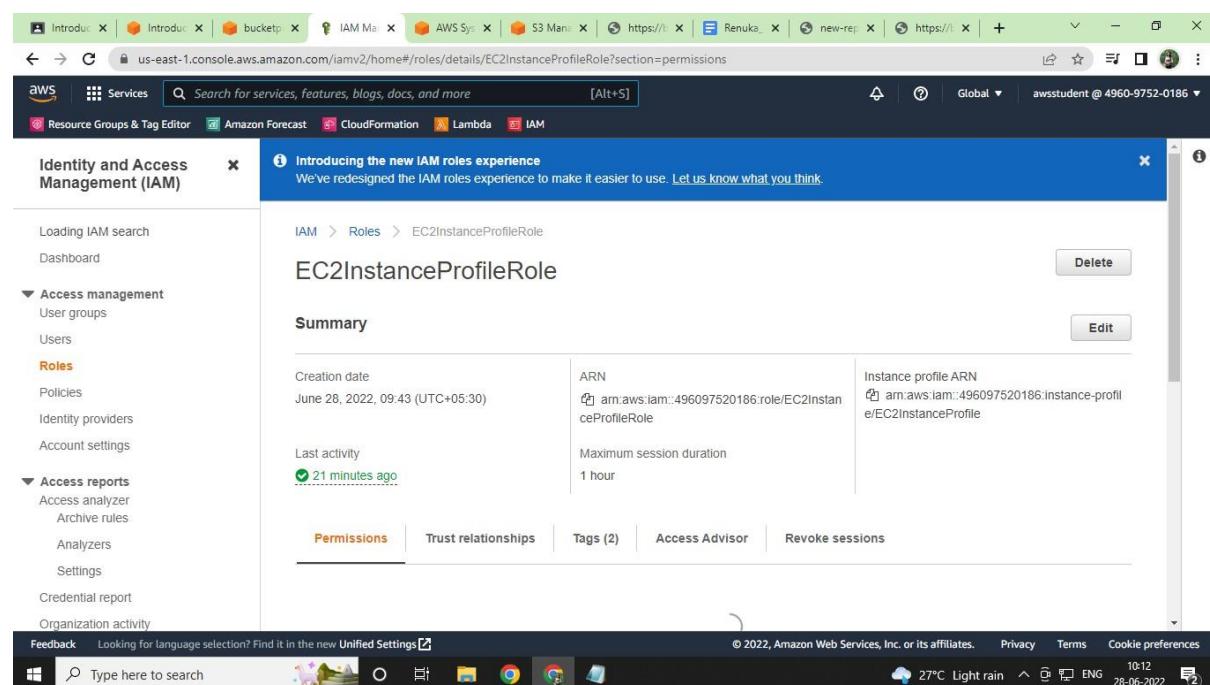
Bucket ARN arn:aws:83::: reportbucket987987

66. Choose Policy generator

A new web browser tab will open with the AWS Policy Generator.

AWS policies use the JSON format, and are used to configure granular permissions for AWS services. While you can write the policy in JSON manually, the AWS Policy Generator allows you to create it using a friendly web interface.

In the AWS Policy Generator window:



In the AWS Policy Generator window:

- For Select Type of Policy, select S3 Bucket Policy
- For Effect, select Allow.
- For Principal, paste the EC2InstanceProfileRole ARN that you copied to a text file in a previous step.
- For AWS Service, keep the default setting of Amazon S3
- For Actions, select PutObject and GetObject

The get GetObject action grants permission for objects to be retrieved from Amazon S3. Refer to the Additional Resources section at the end of the lab for links to more information about the actions available for use in Amazon S3 policies.

- Amazon Resource Name (ARN): Paste the Bucket ARN that you previously copied.
- At the end of the ARN, append /*

The ARN should look similar to: arn:aws:3:"reportbucket987987/*

An Amazon Resource Name (ARN) is a standard way to refer to resources within AWS. In this case, the ARN is referring to your S3 bucket. Adding to the end of the bucket name allows the policy to apply to all objects within the bucket.

67. Choose Add Statement. The details of the statement you configured are added to a table below the button. You can add multiple statements to a policy
68. Choose Generate Policy.

AWS Policy Generator

The AWS Policy Generator is a tool that enables you to create policies that control access to Amazon Web Services (AWS) products and resources. For more information about creating policies, see key concepts in Using AWS Identity and Access Management. Here are sample policies.

Step 1: Select Policy Type

A Policy is a container for permissions. The different types of policies you can create are an IAM Policy, an S3 Bucket Policy, an SNS Topic Policy, a VPC Endpoint Policy, and an SQS Queue Policy.

Select Type of Policy: **S3 Bucket Policy**

Step 2: Add Statement(s)

A statement is the formal description of a single permission. See a description of elements that you can use in statements.

Effect: Allow Deny

Principal:

AWS Service: Amazon SQS All Services (*)

Actions: Select Actions All Actions (*)

Amazon Resource Name (ARN):

AWS Policy Generator

The AWS Policy Generator is a tool that enables you to create policies that control access to Amazon Web Services (AWS) products and resources. For more information about creating policies, see key concepts in Using AWS Identity and Access Management. Here are sample policies.

Step 1: Select Policy Type

A Policy is a container for permissions. The different types of policies you can create are an IAM Policy, an S3 Bucket Policy, an SNS Topic Policy, a VPC Endpoint Policy, and an SQS Queue Policy.

Select Type of Policy: **S3 Bucket Policy**

Step 2: Add Statement(s)

A statement is the formal description of a single permission. See a description of elements that you can use in statements.

Effect: Allow Deny

Principal: **arn:aws:iam::496097520181**

AWS Service: Amazon S3 All Services (*)

Actions: **2 Action(s) Selected** All Actions (*)

Amazon Resource Name (ARN): **arn:aws:s3:::bucketpracs**

ARN should follow the following format: arn:\$Partition:\$Service:\$Region:\$Account:\$BucketName/\$KeyPath. Use a comma to separate multiple values.

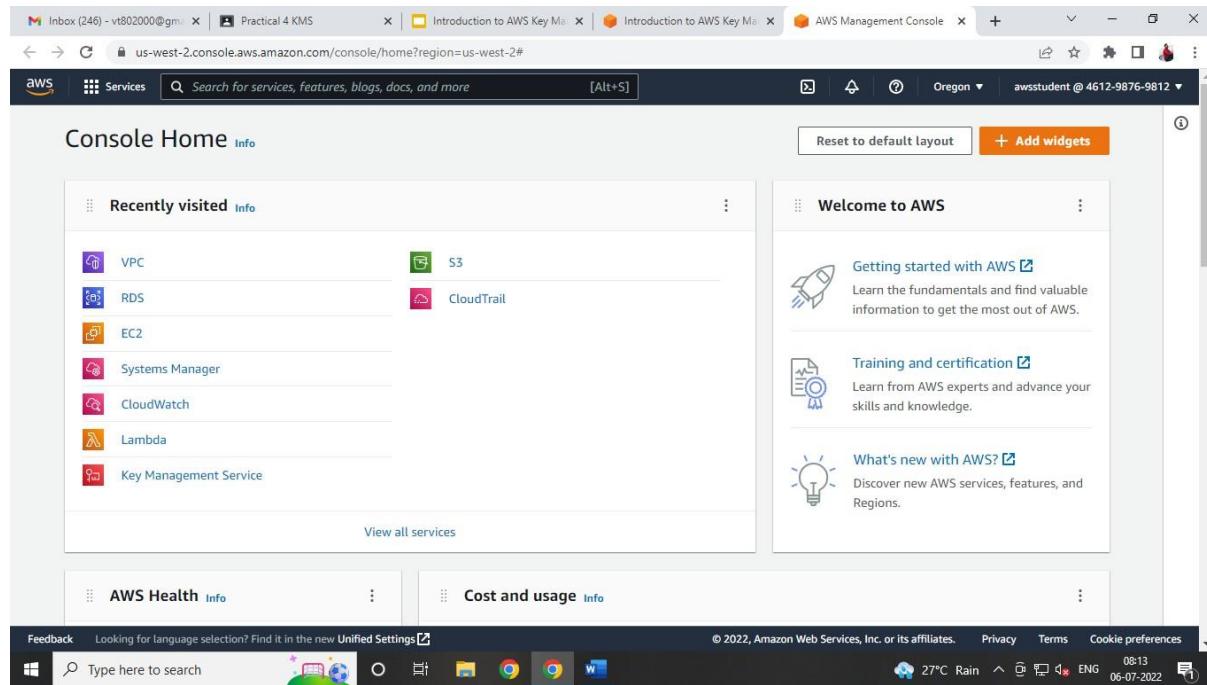
Add Conditions (Optional)

Add Statement Resource field is not valid. You must enter a valid ARN.

Practical No.4

Introduction to AWS Key Management Service

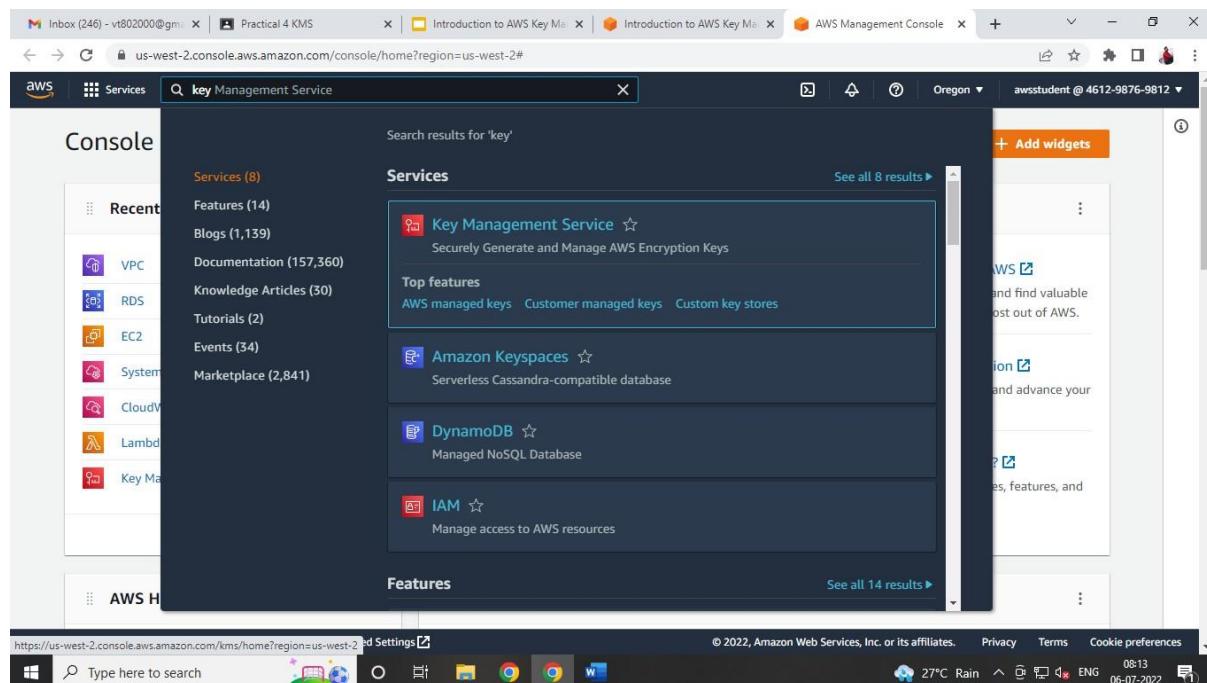
Task 1: create your kms master key

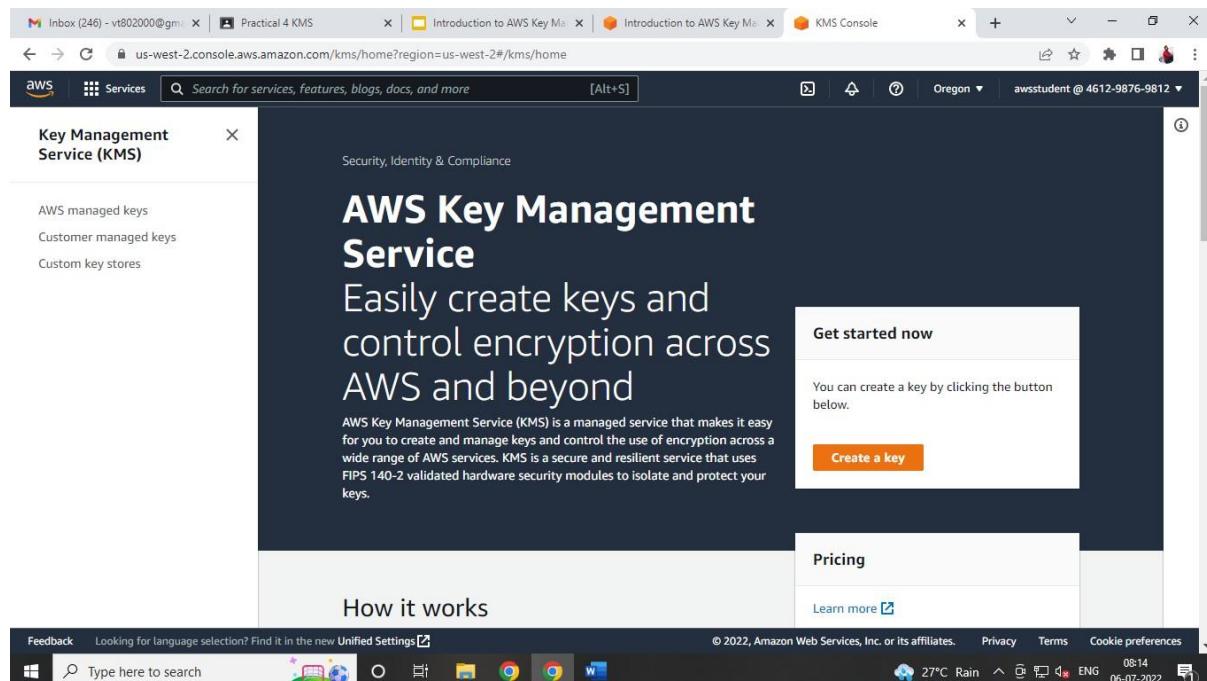


Task 1: Create Your KMS Master Key In this task you will create a KMS master key. A KMS master key enables you to easily encrypt your data across AWS services and within your own applications.

3. In the AWS Management Console, on the Services menu, click Key Management Service.

4. Click Create a key then configure: Symmetric • On the Configure key page, select • Click Next Took 1: Create Your VS Hoster key 5. On the Add labels page configure:



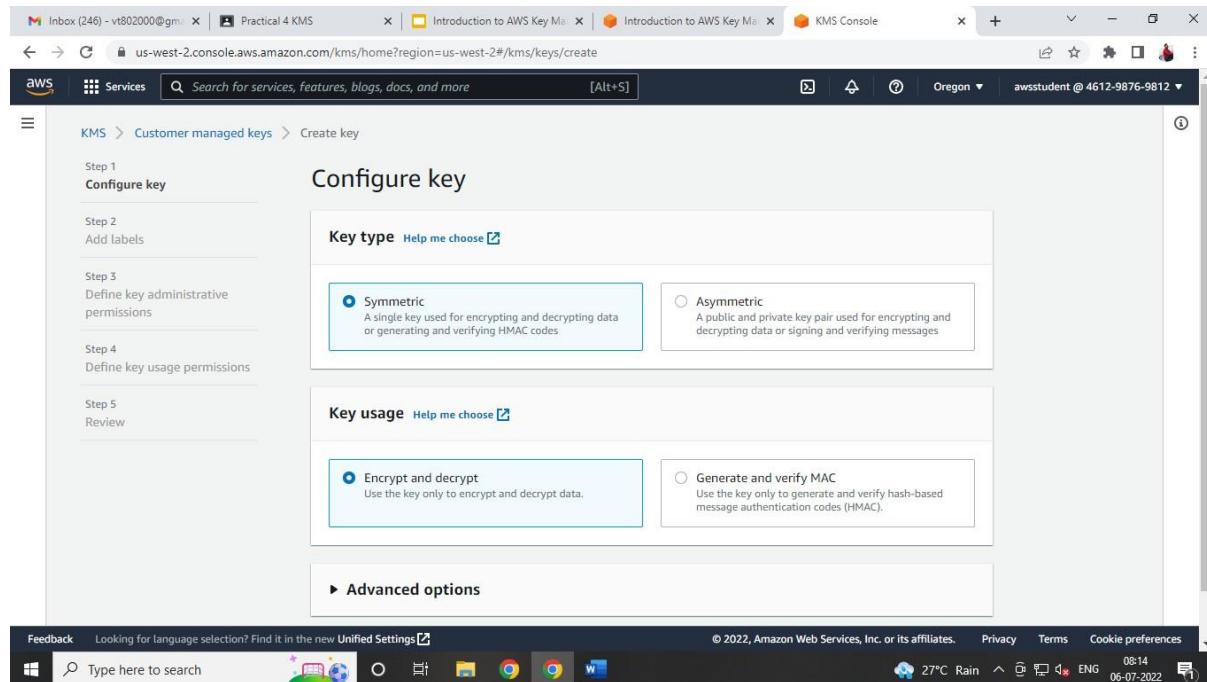


5. On the Add labels page configure:

- Alias: myFirstKey
- Description: KMS Key for s3 data
- Click Next It is a good practice to describe what services the encryption key will be associated with in the description. the user or role you're

6. On the Define key administrative permissions, select signed into the Console with. This user is displayed at the top of the page, to the right of the region.

7. Click Next



Key Administrators are users or roles that will manage access to the encryption key. the user or role you're

8. On the Define key usage permissions page, select signed into the Console with.

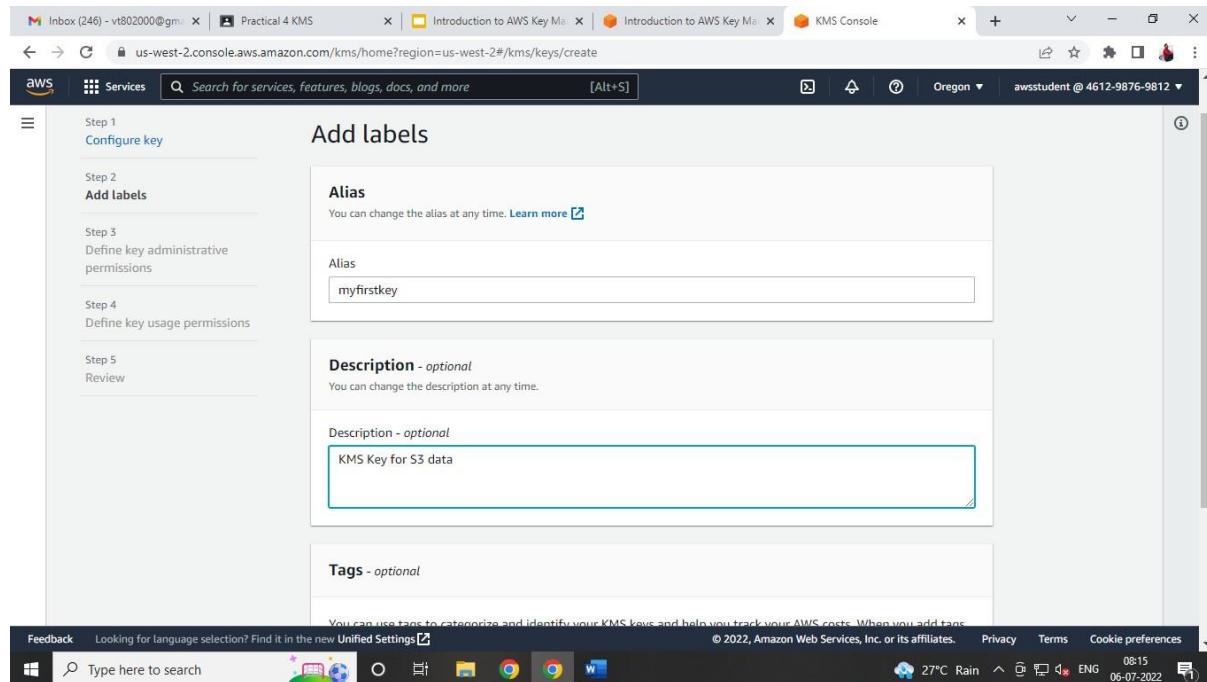
9. Click Next

Key Users are the users or roles that will use the key to encrypt and decrypt data.

10. On the Review and edit key policy page:

- Review the key policy
- Click Finish

11. Copy the Key ID for myFirstKey to a text editor. You will use the Key ID later when looking at the log activity for this KMS key.



Task 2: Configure Cloud Trail to Store Logs In An S3 Bucket In this task you will configure CloudTrail to store log files in a new S3 bucket.

12. On the Services menu, click CloudTrail.
13. If you see the New Event history features available in the new Cloud Trail console with Try out the new console, click Try out the new console, otherwise you can ignore this warning. Task 2: Configure Cloudtrailte Store Logs in An S3 Bucket
14. If you see a warning saying The option to create an organization trail is not available for this AWS account, you can ignore this warning.

Define key administrative permissions

Key administrators

Choose the IAM users and roles who can administer this key through the KMS API. You may need to add additional permissions for the users or roles to administer this key from this console. [Learn more](#)

	Name	Path	Type
<input checked="" type="checkbox"/>	awsstudent	/	User
<input type="checkbox"/>	root-qwkl	/	User
<input type="checkbox"/>	AWSBatchServiceRole	/service-role/	Role
<input type="checkbox"/>	AWSServiceRoleForAmazonElasticFilesystem	/aws-service-role/elasticfilesystem.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForAmazonInspector	/aws-service-role/inspector.amazonaws.com/	Role

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Define key usage permissions

Key administrators

Choose the IAM users and roles who can administer this key through the KMS API. You may need to add additional permissions for the users or roles to administer this key from this console. [Learn more](#)

	Name	Path	Type
<input type="checkbox"/>	AWSServiceRoleForAmazonInspector	/aws-service-role/inspector.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForAPIGateway	/aws-service-role/ops.apigateway.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForAutoScaling	/aws-service-role/autoscaling.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForAWSCloud9	/aws-service-role/cloud9.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForAWSLicenseManagerMasterAccountRole	/aws-service-role/license-manager.master-account.amazonaws.com/	Role
<input type="checkbox"/>	AWSServiceRoleForAWSLicenseManagerRole	/aws-service-role/license-manager.amazonaws.com/	Role

Key deletion

Allow key administrators to delete this key.

Cancel Previous Next

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Name	Path	Type
<input checked="" type="checkbox"/> awsstudent	/	User
<input type="checkbox"/> root-qwkl	/	User
<input type="checkbox"/> AWSBatchServiceRole	/service-role/	Role
<input type="checkbox"/> AWSServiceRoleForAmazonElasticFilesystem	/aws-service-role/elasticfilesystem.amazonaws.com/	Role
<input type="checkbox"/> AWSServiceRoleForAmazonInspector	/aws-service-role/inspector.amazonaws.com/	Role
<input type="checkbox"/> AWSServiceRoleForAPIGateway	/aws-service-role/ops.apigateway.amazonaws.com/	Role

```

1 {
2   "Id": "key-consolepolicy-3",
3   "Version": "2012-10-17",
4   "Statement": [
5     {
6       "Sid": "Enable IAM User Permissions",
7       "Effect": "Allow",
8       "Principal": {
9         "AWS": "arn:aws:iam::461298769812:root"
10      },
11      "Action": "kms:*",
12      "Resource": "*"
13    },
14    {
15      "Sid": "Allow access for Key Administrators",
16      "Effect": "Allow",
17      "Principal": {
18        "AWS": "arn:aws:iam::461298769812:root"
19      },
20      "Action": "kms:Create*",
21      "Resource": "*"
22    }
23  ]
24}
  
```

Cancel Previous Finish

The screenshot shows the AWS KMS console interface. At the top, there are several tabs including 'Inbox (246)', 'Practical 4 KMS', 'Introduction to AWS Key Ma...', 'Introduction to AWS Key Ma...', and 'KMS Console'. The 'KMS Console' tab is active. The main area has a green header bar with the text 'Success' and 'Your AWS KMS key was created with alias myfirstkey and key ID 2d5132a8-62ac-40c7-a29a-843aec3b19c4.' Below this, a table titled 'Customer managed keys (1)' lists one key:

Aliases	Key ID	Status	Key spec	Key usage
myfirstkey	2d5132a8-62ac-40c7-a29a-843aec3b19c4	Enabled	SYMMETRIC_DEFAULT	Encrypt and decrypt

At the bottom of the page, there is a search bar with the placeholder 'Type here to search' and a status bar showing 'Feedback', 'Language selection', '© 2022, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', 'Cookie preferences', '27°C Rain', '08:18', and '06-07-2022'.

Task—2 configure cloud trail to store log in s3e bucket

The screenshot shows the AWS CloudTrail service page. The search bar at the top contains the query 'cloudtrail'. The left sidebar shows navigation links for 'Services (2)', 'Features (6)', 'Blogs (114)', and 'Documentation (2)'. The main content area displays the 'CloudTrail' service details:

- CloudTrail** (Track User Activity and API Usage)
- Top features**: Dashboard, Event history, Insights, Trails
- Features** (See all 6 results):
 - Servers**: AWS Transfer Family feature
 - Dashboard**: CloudTrail feature

At the bottom of the page, there is a search bar with the placeholder 'Type here to search' and a status bar showing 'https://us-west-2.console.aws.amazon.com/cloudtrail/home?region=us-west-2#settings', '© 2022, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', 'Cookie preferences', '27°C Rain', '08:21', and '06-07-2022'.

CloudTrail Insights Info

CloudTrail Insights is not enabled

Insights are events that show unusual API activity. After you enable Insights, if unusual activity is logged, Insights events are shown in this table for 90 days. Additional charges apply. Learn more [\[?\]](#)

Event name	Event time	Event source
No events found		

Name	Home region	Multi-region trail	Insights	Organization trail	S3 bucket	Log file prefix	CloudWatch Logs log group	Status
us-west-2-qtrail-lab-4902-1657075761	US West (Oregon)	No	Disabled	No	qtrail-lab-4902-1657075761	qtrail-lab-4902-1657075761	Logs log group	Logging

General details
A trail created in the console is a multi-region trail. [Learn more](#)

Trail name
Enter a display name for your trail.
 3-128 characters. Only letters, numbers, periods, underscores, and dashes are allowed.

Enable for all accounts in my organization
To review accounts in your organization, open AWS Organizations. [See all accounts](#)

Storage location [Info](#)
 Create new S3 bucket
Create a bucket to store logs for the trail.
 Use existing S3 bucket
Choose an existing bucket to store logs for this trail.

Trail log bucket and folder
Enter a new S3 bucket name and folder (prefix) to store your logs. Bucket names must be globally unique.
 Logs will be stored in mycloudtrailbucket0800/AWSLogs/461298769812

Log file SSE-KMS encryption [Info](#)
 Enabled

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Windows Type here to search

Events [Info](#)
Record API activity for individual resources, or for all current and future resources in AWS account. [Additional charges apply](#)

Event type
Choose the type of events that you want to log.

Management events
Capture management operations performed on your AWS resources.

Data events
Log the resource operations performed on or within a resource.

Insights events
Identify unusual activity, errors, or user behavior in your account.

Management events [Info](#)
Management events show information about management operations performed on resources in your AWS account.

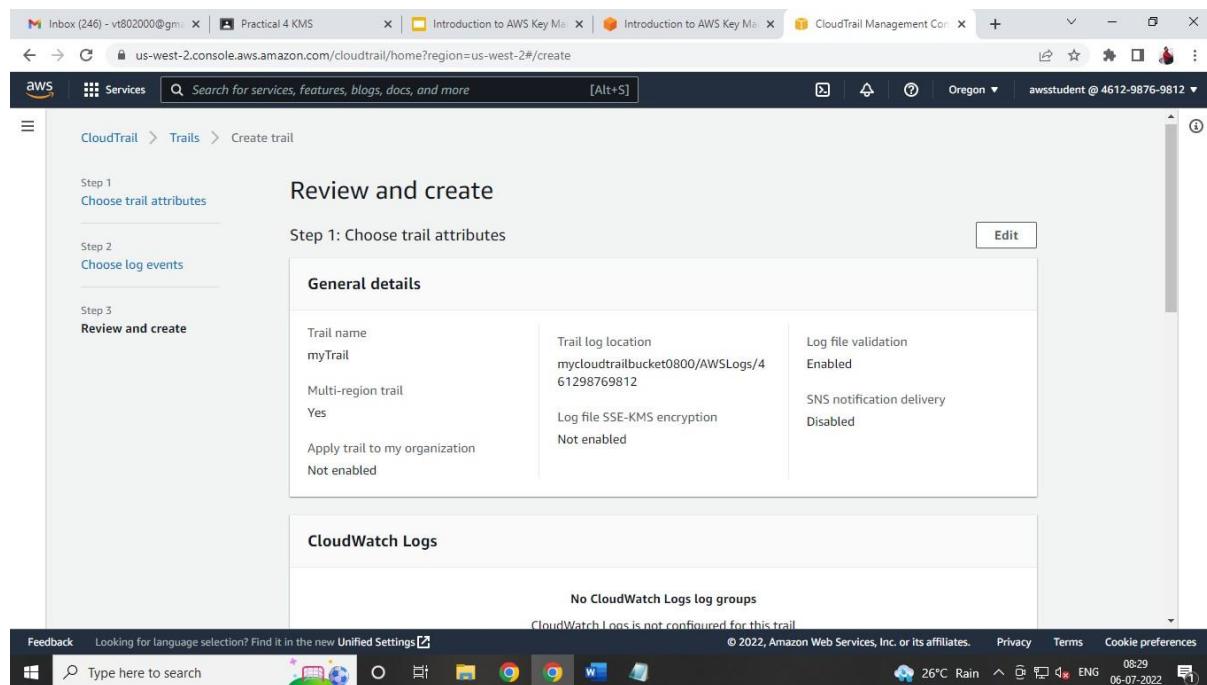
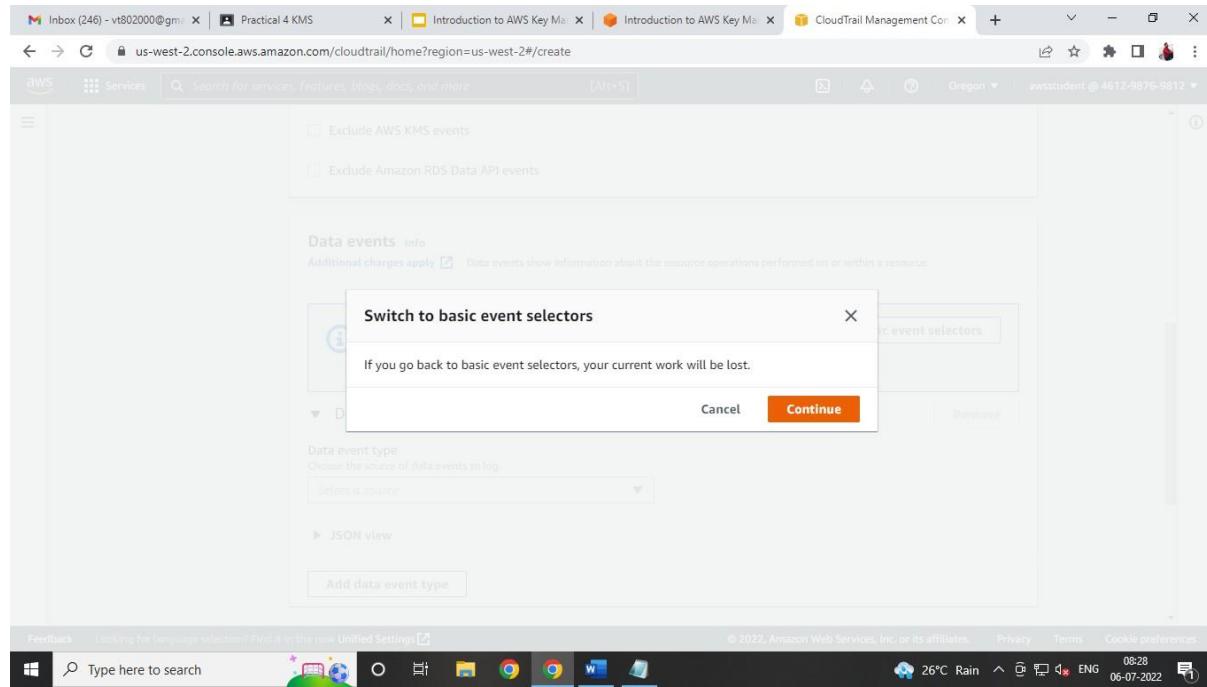
API activity
Choose the activities you want to log.

Read Write
 Exclude AWS KMS events

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Windows Type here to search



No CloudWatch Logs log groups
CloudWatch Logs is not configured for this trail

Tags

Key	Value
No tags No tags associated with this trail	

Step 2: Choose log events

Management events

API activity	Exclude AWS KMS events
All	No
	Exclude Amazon RDS Data API events
	No

Data events : S3 (1)

Bucket name	Prefix	Read	Write
All current and future S3 buckets		Enabled	Enabled

Insights events

API call rate	API error rate
Enabled	Enabled

Create trail

The screenshot shows the AWS CloudTrail Management Console interface. At the top, there are several tabs including 'Inbox', 'Practical 4 KMS', 'Introduction to AWS Key Ma...', 'Introduction to AWS Key Ma...', 'CloudTrail Management Con...', and others. The main content area is titled 'Trails' and displays a table of existing trails. The columns include Name, Home region, Multi-region trail, Insights, Organization trail, S3 bucket, Log file prefix, CloudWatch Logs log group, and Status. Two trails are listed:

Name	Home region	Multi-region trail	Insights	Organization trail	S3 bucket	Log file prefix	CloudWatch Logs log group	Status
myTrail	US West (Oregon)	Yes	Enabled	No	mycloudtrailbucket0800			Logging
us-west-2-qtrail-lab-4902-1657075761	US West (Oregon)	No	Disabled	No	qltrail-lab-4902-1657075761			Logging

At the bottom of the page, there is a feedback message: "Feedback Looking for language selection? Find it in the new Unified Settings". The footer includes links for "Privacy", "Terms", and "Cookie preferences", along with system status information: "© 2022, Amazon Web Services, Inc. or its affiliates.", "26°C Rain", "08:30", and "06-07-2022".

Task -3 upload to your image to s3 bucket

The screenshot shows the AWS S3 Management Console interface. At the top, there are several tabs including 'Inbox', 'Practical 4 KMS', 'Introduction to AWS Key Ma...', 'Introduction to AWS Key Ma...', 'CloudTrail Management Con...', and 'S3 Management Console'. The main content area is titled 'Amazon S3' and shows the 'Buckets' section. On the left, there is a sidebar with options like 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', 'Access analyzer for S3', 'Block Public Access settings for this account', 'Storage Lens', 'Dashboards', 'AWS Organizations settings', and 'Feature spotlight'. The main area shows a table of buckets with columns: Name, AWS Region, Access, and Creation date. Four buckets are listed:

Name	AWS Region	Access	Creation date
mycloudtrailbucket0800	US West (Oregon) us-west-2	Bucket and objects not public	July 6, 2022, 08:30:21 (UTC+05:30)
ql-cf-templates-1657075322-bc5fdc25e1fba03-us-west-2	US West (Oregon) us-west-2	Objects can be public	July 6, 2022, 08:12:04 (UTC+05:30)
qltrail-lab-4902-1657075326	US East (N. Virginia) us-east-1	Objects can be public	July 6, 2022, 08:12:08 (UTC+05:30)
qltrail-lab-4902-1657075761	US East (N. Virginia) us-east-1	Objects can be public	July 6, 2022, 08:19:24 (UTC+05:30)

At the bottom of the page, there is a feedback message: "Feedback Looking for language selection? Find it in the new Unified Settings". The footer includes links for "Privacy", "Terms", and "Cookie preferences", along with system status information: "© 2022, Amazon Web Services, Inc. or its affiliates.", "26°C Rain", "08:32", and "06-07-2022".

The screenshot shows the AWS S3 Management Console. The left sidebar lists 'Buckets', 'Access Points', 'Object Lambda Access Points', 'Multi-Region Access Points', 'Batch Operations', and 'Access analyzer for S3'. Below that are 'Block Public Access settings for this account', 'Storage Lens' (Dashboards, AWS Organizations settings), and a 'Feature spotlight' section. The main area displays 'Objects (1)'. A message at the top says, 'We're continuing to improve the S3 console to make it faster and easier to use. If you have feedback on the updated experience, choose Provide feedback.' Another message below asks, 'Are you missing easy ways to reduce storage costs and enhance data protection?' with a 'Find out with S3 Storage Lens' button. The 'Objects' tab is selected, showing a table with one item:

	Name	Type	Last modified	Size	Storage class
	AWSLogs/	Folder			

Below the table are buttons for 'Actions' (Copy S3 URI, Copy URL, Download, Open, Delete), 'Create folder', and 'Upload'. A search bar 'Find objects by prefix' is also present.

The screenshot shows the AWS S3 Management Console upload interface. At the top, a message says, 'We're continuing to improve the S3 console to make it faster and easier to use. If you have feedback on the updated experience, choose Provide feedback.' The main area has a 'Files and folders (0)' section with a 'Remove' button, an 'Add files' button, and an 'Add folder' button. A search bar 'Find by name' is available. Below is a table:

	Name	Type	Size
No files or folders			

The text 'You have not chosen any files or folders to upload.' is displayed. Below this is a 'Destination' section with a 'Destination' field containing 's3://mycloudtrailbucket0800'. The bottom of the screen shows a taskbar with icons for File Explorer, Task View, Start, and other system tools, along with a weather and date indicator.

The screenshot shows the AWS S3 Management Console interface. A progress bar at the top indicates the upload of 'download.jpg' to 's3://mycloudtrailbucket0800'. The progress is at 100% completion. Below the progress bar, there's a table showing the uploaded file 'download.jpg' with details: Name (download.jpg), Type (image/jpeg), and Size (9.1 KB). There are buttons for 'Remove', 'Add files', and 'Add folder'. A search bar and a feedback link are also present.

The screenshot shows the 'Server-side encryption settings' section in the AWS S3 Management Console. It includes options for 'Server-side encryption' (radio buttons for 'Do not specify an encryption key' and 'Specify an encryption key'), 'Encryption key type' (radio buttons for 'Amazon S3-managed keys (SSE-S3)' and 'AWS Key Management Service key (SSE-KMS)'), and 'AWS KMS key' (dropdown menu with value 'arn:aws:kms:us-west-2:461298769812:key/2d513...'). A note on the right explains the benefits of using SSE-KMS over SSE-S3. A 'Create key' button is also visible.

The screenshot shows the AWS S3 Management Console interface. At the top, there are several tabs open in a browser, including 'Inbox (246)', 'Practical 4 KMS', 'Introduction to AWS Key Ma...', 'Introduction to AWS Key Ma...', and 'S3 Management Console'. The main content area displays a green banner with the message 'Upload succeeded' and 'View details below.' Below this, a modal window titled 'Upload: status' provides summary information:

Destination	Succeeded	Failed
s3://mycloudtrailbucket0800	✓ 1 file, 9.1 KB (100.00%)	⌚ 0 files, 0 B (0%)

Below the summary, there are two tabs: 'Files and folders' (selected) and 'Configuration'. Under 'Files and folders', it shows '1 Total, 9.1 KB' with a single item: 'download.jpg'. The object details page for 'download.jpg' is shown, featuring a large preview thumbnail, file metadata (Name: download.jpg, Type: jpg, Last modified: July 6, 2022, 08:43:26 (UTC+05:30), Size: 9.1 KB, Storage class: Standard), and actions like Copy S3 URI, Copy URL, Download, Open, Delete, and Actions (with options Create folder, Upload, and Find objects by prefix). To the right of the object list, there is a sidebar with explanatory text about Amazon S3 objects and their management.

Task-4 access the encrypted image

However, the console supports the folder concept as a means of grouping objects, using a shared name prefix for objects in the same folder.

Use this page to see all the objects in a bucket or folder; create a folder, or upload an object. You can open, download, delete, and copy the URL for selected objects. You can also perform object actions like calculate size, copy, restore, edit, and query with S3 Select.

Learn more

- Working with Amazon S3 objects
- Using folders
- Managing storage

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download.jpg

Type here to search

26°C Rain 08:47 06-07-2022 ENG

download.jpg

Type here to search

26°C Rain 08:47 06-07-2022 ENG

Owner: aws088663

AWS Region: US West (Oregon) us-west-2

Last modified: July 6, 2022, 08:43:26 (UTC+05:30)

Size: 9.1 KB

S3 URI: s3://mycloudtrailbucket0800/download.jpg

Amazon Resource Name (ARN): arn:aws:s3:::mycloudtrailbucket0800/download.jpg

Entity tag (Etag): a9985d581be06b9faf3d7e14365702c

Object URL Copied

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Show all

26°C Rain 08:49 06-07-2022

```
<Error>
<Code>AccessDenied</Code>
<Message>Access Denied</Message>
<RequestId>Q19Y1MNP125CTN2K</RequestId>
<HostId>8AR6QokC11wKe5KA9BRSRhd3mon4Shotxj+q9uS2ORZw1c4tcBPSdjzGZjhky6H2Aw6SVs+4=</HostId>
</Error>
```

download.jpg

26°C Rain 08:49 06-07-2022

Permissions overview

Access
Bucket and objects not public

Block public access (bucket settings)

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

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Block public access (bucket settings)

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to all your S3 buckets and objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

- Block all public access**
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.
- Block public access to buckets and objects granted through new access control lists (ACLs)**
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.
- Block public access to buckets and objects granted through any access control lists (ACLs)**
S3 will ignore all ACLs that grant public access to buckets and objects.
- Block public access to buckets and objects granted through new public bucket or access point policies**
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any

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download.jpg

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26°C Rain 08:53 06-07-2022

Objects (2)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Actions

- Copy S3 URI
- Copy URL
- Download
- Open
- Delete
- Actions ▾
- Create folder
- Upload**

Find objects by prefix

Name	Type	Last modified	Size	Storage class
AWSLogs/	Folder	-	-	-
download.jpg	jpg	July 6, 2022, 08:43:26 (UTC+05:30)	9.1 KB	Standard

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Show all

Objects (2)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Actions

- Query with S3 Select
- Edit actions
- Rename object
- Edit storage class
- Edit server-side encryption
- Edit metadata
- Edit tags
- Make public using ACL**
- Actions ▾
- Create folder
- Upload**

Find objects by prefix

Name	Type	Last modified	Size	Storage class
AWSLogs/	Folder	-	-	-
download.jpg	jpg	July 6, 2022, 08:43:26 (UTC+05:30)	9.1 KB	Standard

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

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Show all

The make public action enables public read access in the object access control list (ACL) settings. [Learn more](#)

Specified objects

Name	Type	Last modified	Size
download.jpg	jpg	July 6, 2022, 08:43:26 (UTC+05:30)	9.1 KB

Cancel **Make public**

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

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download.jpg

26°C Rain 08:54 06-07-2022

Successfully edited public access

View details below.

Source	Successfully edited public access	Failed to edit public access
s3://mycloudtrailbucket0800	1 object, 9.1 KB	0 objects

Failed to edit public access Configuration

Failed to edit public access (0)

Name	Folder	Type	Last modified	Size	Error
No objects failed to edit					

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download.jpg

26°C Rain 08:55 06-07-2022

Task 5: Monitor KMS Activity Using CloudTrail Logs In this task, you will access your Cloud Trail log files and view logs related your encryption operations.

Objects (2)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
AWSLogs/	Folder	-	-	-
download.jpg	Image file	July 6, 2022, 09:47:36 (UTC+05:30)	0.1 KB	Standard

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
461298769812/	Folder	-	-	-

The screenshot shows the AWS S3 console interface. The URL in the address bar is <https://s3.console.aws.amazon.com/s3/buckets/mycloudtrailbucket0800?region=us-west-2&prefix=AWSLogs/461298769812/&showversions=false>. The page displays three objects under the 'Objects' tab:

Name	Type	Last modified	Size	Storage class
CloudTrail-Digest/	Folder	-	-	-
CloudTrail-Insight/	Folder	-	-	-
CloudTrail/	Folder	-	-	-

The screenshot shows the AWS S3 console interface. The URL in the address bar is <https://s3.console.aws.amazon.com/s3/buckets/mycloudtrailbucket0800?region=us-west-2&prefix=AWSLogs/461298769812/CloudTrail/&showversions=false>. The page displays 17 objects under the 'Objects' tab:

Name	Type	Last modified	Size	Storage class
ap-northeast-1/	Folder	-	-	-
ap-northeast-2/	Folder	-	-	-
ap-northeast-3/	Folder	-	-	-
ap-south-1/	Folder	-	-	-
ap-southeast-1/	Folder	-	-	-
ap-southeast-2/	Folder	-	-	-
ca-central-1/	Folder	-	-	-
eu-central-1/	Folder	-	-	-
eu-north-1/	Folder	-	-	-
eu-west-1/	Folder	-	-	-

Feedback Looking for language selection? Find it in the new Unified Settings.

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Show all ×

download.jpg

26°C Rain 08:59 ENG 06-07-2022

Amazon S3 > Buckets > mycloudtrailbucket0800 > AWSLogs/ > 461298769812/ > CloudTrail/ > us-west-2/

us-west-2/

Objects (1)

Copy S3 URI

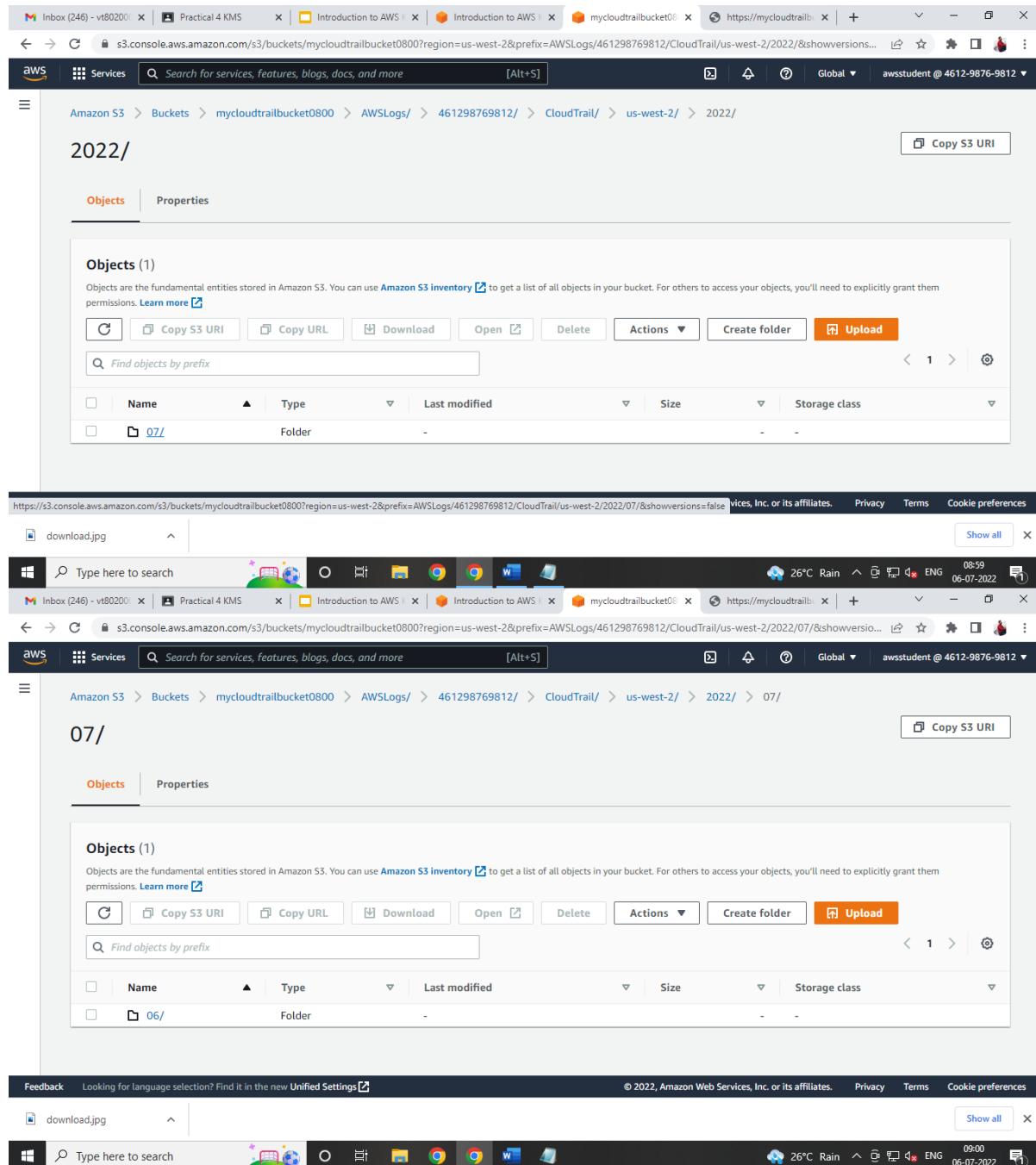
2022/

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Show all ×

download.jpg

26°C Rain 08:59 ENG 06-07-2022



The screenshot shows the AWS S3 console interface. The URL in the address bar is <https://s3.console.aws.amazon.com/s3/buckets/mycloudtrailbucket0800?region=us-west-2&prefix=AWSLogs/461298769812/CloudTrail/us-west-2/2022/8/showversions=false>. The page displays the contents of the '2022/' folder, which contains a single folder named '07/'. The objects table shows:

Name	Type	Last modified	Size	Storage class
07/	Folder	-	-	-

Below the table, there is a feedback message: "Feedback Looking for language selection? Find it in the new Unified Settings".

Objects (12)

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Name	Type	Last modified	Size	Storage class
461298769812_CloudTrail_us-west-2_20220706T0310Z_m8TsKR1UjB4sxCFH.json.gz	gz	July 6, 2022, 08:37:50 (UTC+05:30)	4.4 KB	Standard
461298769812_CloudTrail_us-west-2_20220706T0310Z_xDedkKsLqf1sL97z.json.gz	gz	July 6, 2022, 08:36:21 (UTC+05:30)	5.6 KB	Standard
461298769812_CloudTrail_us-west-2_20220706T0315Z_DKk3EQQNkyJdTsaZ.json.gz	gz	July 6, 2022, 08:46:42 (UTC+05:30)	5.5 KB	Standard
461298769812_CloudTrail_us-west-2_20220706T0315Z_LkbG3ffMki59NaR6.json.gz	gz	July 6, 2022, 08:43:00 (UTC+05:30)	9.5 KB	Standard

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

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Object overview

An object is the fundamental entity stored in Amazon S3. For others to access your object, you must explicitly grant them permissions. Each Amazon S3 object has data, a key, and metadata. The **object key** (or **key name**) uniquely identifies the object in a bucket.

You can use **Object actions** to perform tasks on your object, such as opening, editing, or downloading it; calculating its size; or making it public. You can also use this page to add and remove tags, and to view and edit the storage class, server-side encryption, metadata, and other object management properties.

Object overview shows the metadata for the object. Amazon S3 maintains a set of system and user-defined metadata for each object.

Properties Permissions Versions

Object URI: s3://mycloudtrailbucket0800/AWSLogs/461298769812/CloudTrail/us-west-2/2022/07/06/461298769812_CloudTrail_us-west-2_20220706T0330Z_umJp7WO0FFm8JLrM.json.gz

Amazon Resource Name (ARN): arn:aws:s3:::mycloudtrailbucket0800::AWSLogs/461298769812/CloudTrail/us-west-2/2022/07/06/461298769812_CloudTrail_us-west-2_20220706T0330Z_umJp7WO0FFm8JLrM.json.gz

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

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Task—6 management encryption key

Key Management Service (KMS)

Key policy

Key administrators

Choose the IAM users and roles who can administer this key through the KMS API. You might need to add additional permissions for the users or roles to administer this key from this console. [Learn more](#)

Name	Path	Type
awsstudent	/	User

Key deletion

Allow key administrators to delete this key

Key Management Service (KMS)

Key users

The following IAM users and roles can use this key for cryptographic operations. They can also allow AWS services that are integrated with KMS to use the key on their behalf. [Learn more](#)

Name	Path	Type
awsstudent	/	User

Other AWS accounts

Add other AWS accounts

Key Management Service (KMS)

AWS managed keys
Customer managed keys
Custom key stores

Key users

The following IAM users and roles can use this key for cryptographic operations. They can also allow AWS services that are integrated with KMS to use the key on their behalf. [Learn more](#)

Name	Path	Type
Empty Resources		
No resources to display		

Other AWS accounts

Add other AWS accounts

Add key users

The following IAM users and roles can use this key to encrypt and decrypt data from within applications and when using AWS services integrated with KMS.

Name	Path	Type
<input checked="" type="checkbox"/> awsstudent	/	User
<input type="checkbox"/> root-qwkl	/	User
<input type="checkbox"/> AWSBatchServiceRole	/service-role/	Role
<input type="checkbox"/> AWSLambdaRoleForAmazonElasticFilesystem.amazonaws.com	/aws-service-role/elasticfilesystem.amazonaws.com	Role

Cancel Add

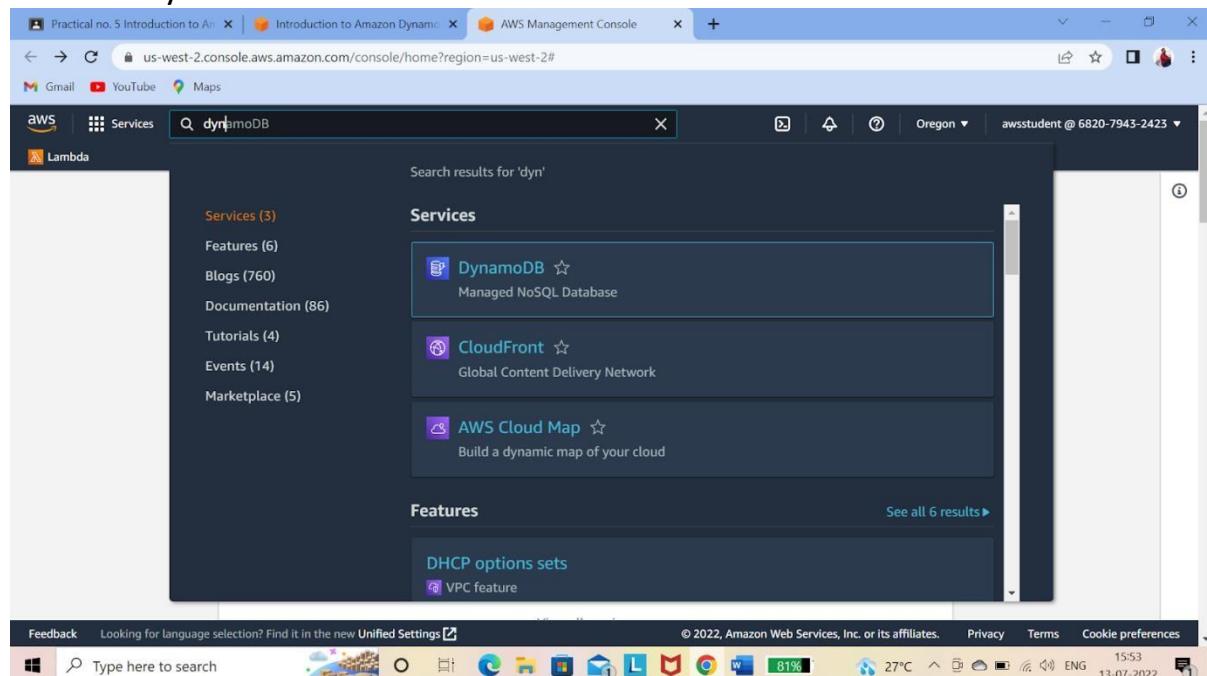
Practical No. 5

Introduction to Amazon DynamoDB

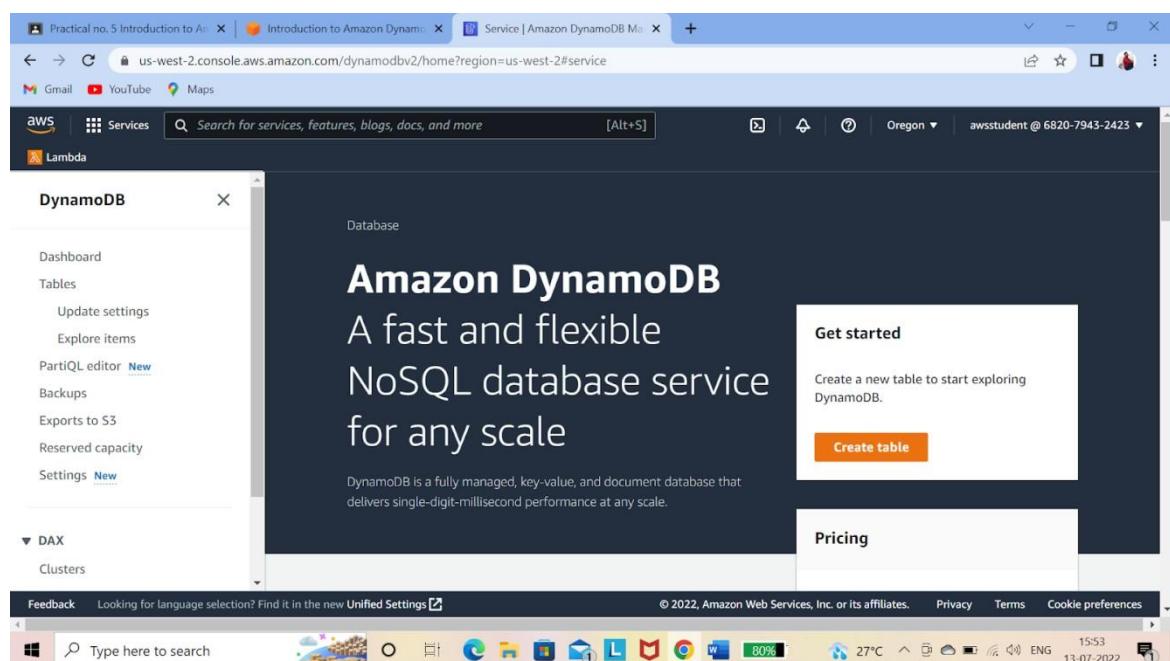
To open the lab

--choose Open

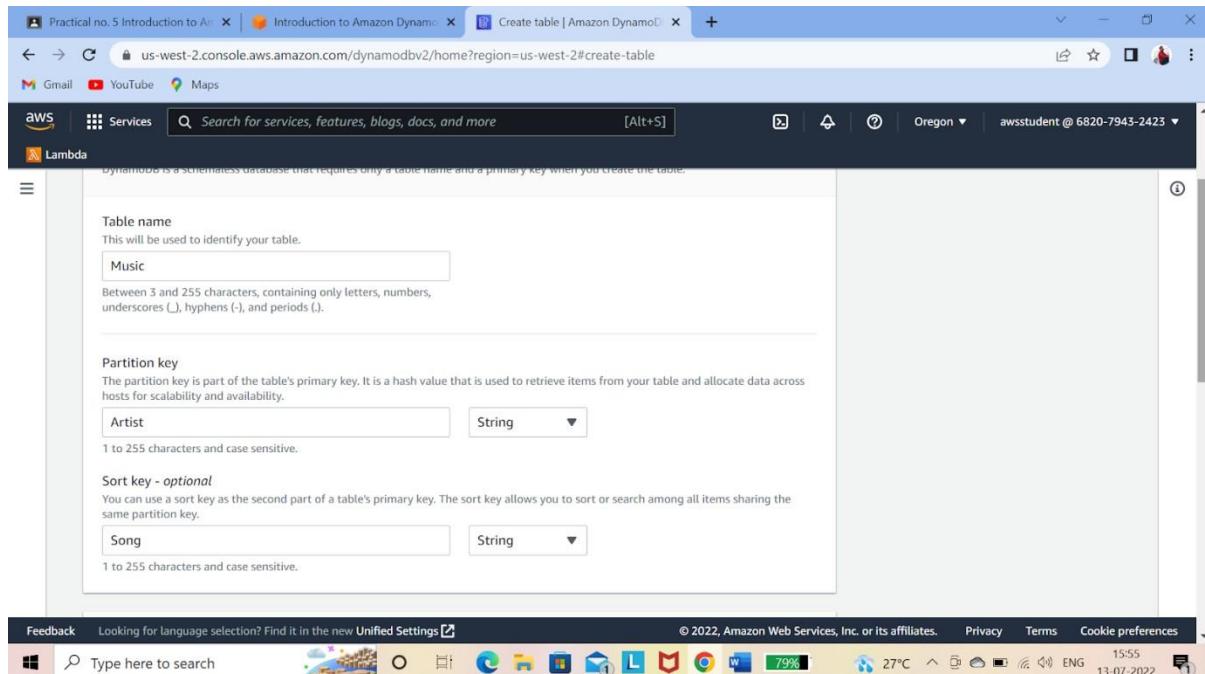
--search Dynamo DB



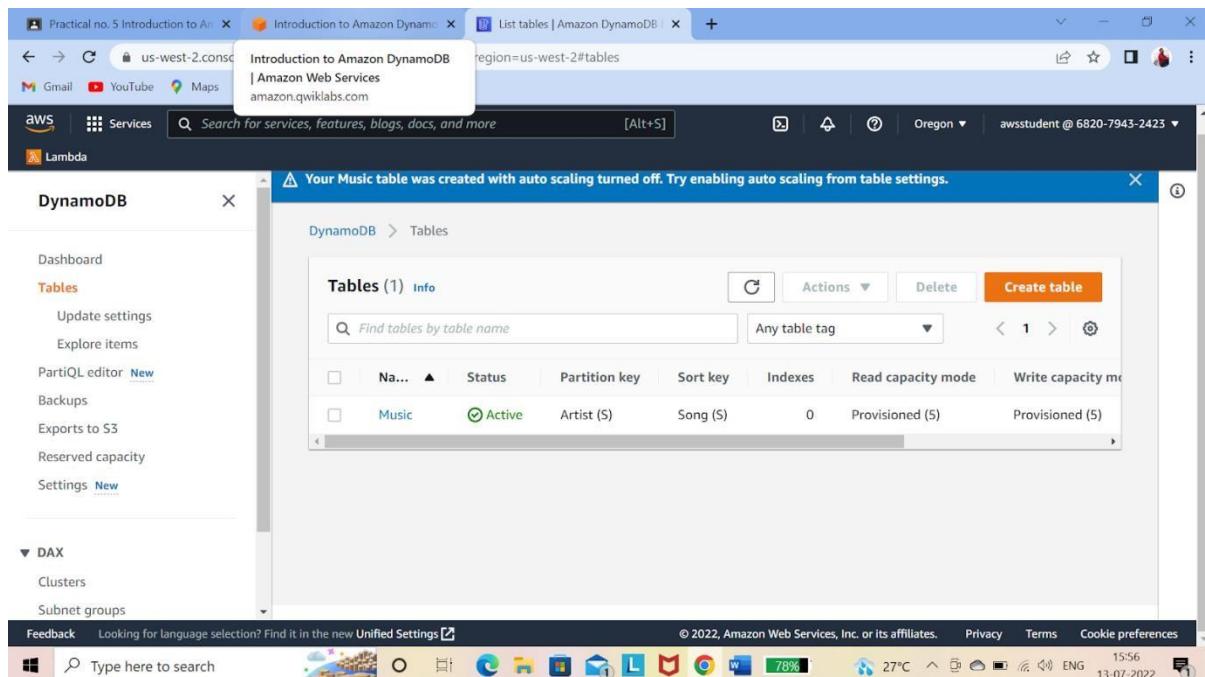
Task –1 Create a new table



2... For Table name type—Music
 For Partition key type—Artist
 For Sort key type –Song



3—choose create table



TASK—2 Add Data

1—in the navigation left side pane, choose explore items.

--select music

--choose Create item

The screenshot shows the AWS DynamoDB console with the 'Explore items' section selected. On the left, the navigation pane includes 'Dashboard', 'Tables', 'Update settings', 'Explore items' (which is highlighted in orange), 'PartiQL editor', 'Backups', 'Exports to S3', 'Reserved capacity', and 'Settings'. The main content area shows a table named 'Music' with one item listed: 'Any table tag' and 'mu'. Below the table, there's a section for 'Scan/Query items' and a message stating 'The query did not return any results.' The status bar at the bottom indicates it's 27°C, 15:58, and the date is 13-07-2022.

2—for artist string, type: Pink Floyd

---for song string, type: Money

The screenshot shows the 'Edit item' dialog for the 'Music' table. The 'Create item' form has two attributes: 'Artist - Partition key' with the value 'Pink Floyd' and 'Song - Sort key' with the value 'Money'. There are 'Form' and 'JSON' tabs at the top right of the dialog. The status bar at the bottom indicates it's 27°C, 15:59, and the date is 13-07-2022.

3— choose add new attribute

---in the dropdown list, select string and added new row

---for new attribute, enter

--In Field Type: Album

--In value type: The Dark Side Of The Moon

The screenshot shows the 'Create item' interface in the AWS DynamoDB console. The 'Attributes' section contains three items:

Attribute name	Value	Type
Artist - Partition key	Pink Floyd	String
Song - Sort key	Money	String
Album	The Dark Side Of The Moon	String

At the bottom right are 'Cancel' and 'Create item' buttons. The status bar at the bottom shows system information like temperature (27°C), battery level (76%), and date/time (13-07-2022).

The screenshot shows the AWS DynamoDB Items page. A green success message at the top says "The item has been saved successfully." On the left, the navigation menu includes "Dashboard", "Tables", "Update settings", "Explore items" (which is highlighted in orange), "PartiQL editor", "Backups", "Exports to S3", "Reserved capacity", and "Settings". Under "Tables", there is a search bar with "Any table tag" and a dropdown menu showing "mu". Below it, a table titled "Music" lists one item: "Artist": "Pink Floyd", "Song": "Money", "Album": "The Dark Si...". There are "Actions" and "Create item" buttons below the table.

4--choose add one new attribute

- in the dropdown list, select string and added new row
- for new attribute, enter

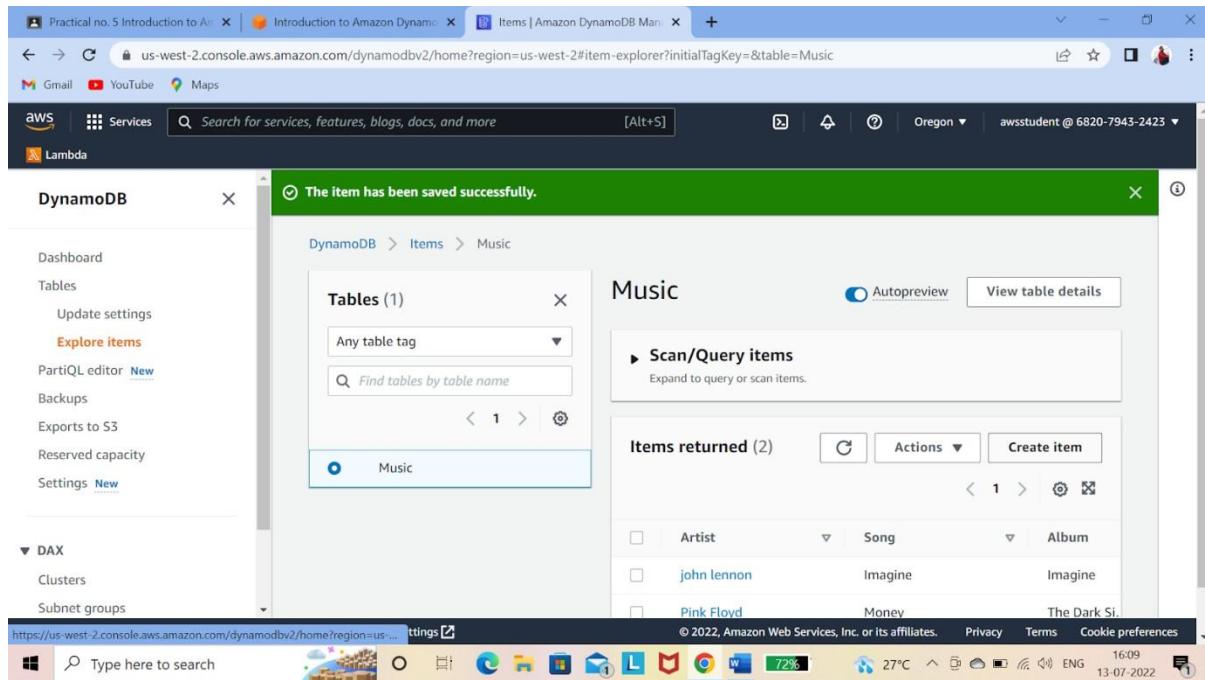
--In Field Type: year

--In value type: 1973

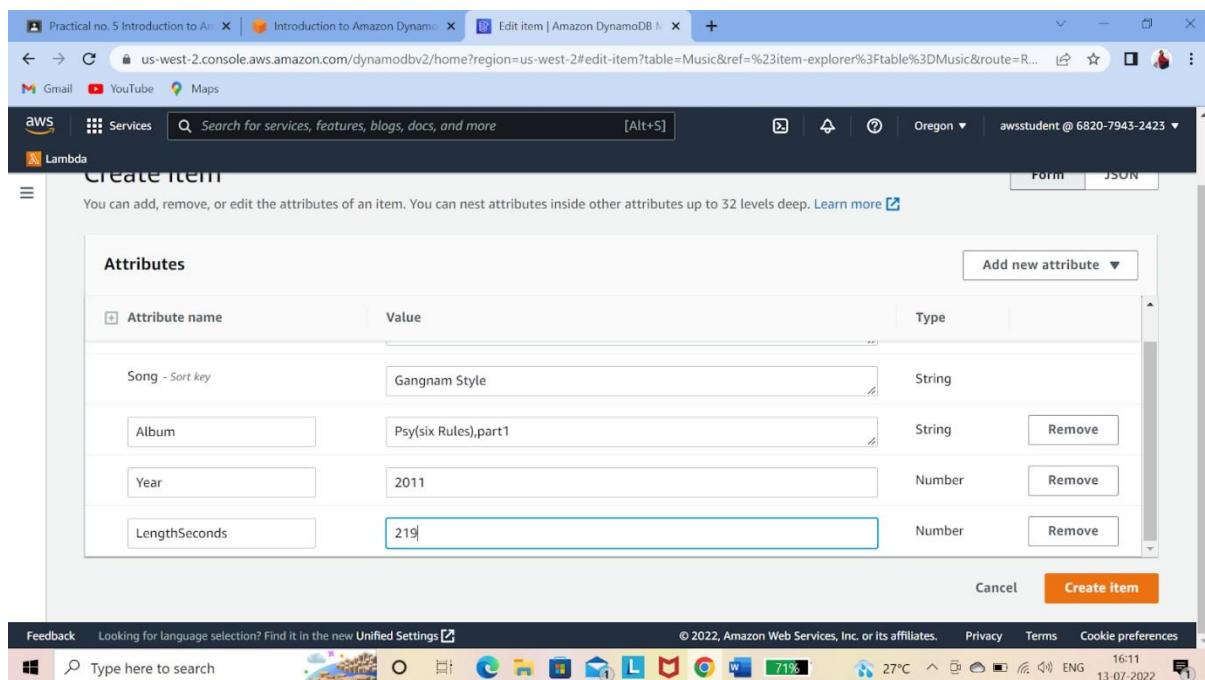
The screenshot shows the "Edit item" screen in the AWS DynamoDB console. At the top, it says "Create item". Below that, a note says "You can add, remove, or edit the attributes of an item. You can nest attributes inside other attributes up to 32 levels deep. Learn more". The "Attributes" section has a table with columns "Attribute name", "Value", and "Type". It contains four rows:

Attribute name	Value	Type
Song - Sort key	Imagine	String
Album	Imagine	String
Number	1971	String
Genre	Soft rock	String

 There are "Add new attribute" and "Remove" buttons on the right. At the bottom are "Cancel" and "Create Item" buttons.



5-choose second new attribute and create table successfully.



DynamoDB

Tables (1)

Music

Scan/Query items

Items returned (3)

Artist	Song	Album
Pay	Gangnam Style	Psy(six Rule.)
john lennon	Imagine	Imagine
Pink Floyd	Money	The Dark Si.

Task—3

1--Choose Pay

DynamoDB

Tables (1)

Music

Scan/Query items

Items returned (3)

Artist	Song	Album
<input checked="" type="checkbox"/> Pay	Gangnam Style	Psy(six Rule.)
<input type="checkbox"/> john lennon	Imagine	Imagine
<input type="checkbox"/> Pink Floyd	Money	The Dark Si.

2—click on action and select edit item

The screenshot shows the AWS DynamoDB console with the 'Music' table selected. The 'Items returned' section displays three items: Pay, John Lennon, and Pink Floyd. A context menu is open over the 'Pay' item, listing actions such as 'Edit item', 'Duplicate item', 'Delete items', 'Download selected items to CSV', and 'Download results to CSV'. The left sidebar shows various options like Dashboard, Tables, and Explore items.

3-In the year attribute name change year and click on save changes.

The screenshot shows the 'Edit item' dialog for the 'Music' table. The 'Attributes' section lists four attributes: 'Song - Sort key' (Value: Gangnam Style, Type: String), 'Album' (Value: Psy(six Rules).part1, Type: String), 'LengthSeconds' (Value: 219, Type: Number), and 'Year' (Value: 2012, Type: Number). The 'Year' attribute is currently selected. At the bottom right of the dialog, there are 'Cancel' and 'Save changes' buttons.

4—successfully item saved.

The screenshot shows the Amazon DynamoDB Management Console. On the left, a sidebar menu includes 'Dashboard', 'Tables', 'Update settings', 'Explore items' (which is selected), 'PartiQL editor', 'Backups', 'Exports to S3', 'Reserved capacity', and 'Settings'. The main area shows a 'Tables (1)' list with 'Music' selected. To the right, the 'Music' table details are displayed, showing a single item: 'Artist' (Pay), 'Song' (Gangnam Style), and 'Album' (Psy(six Rule)). A green banner at the top states 'The item has been saved successfully.'

The screenshot shows the 'Edit item' interface for the 'Music' table. The left sidebar shows 'Edit item' selected. The main area is titled 'Attributes' and lists four attributes: 'Song - Sort key' (Value: Imagine, Type: String), 'Album' (Value: Imagine, Type: String), 'Genre' (Value: Soft rock, Type: String), and 'Number' (Value: 1971, Type: String). Buttons for 'Add new attribute', 'Cancel', and 'Save changes' are visible. The status bar at the bottom indicates it's 16:15 on 13-07-2022.

Task—4 Query the table

1—in the left navigation pane, choose explore items

Choose music

Expand Scan/query items to query or scan items

Choose a query.

Artist	Song	Album
Pay	Gangnam Style	Psy(six Rule.)
john lennon	Imagine	Imagine
Pink Floyd	Money	The Dark Si.

2. enter details

Artist (partition key): pay

Song (sort key): Gangnam Style

Choose Run

3—choose scan

The screenshot shows the AWS Management Console for Amazon DynamoDB. On the left, the navigation pane is open with 'Tables' selected. A search bar at the top right shows 'mus'. In the main content area, the 'Music' table is selected. The 'Scan/Query items' section is active, with the 'Scan' tab selected. A dropdown menu below the search bar is set to 'Music'. At the bottom of this section are 'Run' and 'Reset' buttons.

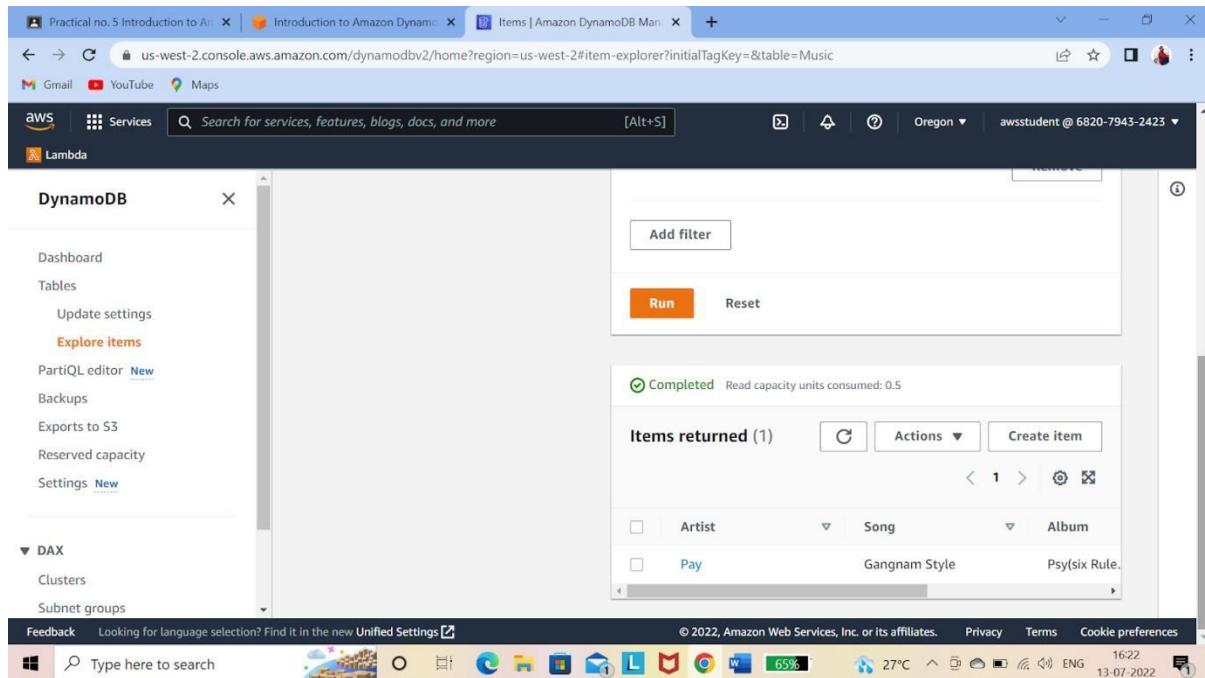
4—Attribute name: Year

-Type: Number

-Value:1971

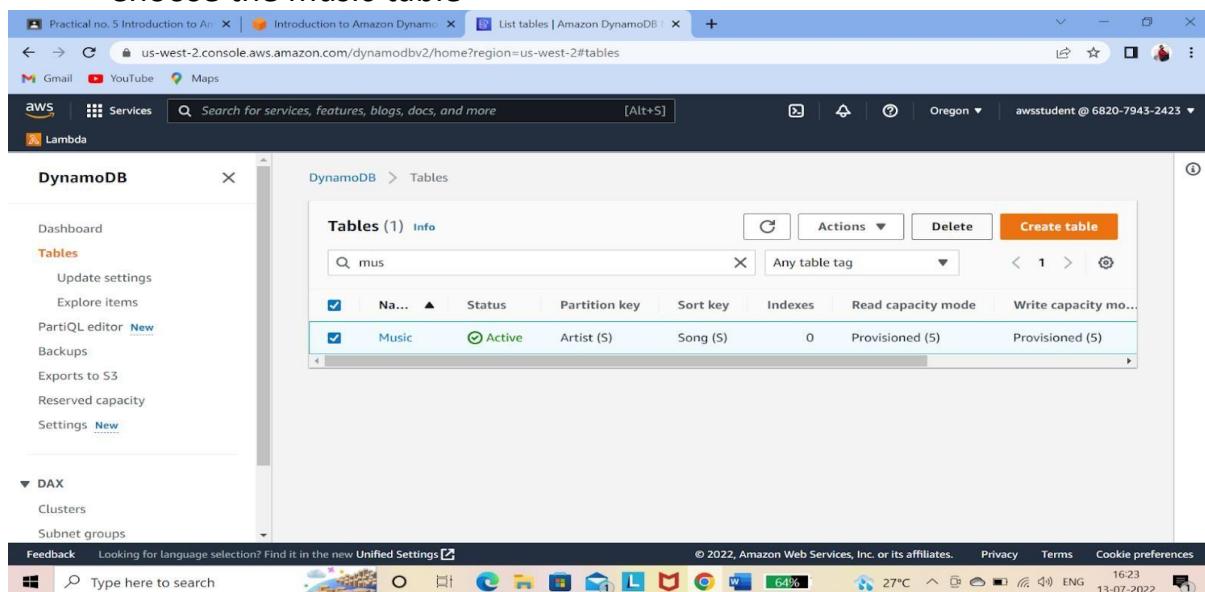
Choose Run

The screenshot shows the AWS Management Console for Amazon DynamoDB. The navigation pane on the left has 'Explore items' selected. The main content area shows the 'Scan/Query items' section for the 'Music' table. The 'Scan' tab is selected. A dropdown menu below the search bar is set to 'Music'. Under the 'Filters' section, there is a row for 'Attribute name' set to 'Year' and 'Type' set to 'Number'. A condition row shows 'Equal to' and 'Value' set to '1971'. At the bottom of this section are 'Run' and 'Reset' buttons.



Task—5 Delete the table

In the left navigation pane, choose tables.
Choose the music table



2--- Enter delete

Choose delete table

The request to delete the "Music" table has been submitted successfully.

Name	Status	Partition key	Sort key	Indexes	Read capacity mode	Write capacity mode
Music	⚠️ Deleting	-	-	0	Provisioned (5)	Provisioned (5)

3-- The table will be deleted

The request to delete the "Music" table has been submitted successfully.

Name	Status	Partition key	Sort key	Indexes	Read capacity mode	Write capacity mode
No tables found						

We cannot find a match.

Practical No. 6

Task 1: Launch an Amazon Redshift Cluster In this task, you will launch an Amazon Redshift cluster.

A cluster is a fully managed data warehouse that consists of a set of compute nodes. Each cluster runs an Amazon Redshift engine and contains one or more databases.

When you launch a cluster, one of the options you specify is the node type. The node type determines the CPU, RAM, storage capacity, and storage drive type for each node. Node types are available in different sizes. Node size and the number of nodes determine the total storage for a cluster.

In this task, you will launch an Amazon Redshift cluster. A cluster is a fully managed **data warehouse** that consists of a set of compute nodes. Each cluster runs an Amazon Redshift engine and contains one or more databases.

When you launch a cluster, one of the options you specify is the **node type**. The node type determines the CPU, RAM, storage capacity, and storage drive type for each node. Node types are available in different sizes. Node size and the number of nodes determine the total storage for a cluster.

3. In the **AWS Management Console**, on the **Services** menu, click **Amazon Redshift**.
4. You can also type in the search box to select the AWS Service (eg Redshift) that you wish to use.
5. In the left navigation pane, click **Clusters**.
6. Click **Create cluster** to open the Redshift Cluster Creation Wizard.

Cluster configuration

- Cluster identifier: lab
- Node type: dc2.large
- Number of nodes: 2

The screenshot shows the AWS Management Console Home page. At the top, there are tabs for 'Introduction to Amazon Redshift', 'AWS Management Console', 'Practical 6 Introduction to Amaz...', and 'aws_pracs_6 - Google Docs'. The main search bar says 'Search for services, features, blogs, docs, and more'.

Console Home

- Recently visited:** EC2, CloudWatch, Lambda, IAM, EFS, Systems Manager.
- Welcome to AWS:**
 - Getting started with AWS: Learn the fundamentals and find valuable information to get the most out of AWS.
 - Training and certification: Learn from AWS experts and advance your skills and knowledge.
 - What's new with AWS?: Discover new AWS services, features, and Regions.
- AWS Health**
- Cost and usage**

At the bottom, the status bar shows 'Waiting for us-west-2.console.aws.amazon.com...', the date '© 2022, Amazon Web Services, Inc. or its affiliates.', and the time '9:30 AM 8/3/2022'.

The screenshot shows the AWS Management Console search results for 'amazon redshift'. The search bar at the top has 'amazon redshift' typed in. The results are categorized into 'Services' and 'Features'.

Services (71)

- Recent: EC2, CloudWatch, Lambda, IAM, EFS, Systems Manager.
- Services: Features (98), Blogs (13,013), Documentation (1,943), Knowledge Articles (30), Tutorials (142), Events (251), Marketplace (80).

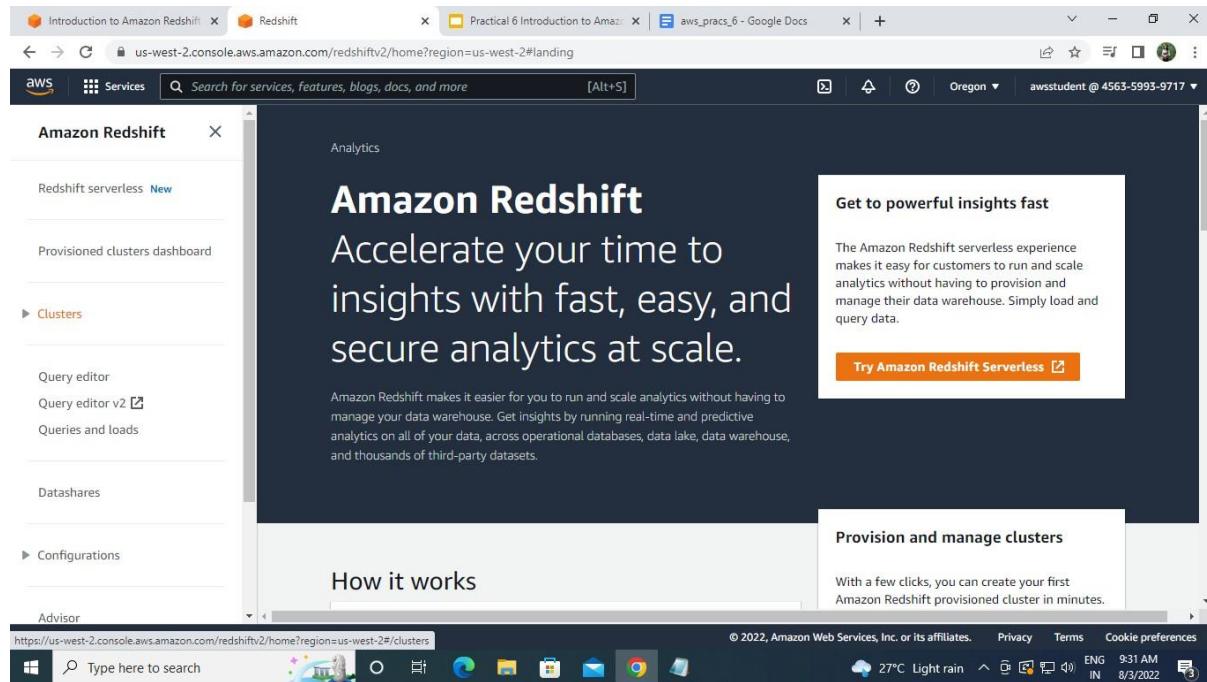
Services

- Amazon Redshift: Fast, Simple, Cost-Effective Data Warehousing
- Amazon MemoryDB for Redis: Fully managed, Redis-compatible, in-memory database service
- Red Hat OpenShift Service on AWS: Fully managed Red Hat OpenShift service on AWS
- Amazon EventBridge: Serverless event bus that connects application data from your own apps, SaaS, and A...

Features

- Kinesis Data Firehose: Kinesis feature

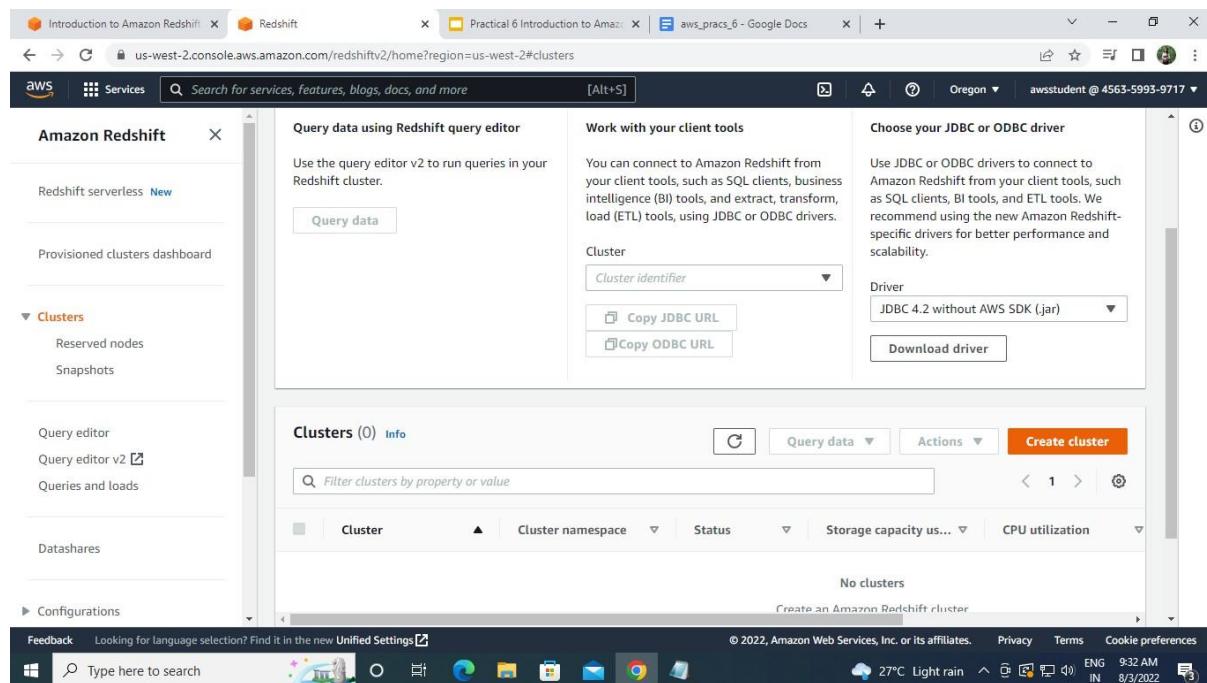
At the bottom, the status bar shows 'Feedback Looking for language selection? Find it in the new Unified Settings.', the date '© 2022, Amazon Web Services, Inc. or its affiliates.', and the time '9:31 AM 8/3/2022'.



3. In the AWS Management Console, on the Services menu, click Amazon Redshift.

You can also type in the search box to select the AWS Service (eg Redshift) that you wish to use.

4. In the left navigation pane, click Clusters.



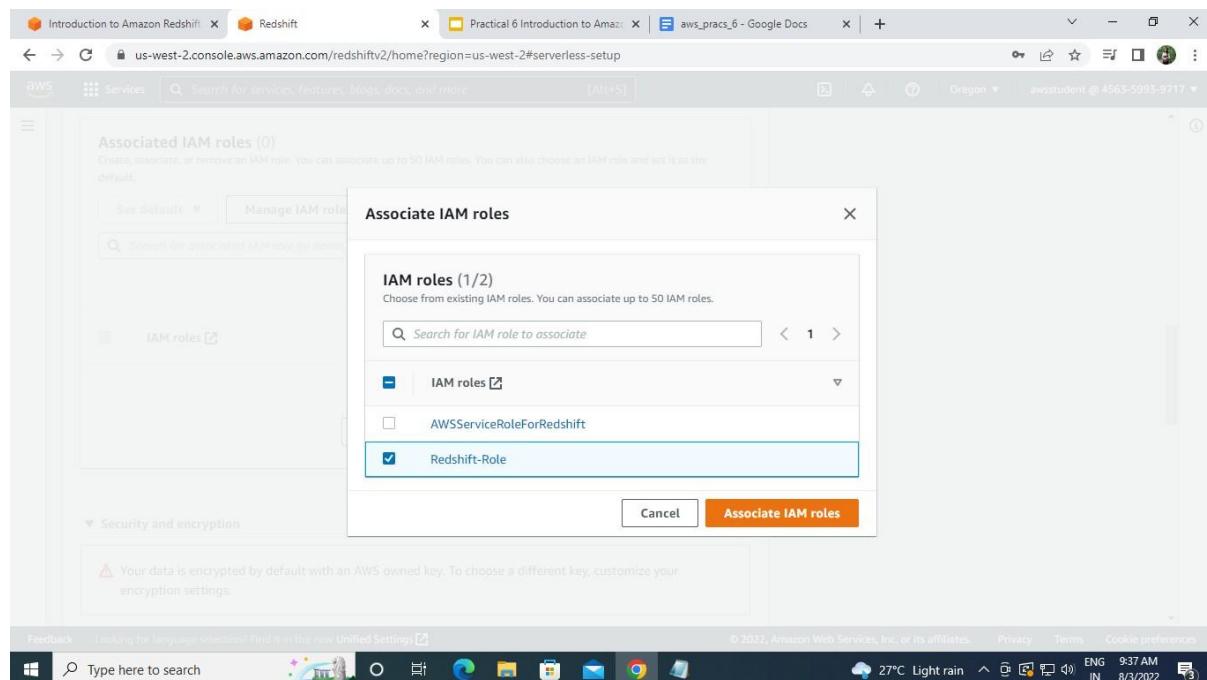
The screenshot shows the 'Create cluster' wizard in the Amazon Redshift console. The left sidebar shows navigation options like 'Redshift serverless', 'Provisioned clusters dashboard', and 'Clusters'. The main area is titled 'Create cluster' and contains the 'Cluster configuration' step. It includes fields for 'Cluster identifier' (set to 'redshift-cluster-1'), 'What are you planning to use this cluster for?' (selected 'Production'), 'Choose the size of the cluster' (button 'I'll choose'), and 'Node type' (selected 'ra3.4xlarge'). The status bar at the bottom indicates the user is in Oregon.

The screenshot shows the 'Create cluster' wizard in the Amazon Redshift console, continuing from the previous step. The main area is titled 'Database configurations'. It includes fields for 'Admin user name' (set to 'master'), 'Auto generate password' (unchecked), 'Admin user password' (set to 'Redshift123'), and 'Show password' (checked). The status bar at the bottom indicates the user is in Oregon.

The screenshot shows the AWS Redshift service page. A modal window titled "lab is being created." displays the message: "Sample data load After the cluster is created, Amazon Redshift starts to load the sample data." Below this, the "Clusters" section is visible, showing tabs for "In my account" and "From other accounts". Under "In my account", there is a section titled "Connect to Redshift clusters" with three options: "Query data using Redshift query editor", "Work with your client tools", and "Choose your JDBC or ODBC driver". The "Work with your client tools" section includes fields for "Cluster" and "Driver". The status bar at the bottom indicates "27°C Light rain" and the date "8/3/2022".

The screenshot shows the "Associated IAM roles (0)" section of the Redshift serverless setup page. It includes buttons for "Set default" and "Manage IAM roles", and a search bar. A message states: "Create, associate, or remove an IAM role. You can associate up to 50 IAM roles. You can also choose an IAM role and set it as the default." Below this is a table header for "IAM roles", "Status", and "Role type". A note below the table says: "No resources No associated IAM roles Associate IAM role". The "Security and encryption" section contains a warning: "⚠ Your data is encrypted by default with an AWS owned key. To choose a different key, customize your encryption settings." The status bar at the bottom indicates "27°C Light rain" and the date "8/3/2022".

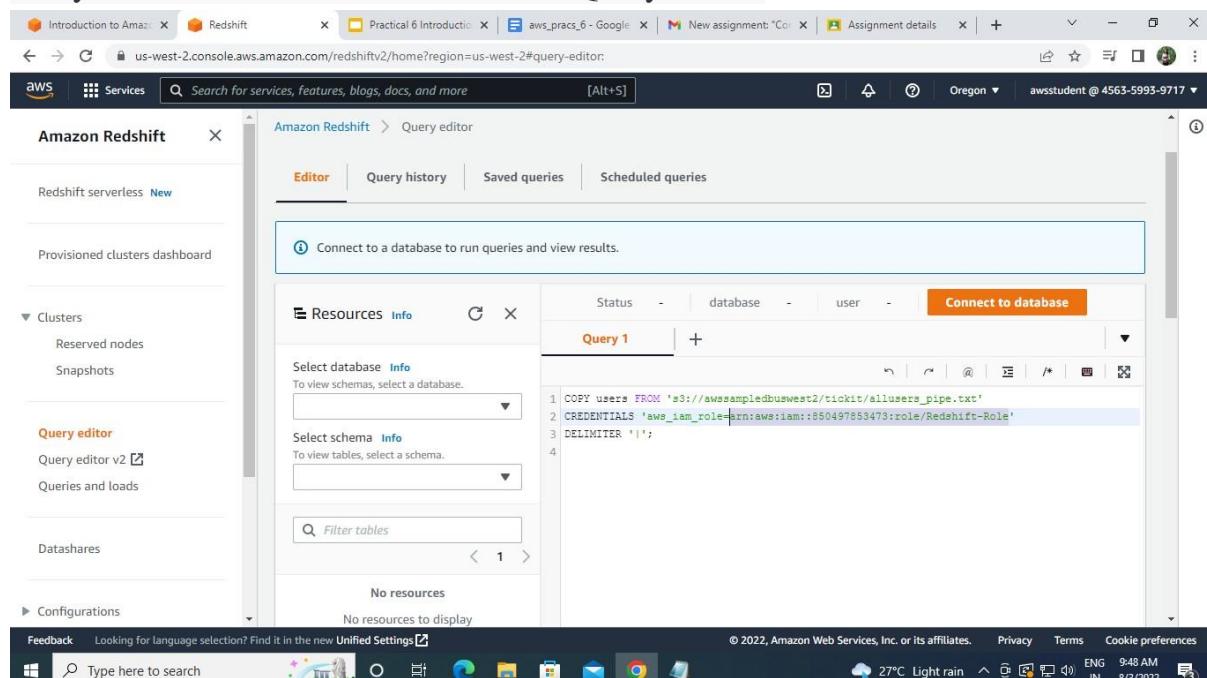
Task 2: Use the Redshift Query Editor to Communicate with your Redshift Cluster

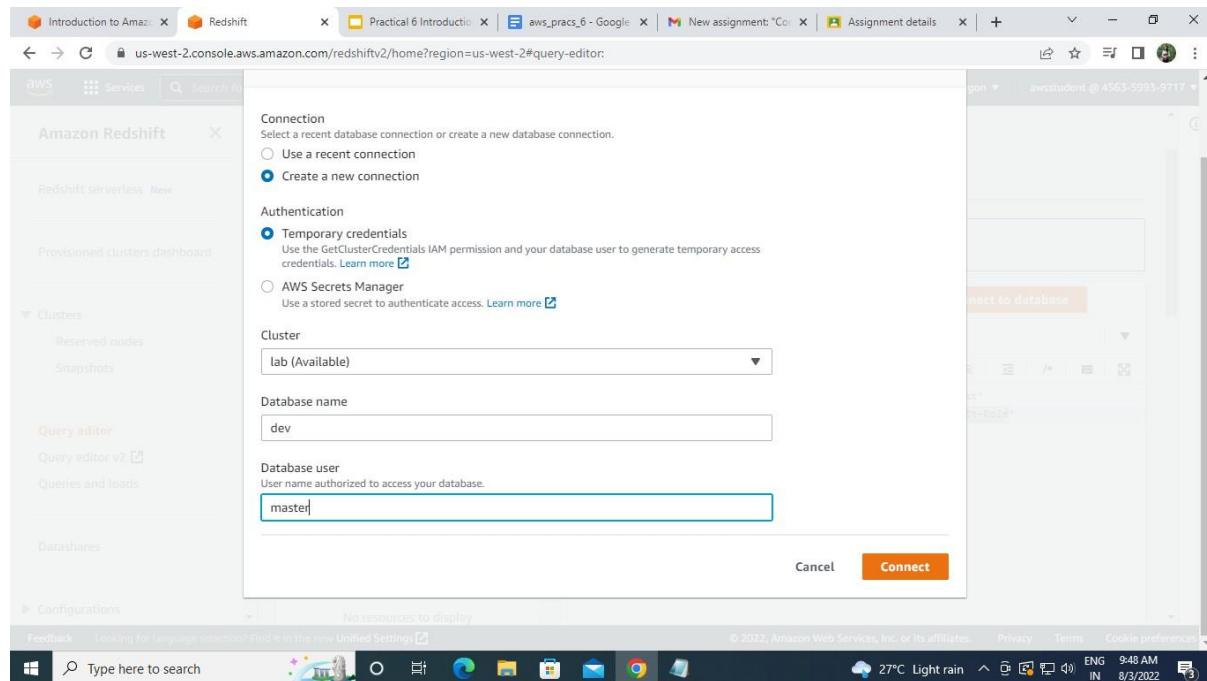


Amazon Redshift can be used via industry-standard SQL.

To use Redshift, you require an SQL Client that provides a user interface to type SQL.

Any SQL client that supports JDBC or ODBC can be used with Redshift. For this lab, you will use the Amazon Redshift Query editor.



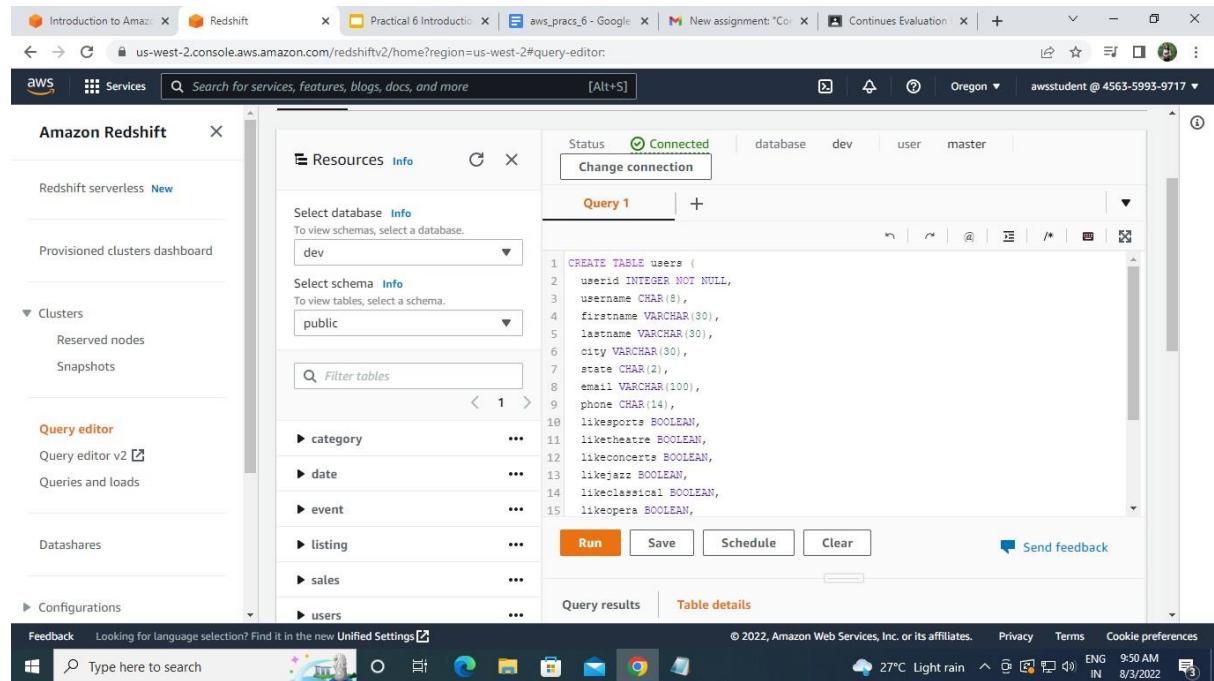


16. In the left navigation pane, click Query editor, then select Connect to database then configure:

- Cluster: lab
- Database name: labdb
- Database user: master

17. Click Connect

Task 3: Create a Table



The screenshot shows the AWS Redshift Query Editor interface. On the left, the sidebar lists 'Amazon Redshift' services like Redshift serverless, Clusters, and Query editor. In the main area, the 'Resources' tab is selected. The 'Select database' dropdown is set to 'dev'. The 'Select schema' dropdown is set to 'public'. The 'Query 1' tab is active, displaying the following SQL code:

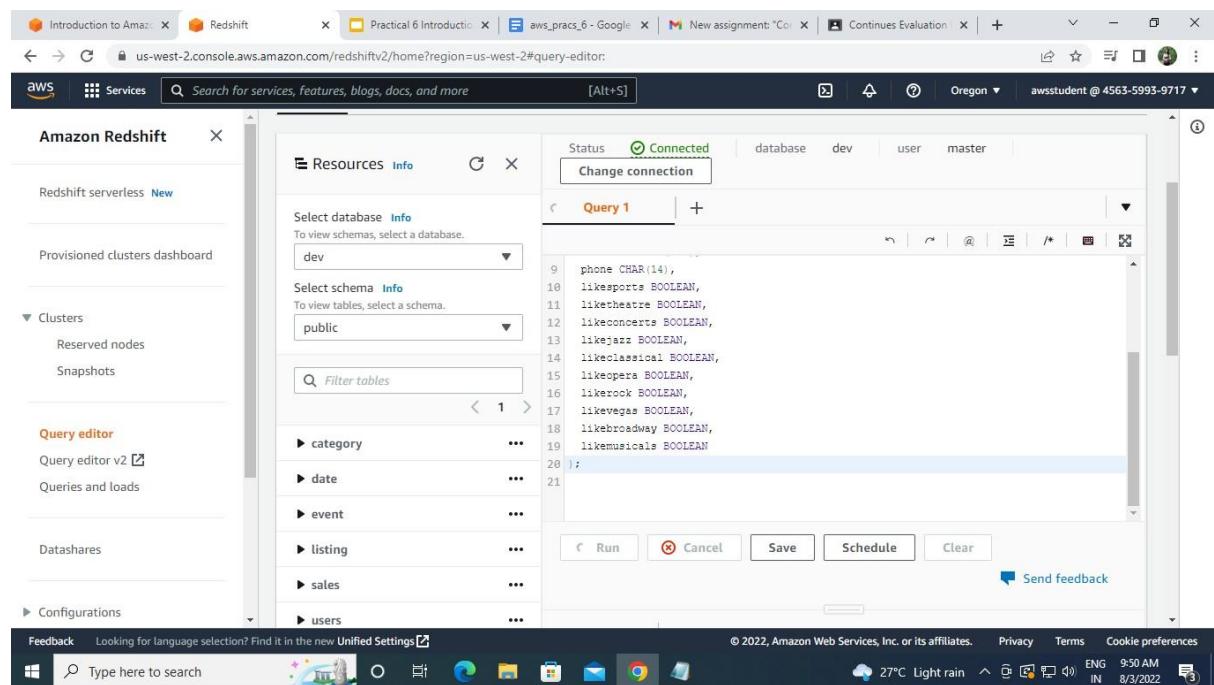
```

1 CREATE TABLE users (
2     userid INTEGER NOT NULL,
3     username CHAR(8),
4     firstname VARCHAR(30),
5     lastname VARCHAR(30),
6     city VARCHAR(50),
7     state CHAR(2),
8     email VARCHAR(100),
9     phone CHAR(14),
10    likesports BOOLEAN,
11    liketheatre BOOLEAN,
12    likeconcerts BOOLEAN,
13    likejazz BOOLEAN,
14    likeclassical BOOLEAN,
15    likeopera BOOLEAN,

```

Below the code, there are buttons for 'Run', 'Save', 'Schedule', and 'Clear'. A 'Send feedback' link is also present. The status bar at the bottom shows the date and time as 8/3/2022 9:50 AM.

In this task, you will execute SQL commands to create a table in Redshift.



This screenshot shows the continuation of the AWS Redshift Query Editor session. The 'Query 1' tab is still active, and the SQL code has been partially executed. The visible portion of the code is:

```

9    phone CHAR(14),
10   likesports BOOLEAN,
11   liketheatre BOOLEAN,
12   likeconcerts BOOLEAN,
13   likejazz BOOLEAN,
14   likeclassical BOOLEAN,
15   likeopera BOOLEAN,
16   likerock BOOLEAN,
17   likevegas BOOLEAN,
18   likebroadway BOOLEAN,
19   likemusicals BOOLEAN
20 ;
21

```

The 'Run' button is visible at the bottom of the query editor. The status bar at the bottom shows the date and time as 8/3/2022 9:50 AM.

18. Copy this SQL command and paste it into the Query 1 window, then click Run

```
1 SELECT COUNT(*) FROM users;
```

count
49990

Task 4: Load Sample Data from Amazon S3

The screenshot shows the AWS Management Console with the Amazon Redshift service selected. The left sidebar shows navigation options like 'Clusters', 'Query editor', and 'Datashares'. The main area is titled 'Amazon Redshift' and contains a 'Resources' section with dropdown menus for 'Select database' (set to 'dev') and 'Select schema' (set to 'public'). Below these are dropdowns for 'category', 'date', 'event', 'listing', and 'mscrt' (with 'userid' and 'username' listed). A 'Query 1' tab is active, displaying the following SQL code:

```

1 SELECT userid, firstname, lastname, city, state
2 FROM users
3 WHERE likesports AND NOT likeopera AND state = 'OH'
4 ORDER BY firstname;
5
6

```

Below the code are buttons for 'Run', 'Save', 'Schedule', and 'Clear'. A 'Send feedback' link is also present. The status bar at the bottom indicates the user is connected to the 'dev' database.

Amazon Redshift can import data from Amazon S3. Various file formats are supported, fixed-length fields, comma-separated values (CSV) and custom delimiters. The data for this lab is pipe-separated (1).

19. Delete the existing query, then paste this SQL command into the Query 1 window.

The screenshot shows the same AWS Management Console setup as the previous one, but the 'Query 1' window now displays the results of the executed SQL query. The results are presented in a table format with columns: userid, firstname, lastname, city, and state. The data consists of 15 rows, each representing a user record. The table header includes dropdown arrows for sorting each column.

userid	firstname	lastname	city	state
4343	Abel	Mullins	Commerce	OH
39049	Abraham	Donaldson	Hampton	OH
36418	Amanda	Tran	Concord	OH
24636	Amity	Thomas	Brunswick	OH
39221	Grady	Wilkinson	St. Petersburg	OH
29013	Gregory	Rosario	Saratoga Springs	OH
12427	Haley	Wells	New York	OH
14745	Haviva	Hood	Biloxi	OH
22281	Illana	Schultz	Lake Forest	OH
27356	Jermaine	Wilder	Grand Rapids	OH

Task 5: Query Data

The screenshot shows the AWS Redshift console interface. On the left, the navigation sidebar includes options like 'Redshift serverless New', 'Provisioned clusters dashboard', 'Clusters' (with 'Reserved nodes' and 'Snapshots'), 'Query editor' (selected), 'Query editor v2', 'Queries and loads', 'Data shares', and 'Configurations'. The main area is titled 'Amazon Redshift' and shows a 'Resources' section with 'Status Connected' and a 'Change connection' button. Below this is a 'Select database' dropdown set to 'dev' and a 'Select schema' dropdown set to 'public'. A 'Filter tables' search bar is present. The central part of the screen is the 'Query 1' editor, containing the following SQL code:

```

1 SELECT
2   city,
3   COUNT(*) AS count
4 FROM users
5 WHERE likejazz
6 GROUP BY city
7 ORDER BY count DESC
8 LIMIT 10;
9
10

```

Below the code are buttons for 'Run', 'Save', 'Schedule', and 'Clear'. To the right of the editor are 'Query results' and 'Table details' tabs, with 'Query results' currently selected. The results table shows the following data:

city	count
Dover	33
Charleston	30
Hartford	28
Concord	27
Springfield	26
Richmond	24
Jackson	23
Aliquippa	23
Columbus	23
Orangeburg	23

The bottom of the screen displays the Windows taskbar and system tray.

This screenshot is identical to the one above, showing the same AWS Redshift interface and the results of the executed SQL query. The results table is as follows:

city	count
Dover	33
Charleston	30
Hartford	28
Concord	27
Springfield	26
Richmond	24
Jackson	23
Aliquippa	23
Columbus	23
Orangeburg	23