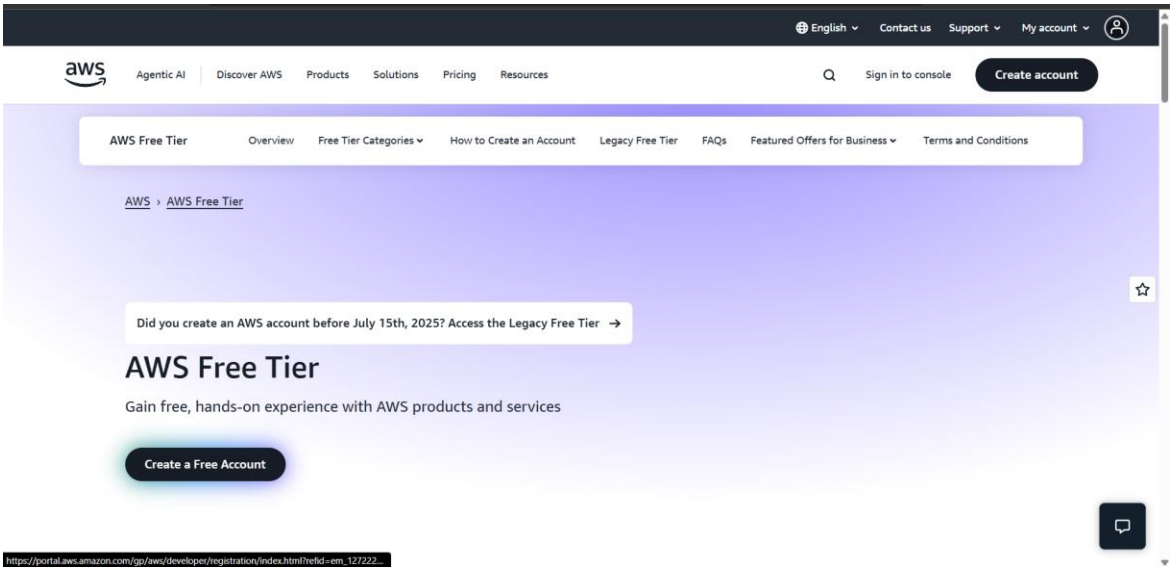
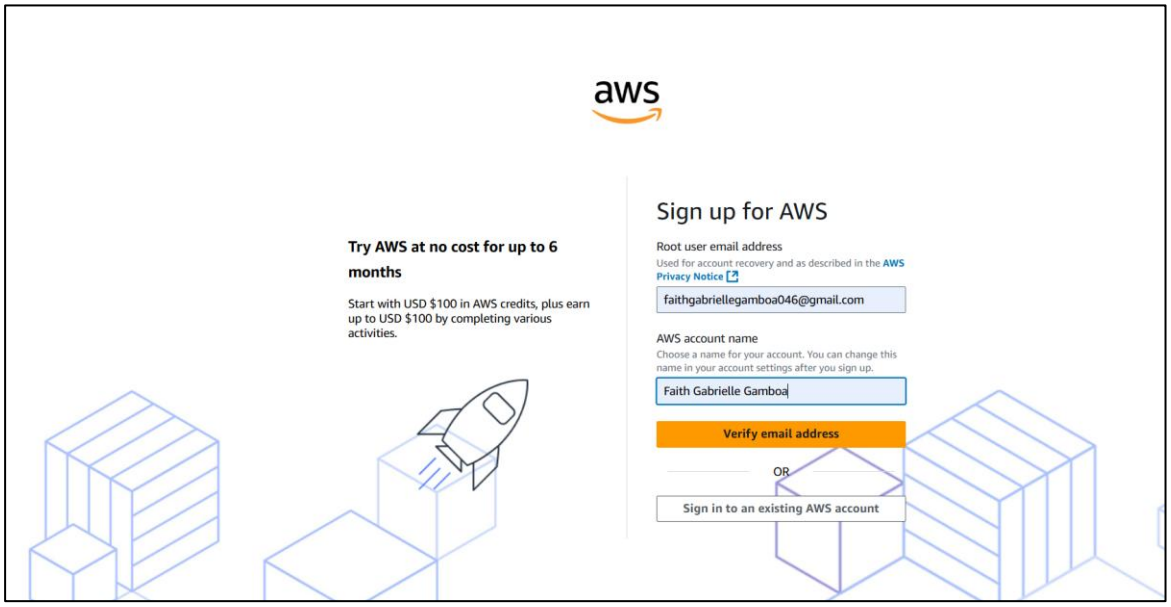
Faith Gabrielle Gamboa **September 11, 2025**
IV – BCSAD **How-To-Document**

- **What AWS is and its key benefits**
  - Amazon Web Services is a cloud computing platform that provides scalable, reliable, and low-cost infrastructure. It is utilized to host websites, store files, run databases and more. The key benefits include:
    - Pay-as-you-go pricing
    - Scalable infrastructure
    - Global Reach
    - Access to 200 services

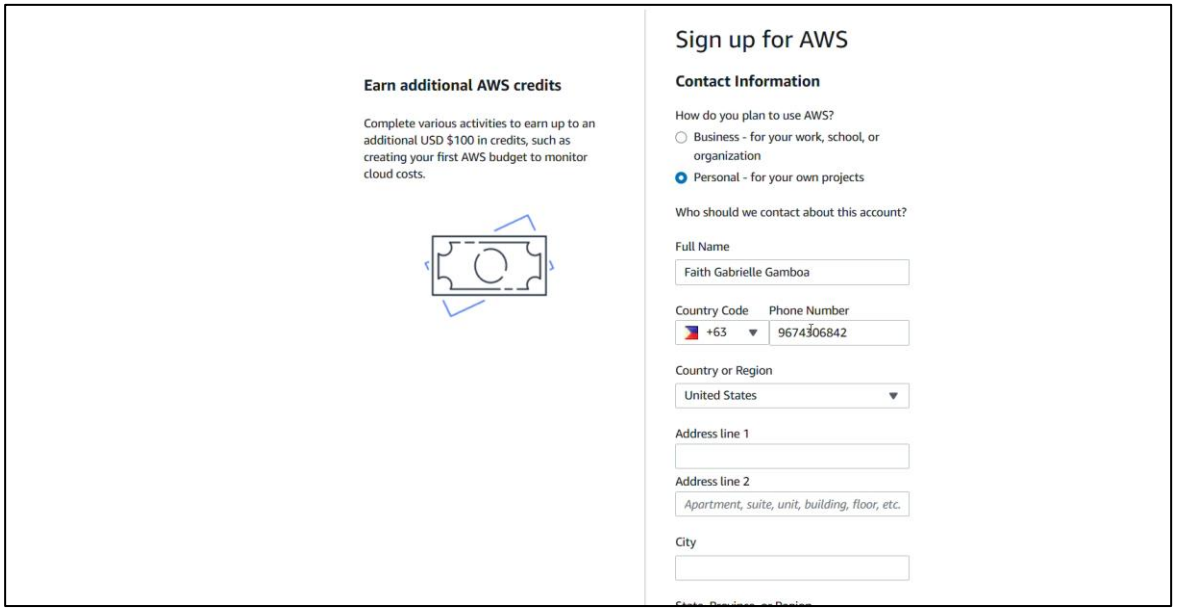
- **Signing up AWS for free**
  - To get started, sign up for the AWS Free Tier:
    - Go to [https://aws.amazon.com/free] and click, “Create a Free Account”



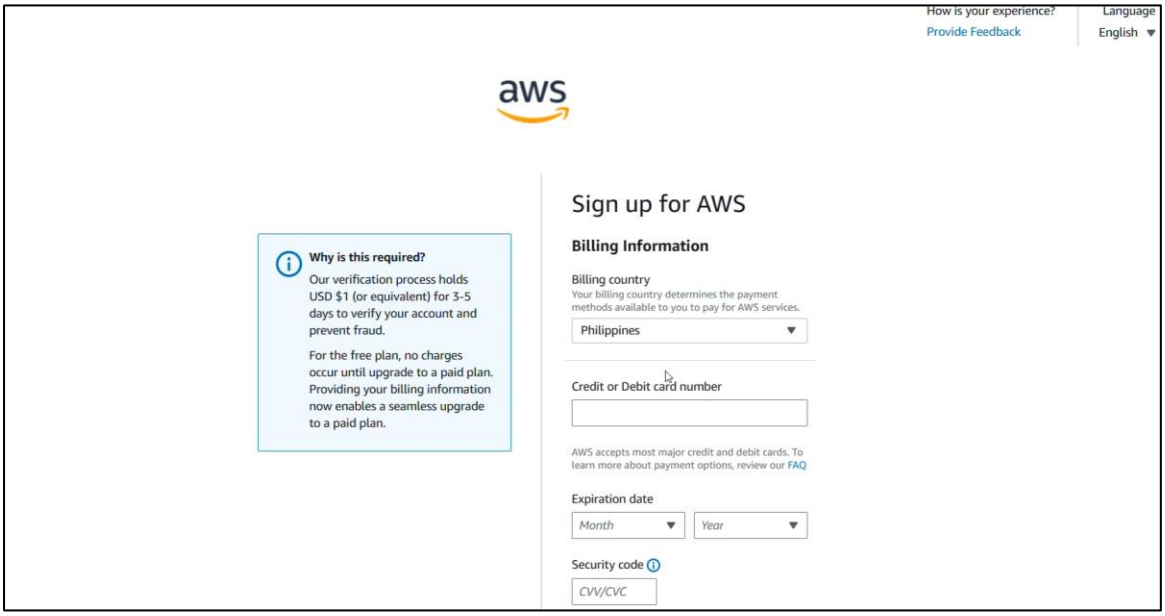
- Enter email address and AWS will send a verification code to your email. Enter the verification code and set up your password.



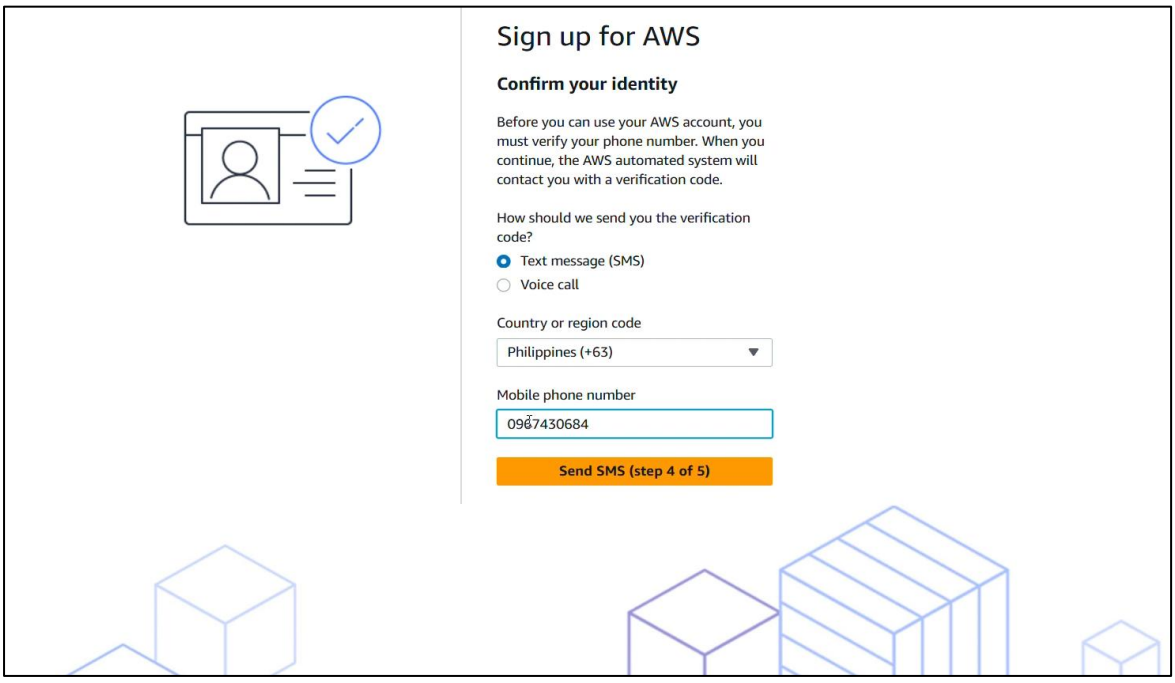
- Provide contact information such as full name, phone number, and address.



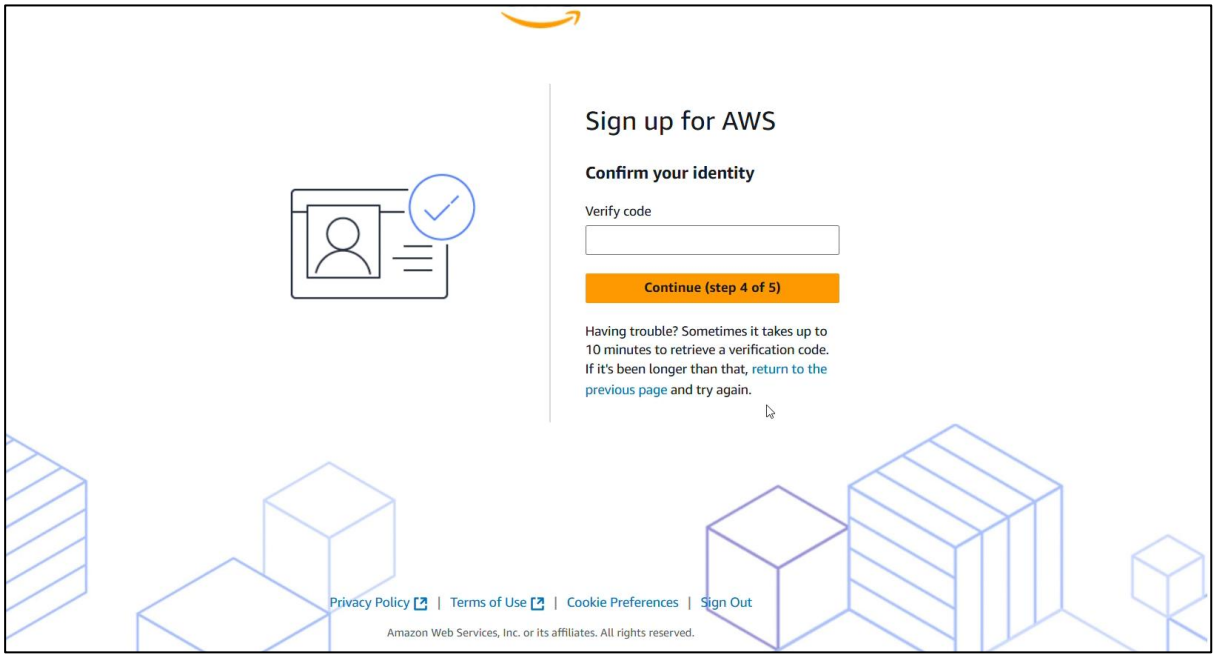
- Enter billing information.



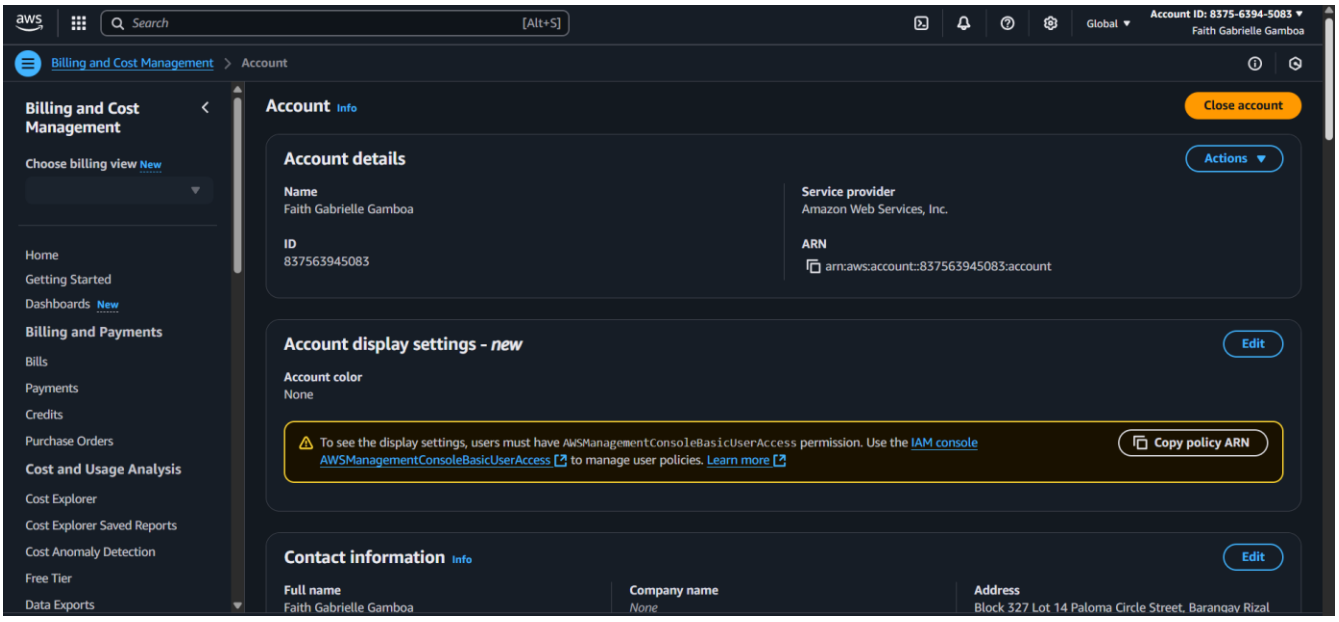
- AWS will ask you to confirm your identity by prompting you to provide your contact number, and a verification code will be sent.



- You will be asked to go through a security verification first before you can enter the code sent in your contact number.

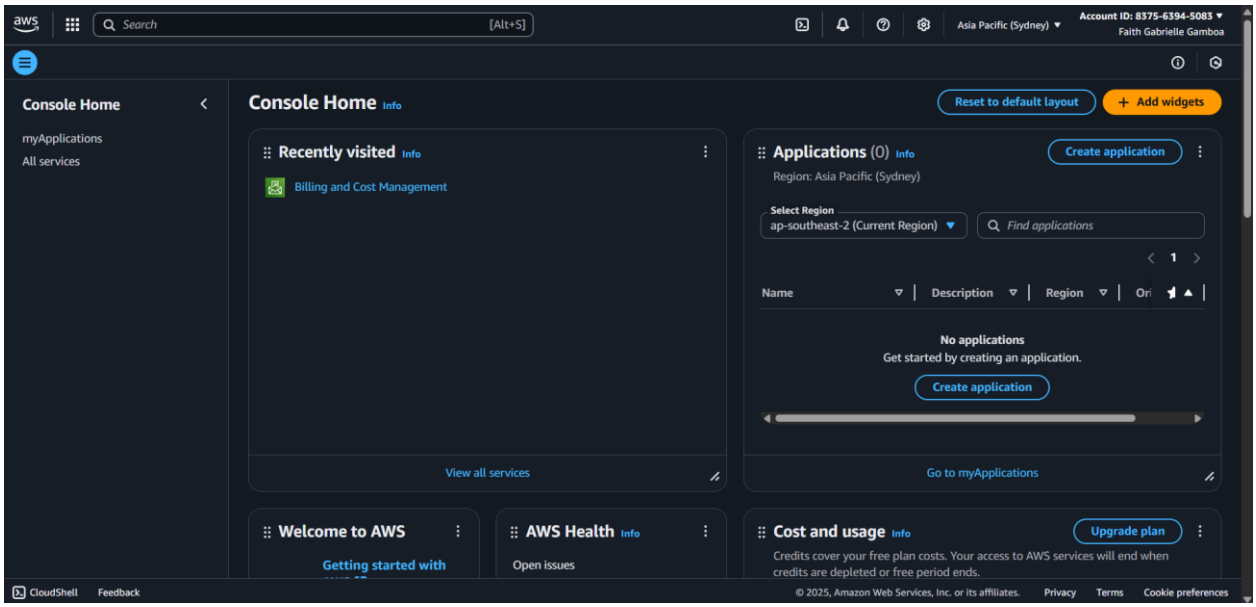


Created Account (Screenshot)

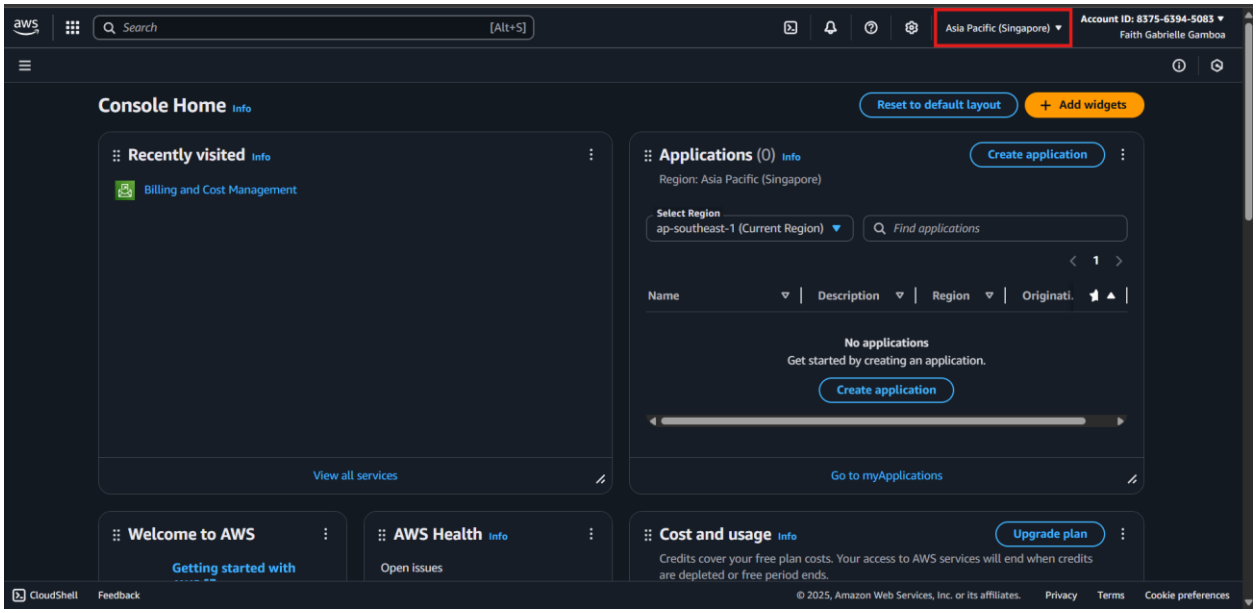


- **Setting a goal: Hosting a website on AWS**
  - **EC2** (Elastic Compute Cloud) for hosting
  - **S3** (Simple Storage Service) for file storage
  - **RDS** (Relational Database Service) for database needs

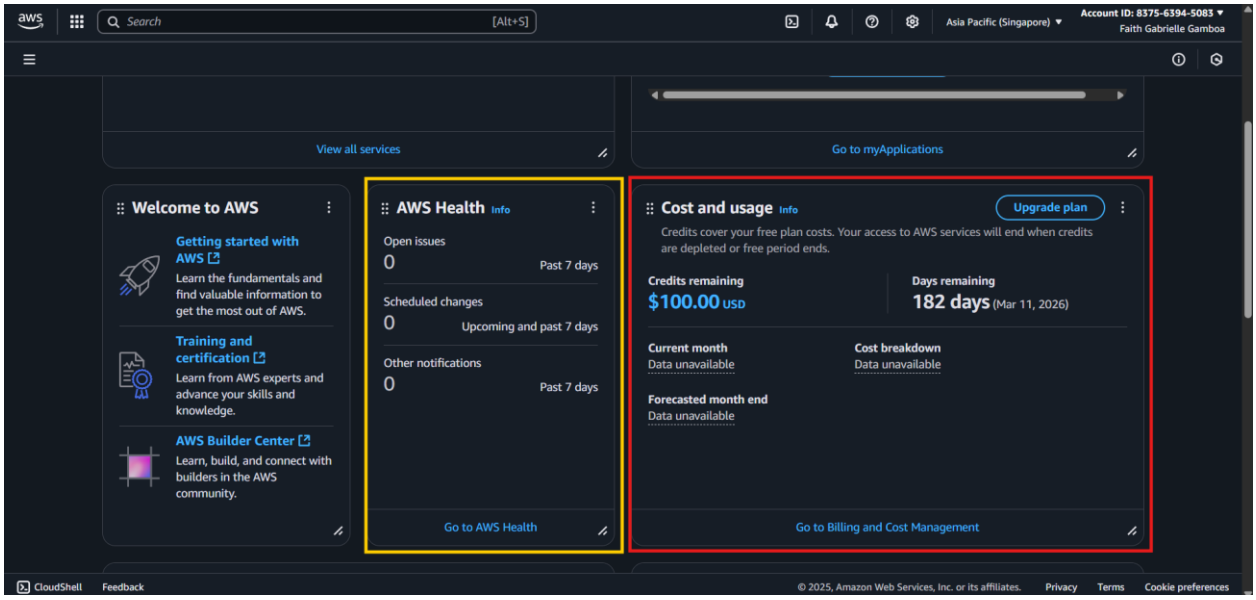
- **Exploring the AWS Management Console**
  - Access the AWS Management Console which is an overview of your account and access all AWS services.



  - It is important to pick the right region, since each one is a different physical location (data center), and things such as services and pricing can change depending on where you choose.

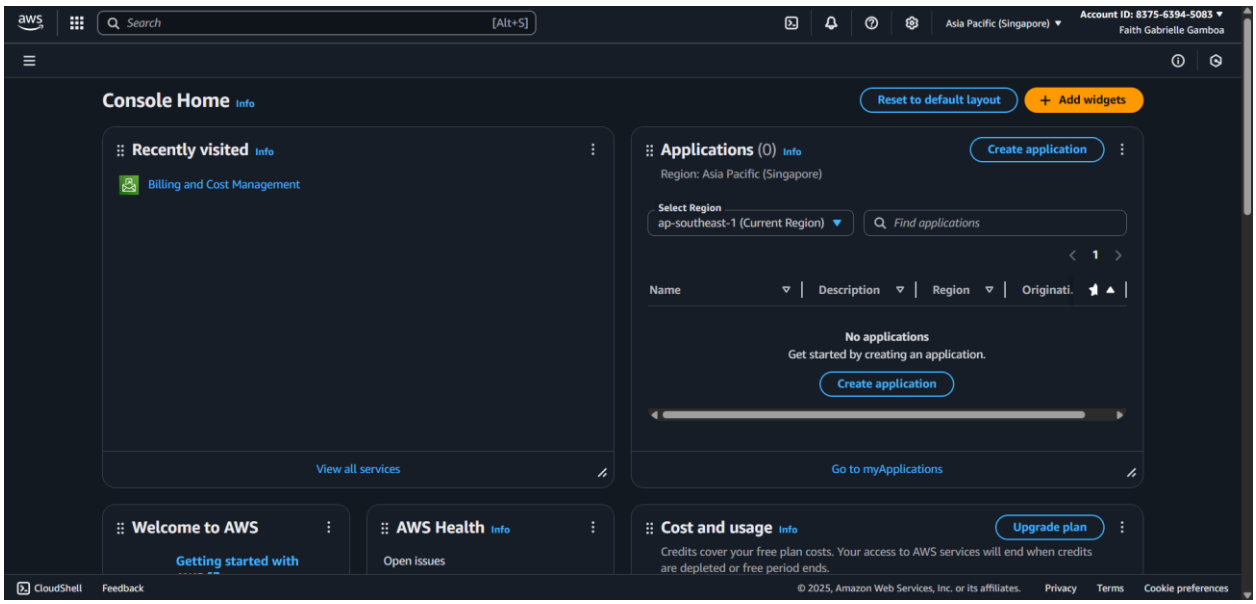


- The cost and usage panel shows how much you are using AWS services and how much it is costing you. The AWS Health panels shows any notifications, or any updates that may affect AWS services.

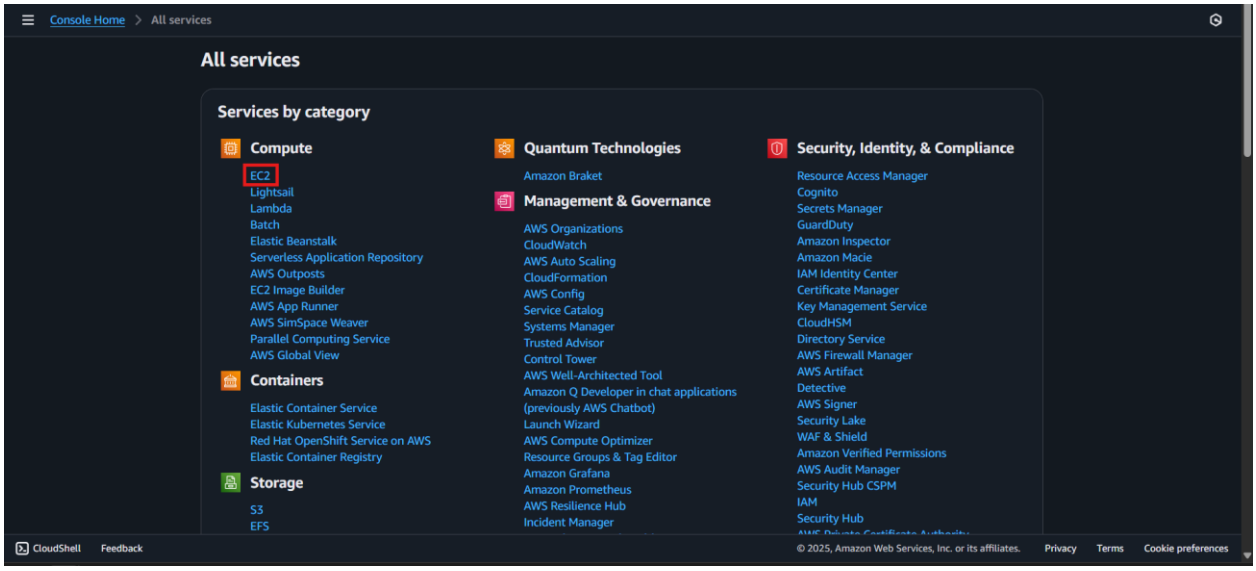


- Scroll down the page to access the documentation if you need more help.

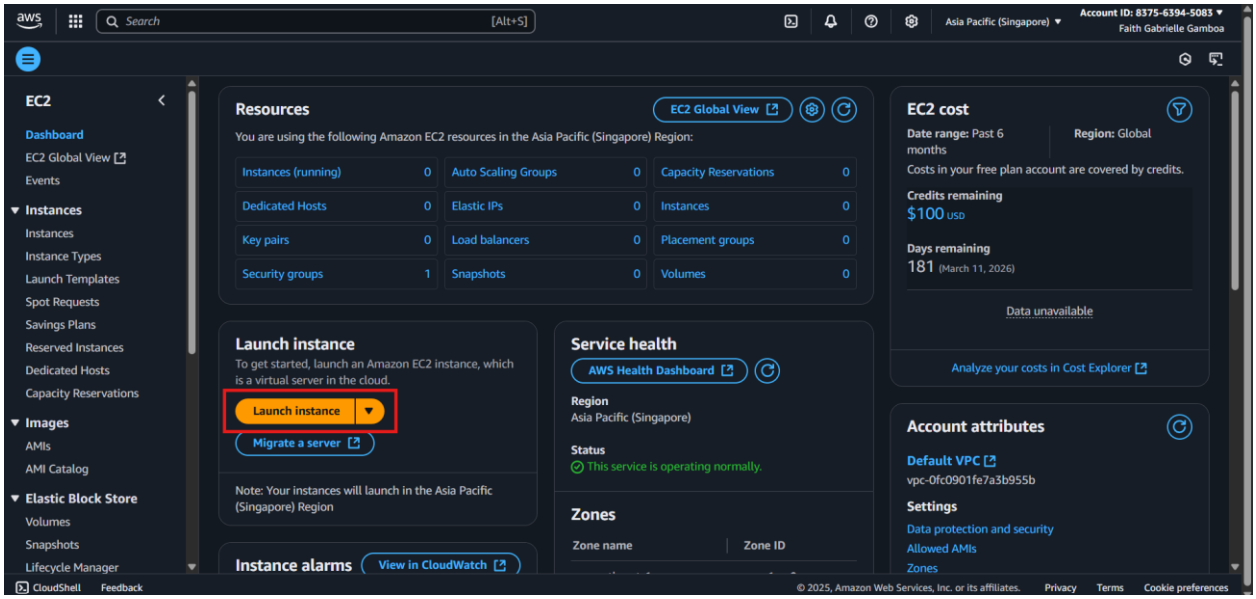
- **EC2 – Launching a virtual server**
  - Go to Console Home



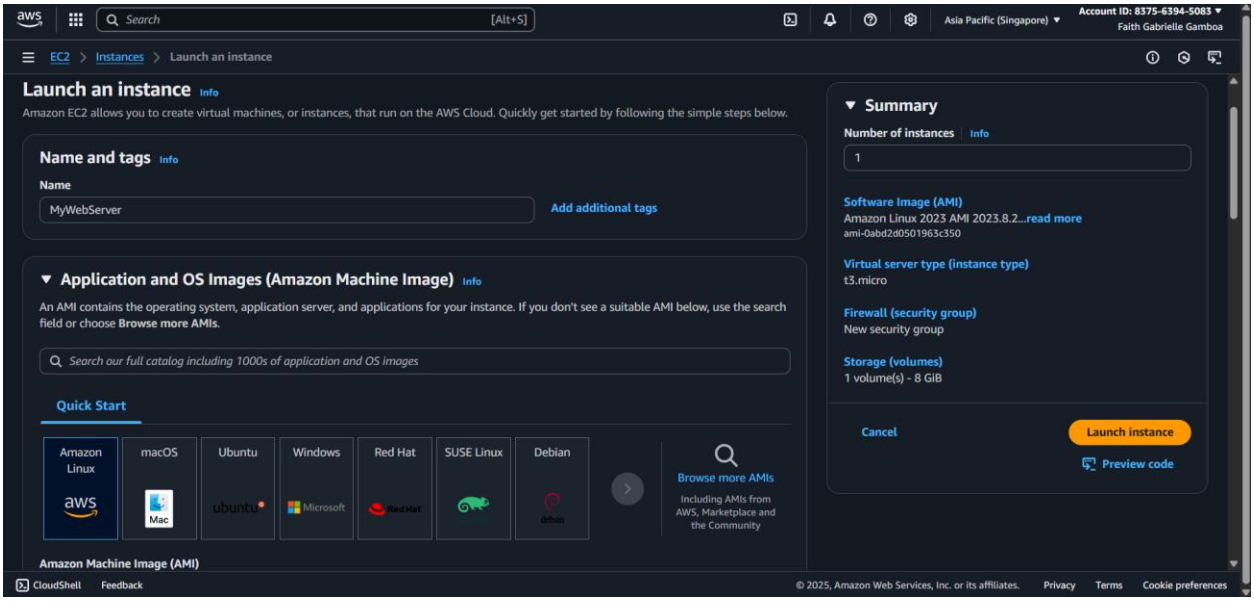
- Click All Services to view all services provided by AWS. Click EC2.

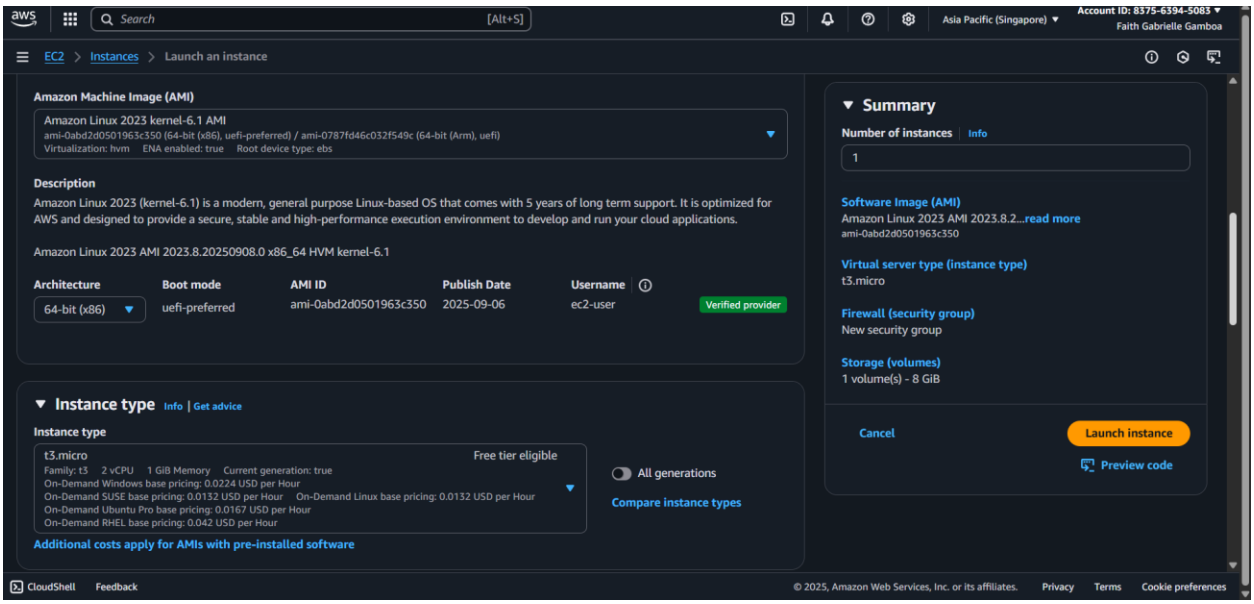


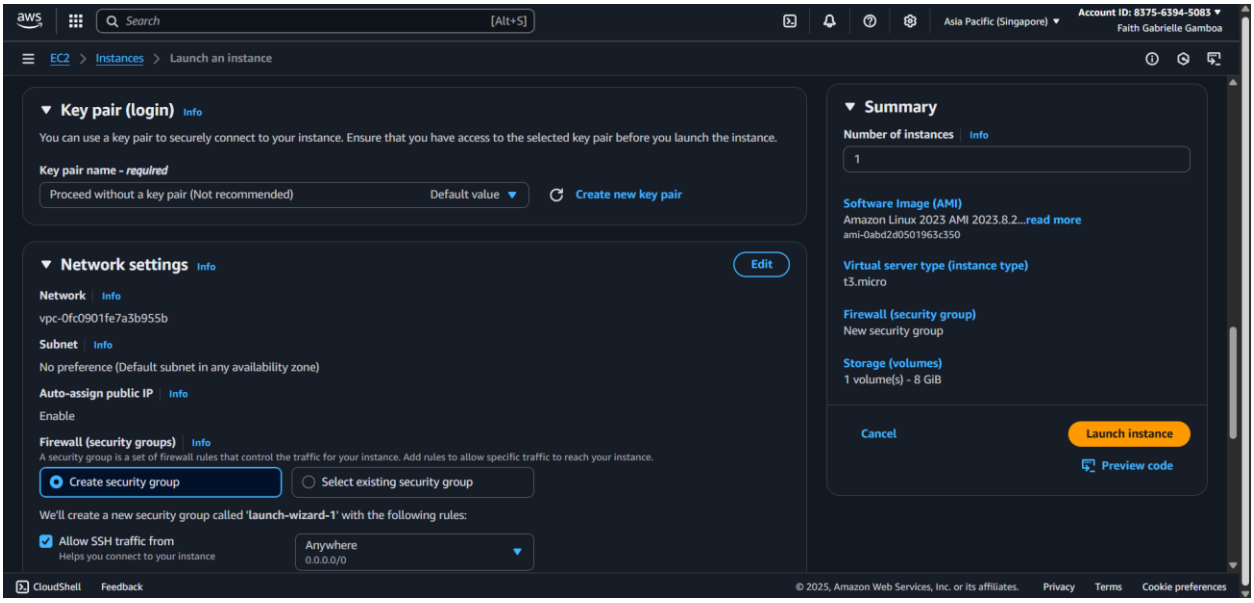
- To create a new EC2 instance, click the Launch Instance button.



- Enter the important details such as the Web Server Name, Operating System Image, Instance Type, Key Pair, Network Settings and Storage Configuration. Once you are finished, click the Launch Instance button.






Search [Alt+S]
Asia Pacific (Singapore)
Account ID: 8375-6394-5083
Faith Gabrielle Gamboa
EC2 > Instances > Launch an instance
Key pair (login) Info
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.
Key pair name - required
Proceed without a key pair (Not recommended)
Default value
Create new key pair
Network settings Info
Edit
Network Info
vpc-0fc0901fe7a3b955b
Subnet Info
No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Create security group
Select existing security group
We'll create a new security group called 'launch-wizard-1' with the following rules:
Allow SSH traffic from
Helps you connect to your instance
Anywhere
0.0.0.0/0
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.8.2...read more
ami-0abd2d0501963c350
Virtual server type (instance type)
t3.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code
CloudShell
Feedback
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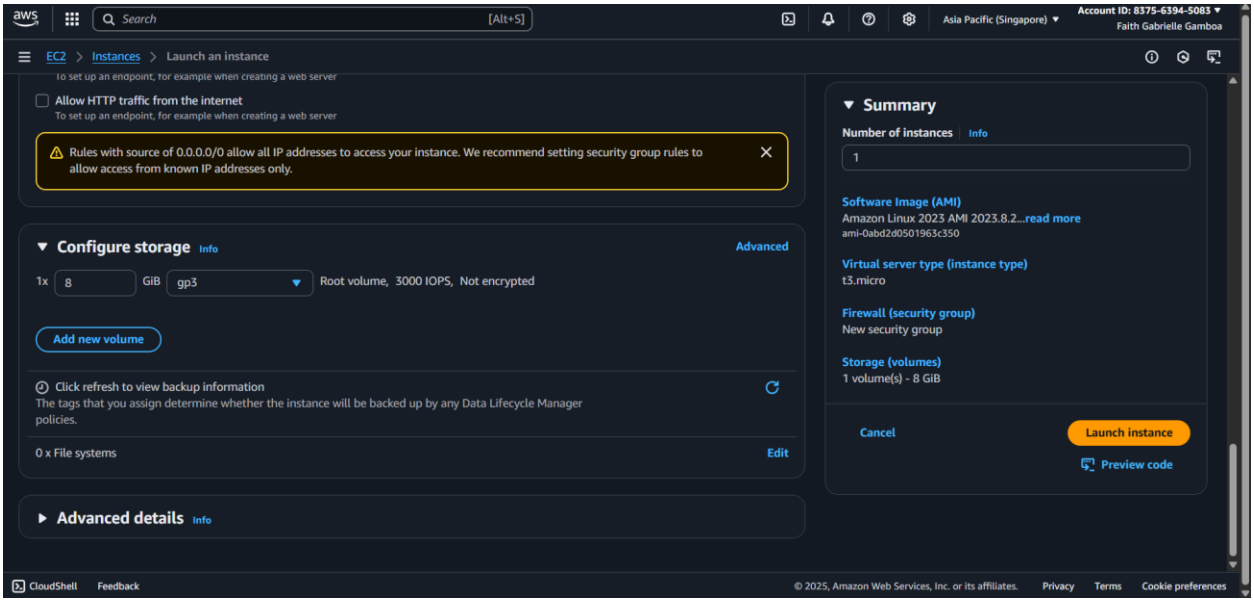
Search [Alt+S]
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EC2 > Instances > Launch an instance
To set up an endpoint, for example when creating a web server
Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.
Configure storage Info
Advanced
1x 8 GiB gp3 Root volume, 3000 IOPS, Not encrypted
Add new volume
Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.
0 x File systems
Edit
Advanced details Info
Summary
Number of instances Info
1
Software Image (AMI)
Amazon Linux 2023 AMI 2023.8.2...read more
ami-0abd2d0501963c350
Virtual server type (instance type)
t3.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code
CloudShell
Feedback
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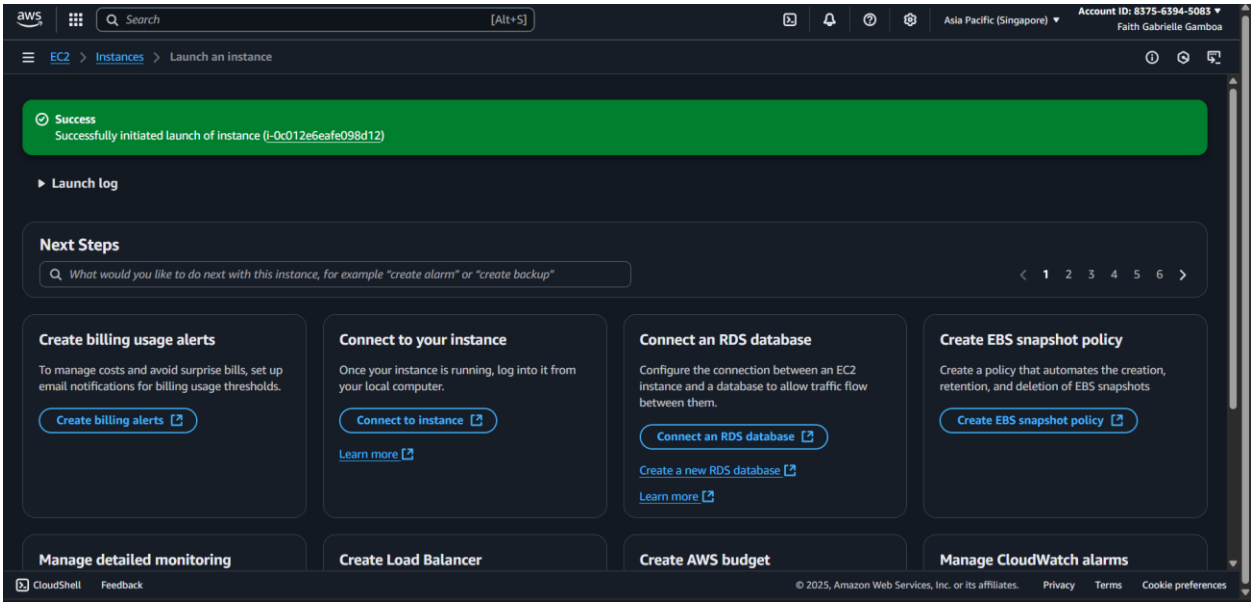
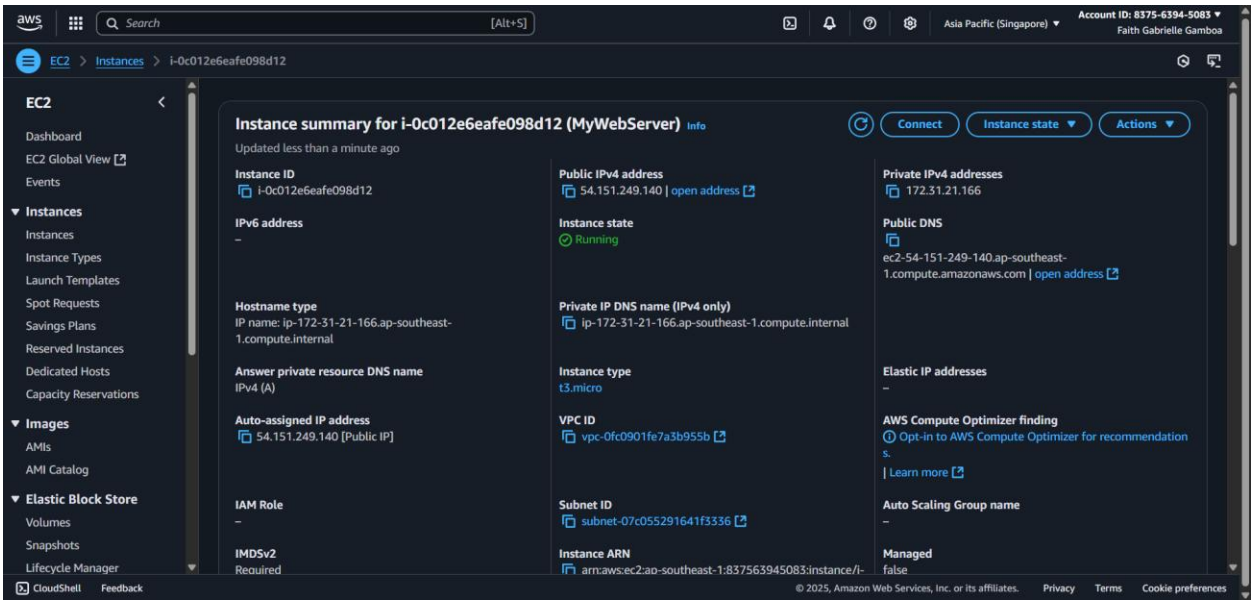
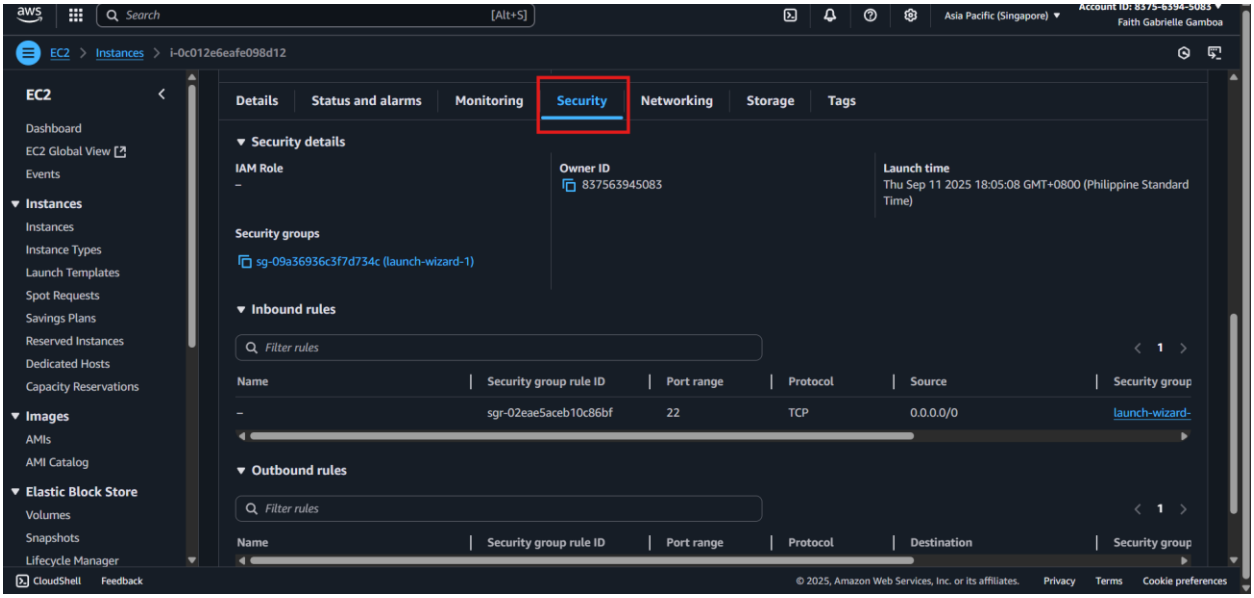
- Once the instance is created, click the link to take a look.

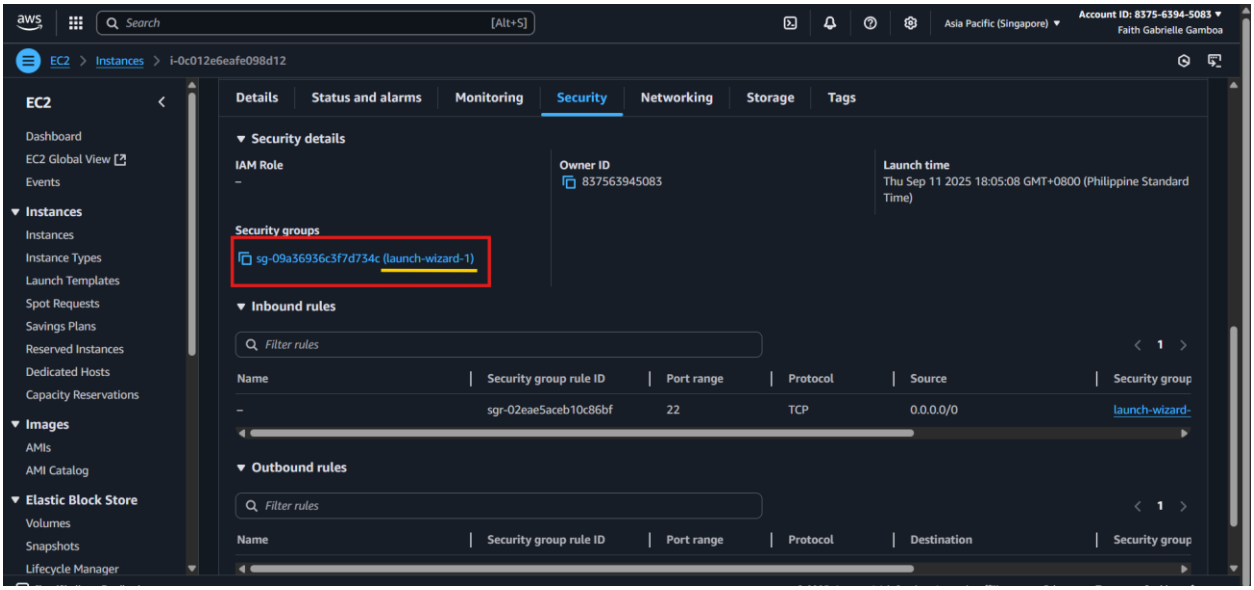




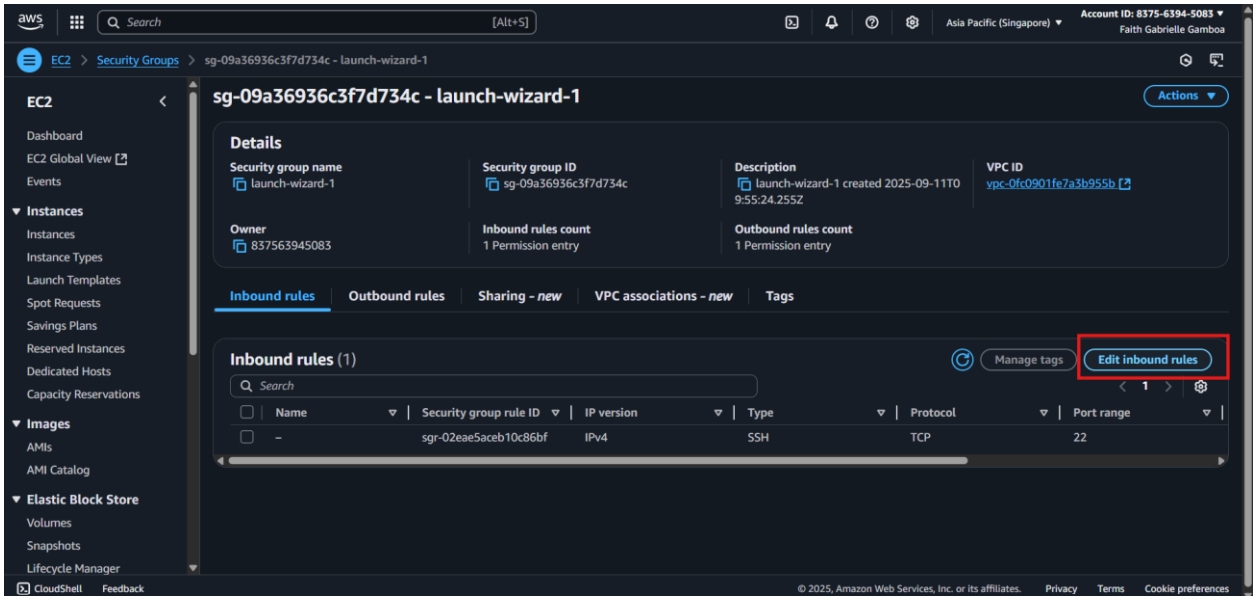
- Scroll down and go to the Security tab.

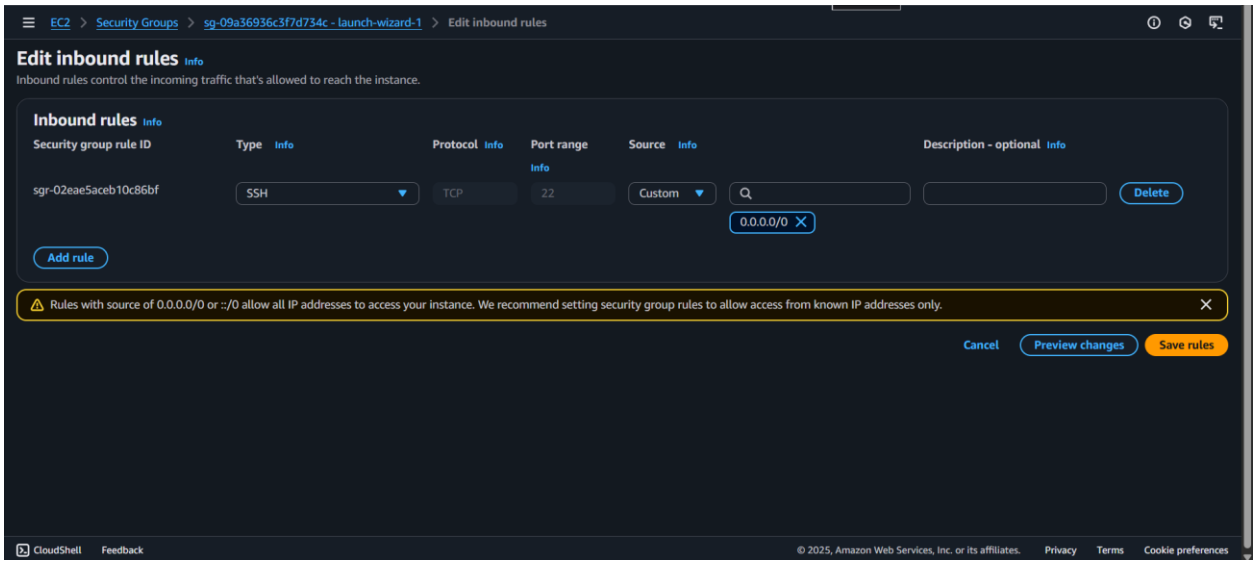


- Click the ‘launch-wizard-1’ to create a new rule for the HTTP traffic.

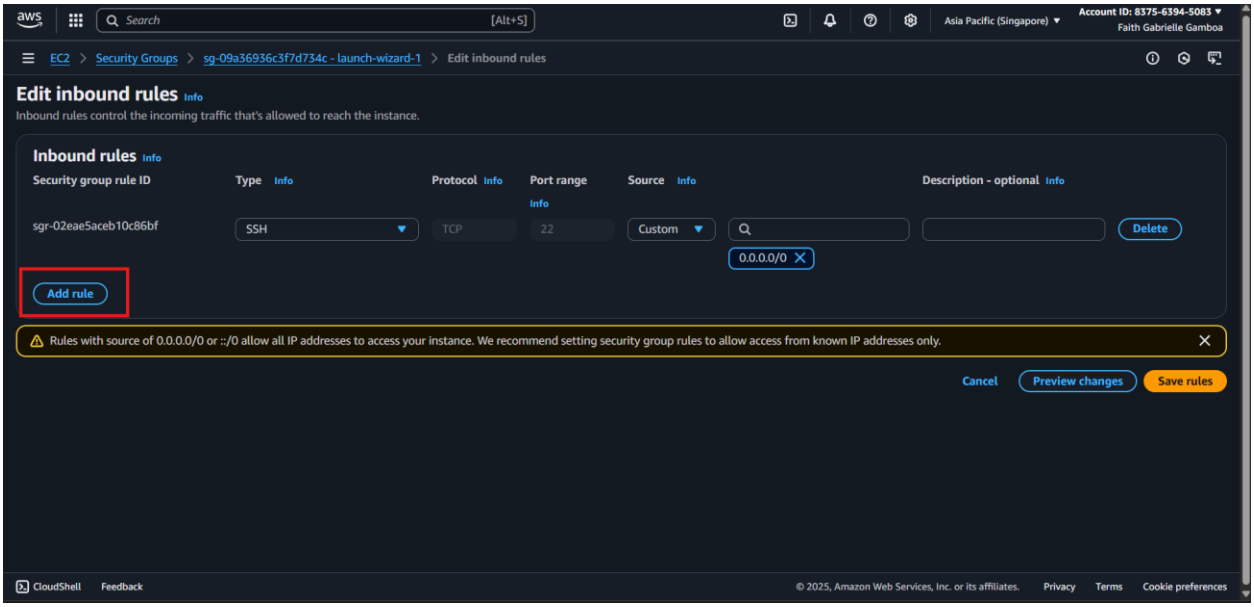


- Click on the Edit Inbound Rules button.

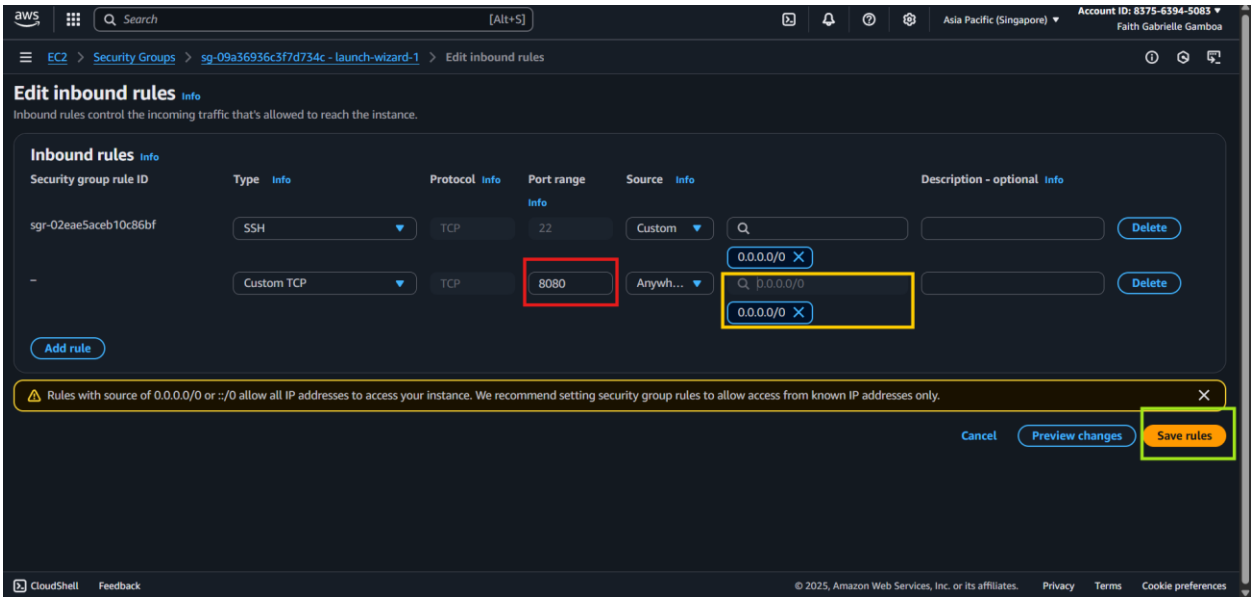




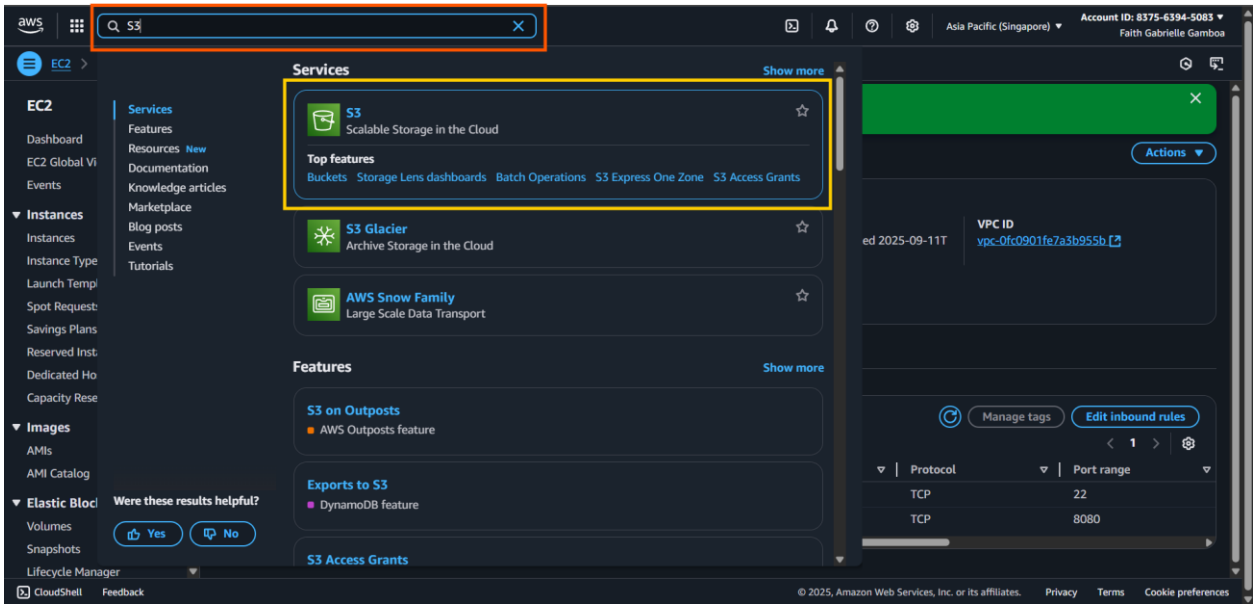
- Click the Add Rule button.



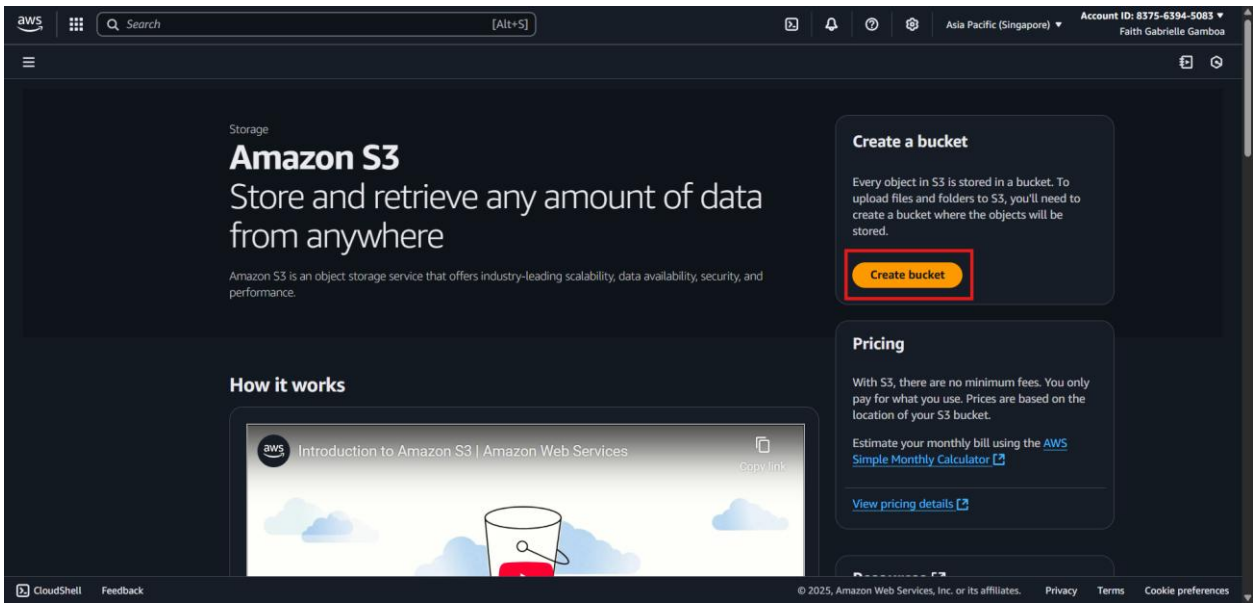
- Enter the port number 8080 and pick the default range of IP addresses which 0.0.0.0/0 in order to allow all IP addresses. Once done, click the Save Rules button.



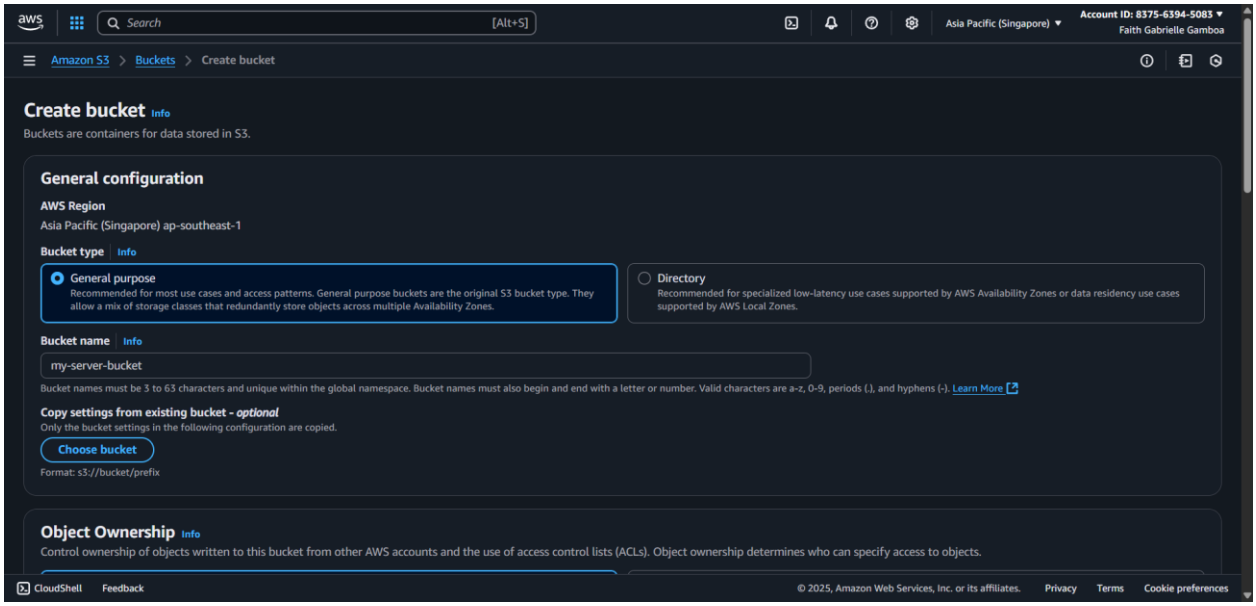
- **S3 – Configuring file storage**
    - Go to the search bar on top of the screen and type in S3. Click S3 in the first result to jump over to the S3 service.

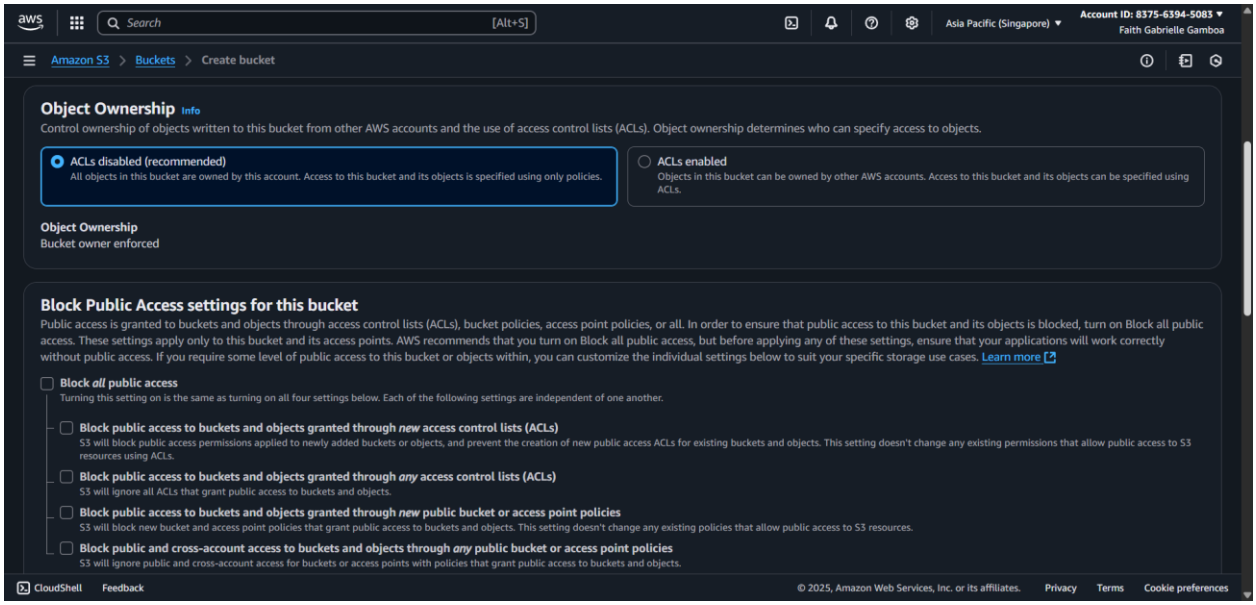


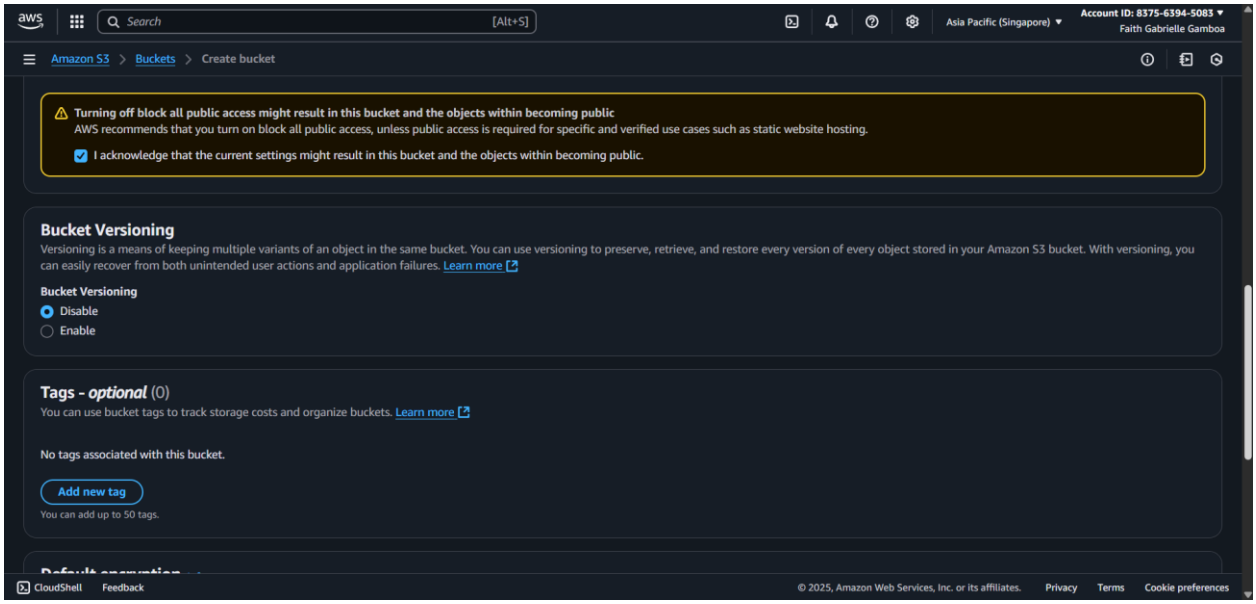
    - You are going to store your files in what Amazon calls a 'bucket.' A bucket is like a root folder or a drive utilized to organize your files. Start by clicking the Create Bucket button.



- Fill the necessary fields, such as Bucket Type, Bucket Name, Object Ownership, Public Access Settings, Bucket Versioning, Tags, and lives the rest to their default values. Once done, click the Create Bucket button.






Search [Alt+S]
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Account ID: 8375-6394-5083
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Amazon S3 > Buckets > Create bucket
Turning off block all public access might result in this bucket and the objects within becoming public
AWS recommends that you turn on block all public access, unless public access is required for specific and verified use cases such as static website hosting.
I acknowledge that the current settings might result in this bucket and the objects within becoming public.
Bucket Versioning
Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. Learn more
Bucket Versioning
Disable
Enable
Tags - optional (0)
You can use bucket tags to track storage costs and organize buckets. Learn more
No tags associated with this bucket.
Add new tag
You can add up to 50 tags.
CloudShell
Feedback
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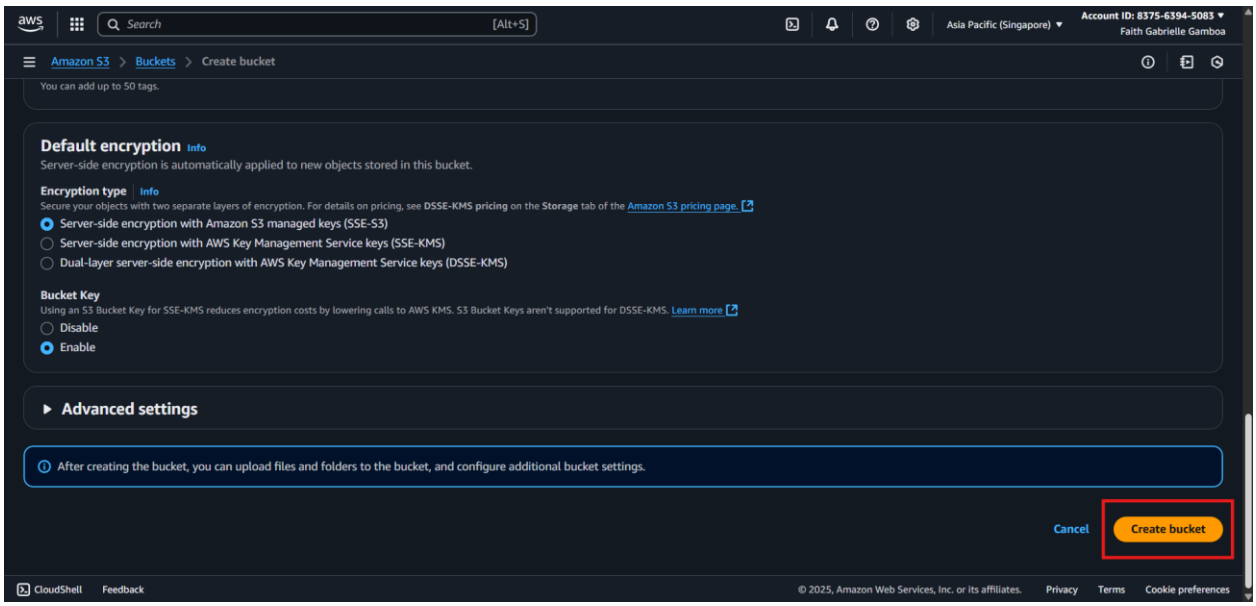
Search [Alt+S]
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Amazon S3 > Buckets > Create bucket
You can add up to 50 tags.
Default encryption Info
Server-side encryption is automatically applied to new objects stored in this bucket.
Encryption type Info
Secure your objects with two separate layers of encryption. For details on pricing, see DSSE-KMS pricing on the Storage tab of the Amazon S3 pricing page.
Server-side encryption with Amazon S3 managed keys (SSE-S3)
Server-side encryption with AWS Key Management Service keys (SSE-KMS)
Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)
Bucket Key
Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. Learn more
Disable
Enable
Advanced settings
After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.
Cancel
Create bucket
CloudShell
Feedback
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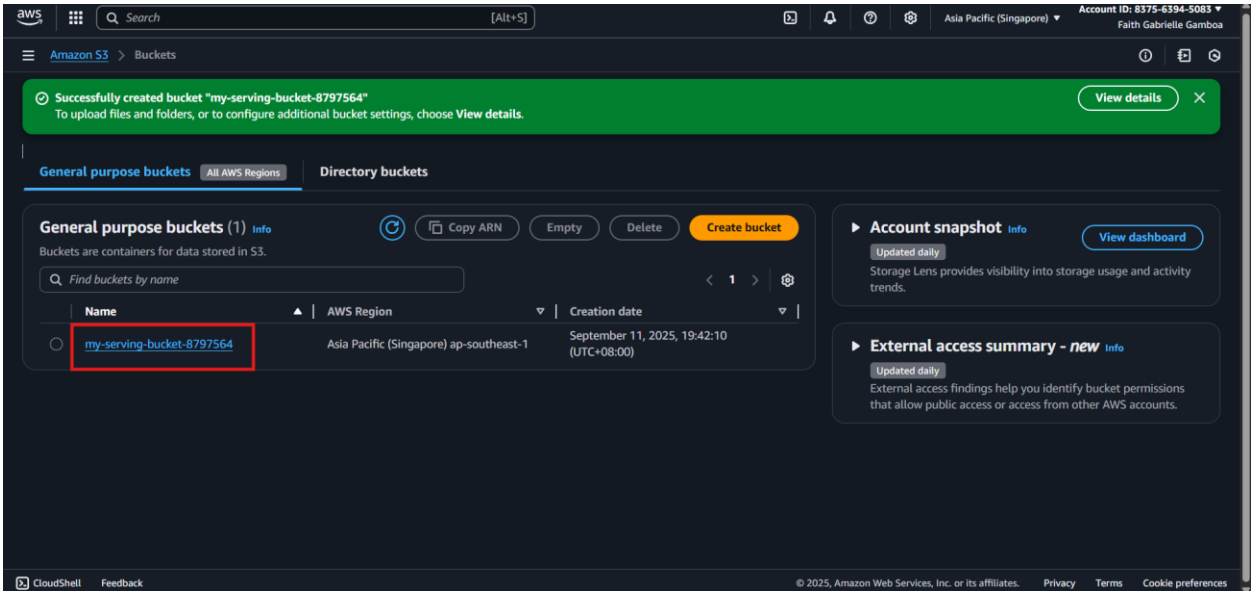
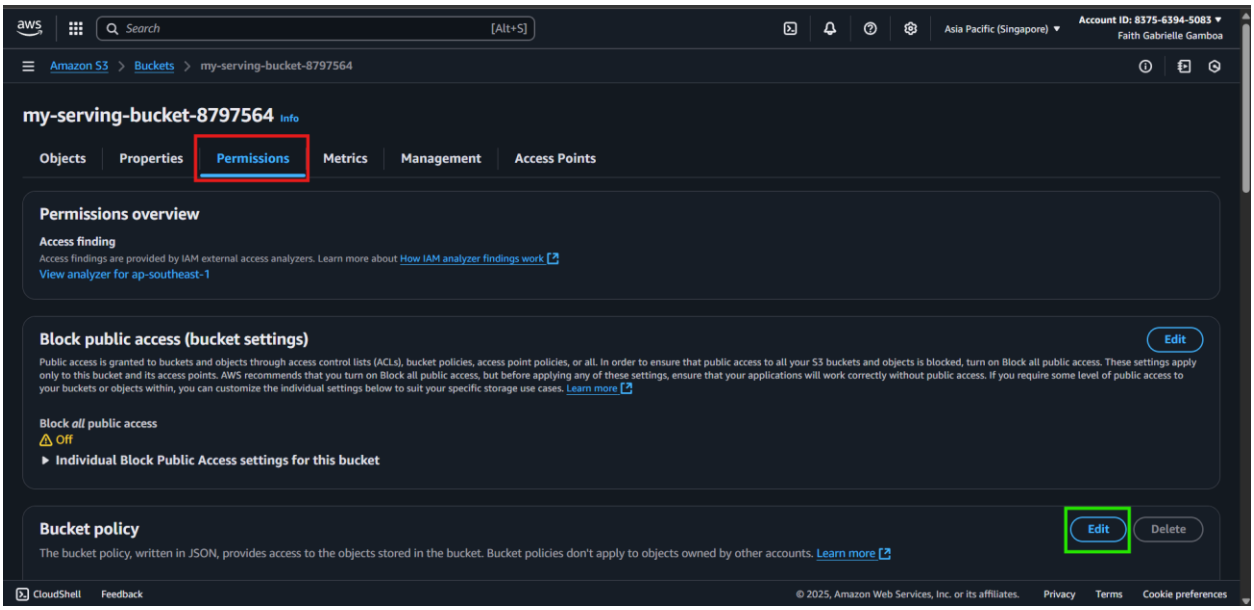
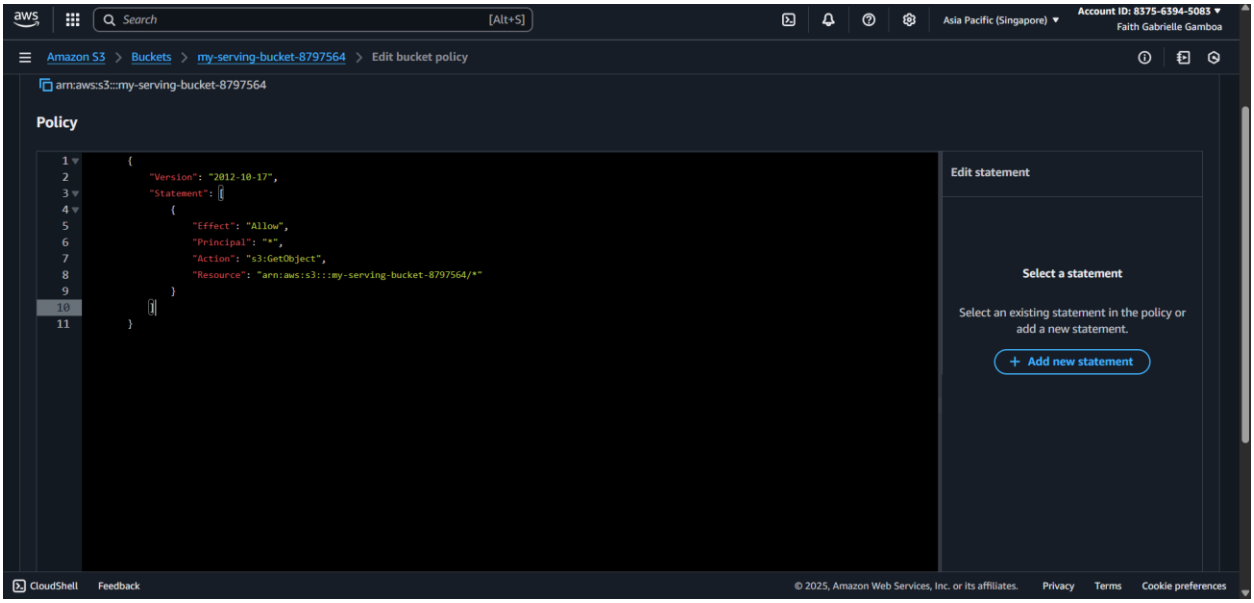
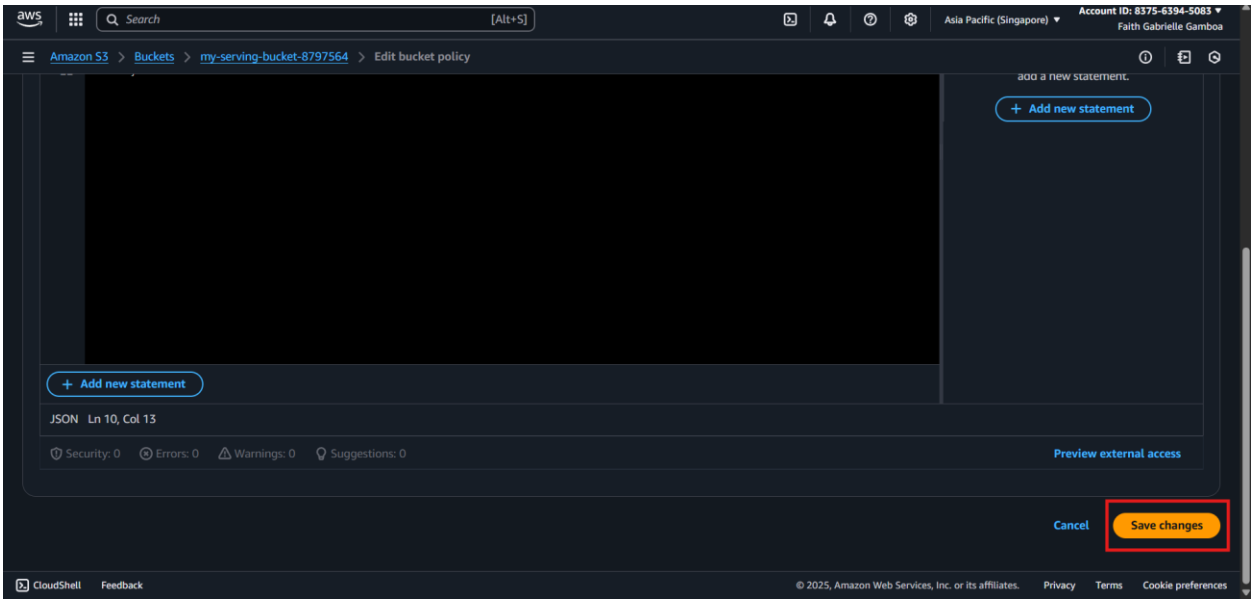
- Click on the bucket, navigate to the Permissions tab, scroll down to the Bucket Policy section, and click Edit.



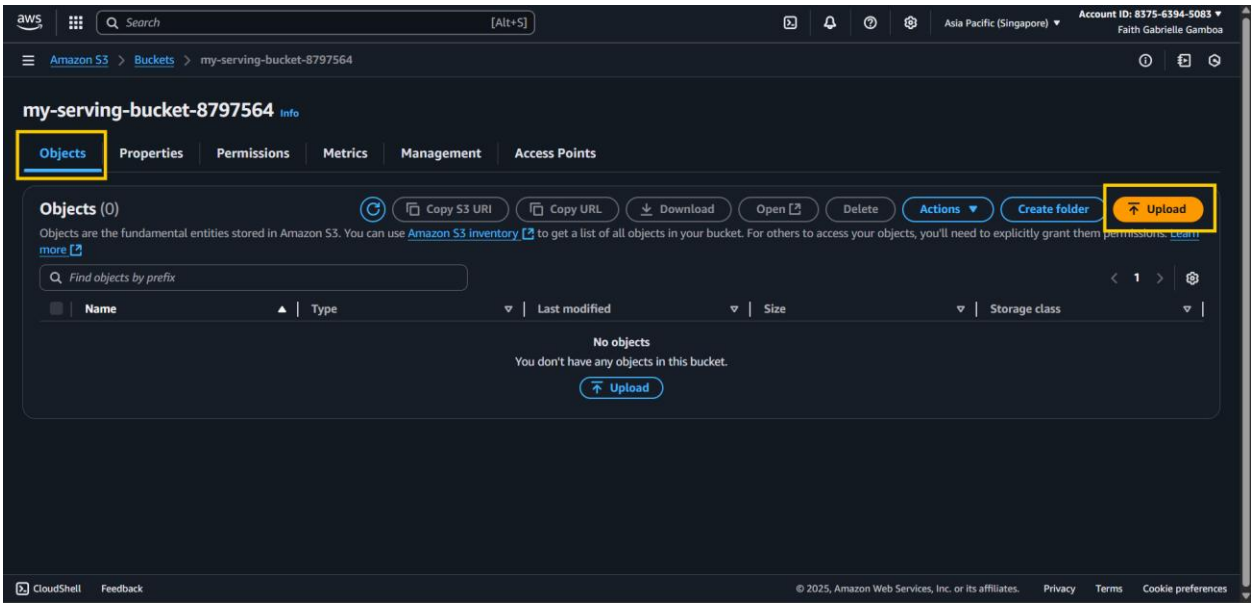


- Paste the bucket policy into the console. Make sure to update the resource name if your bucket has a different name. This makes the bucket public which allows everyone to read or download all files. Once done, scroll down and click Save Changes.

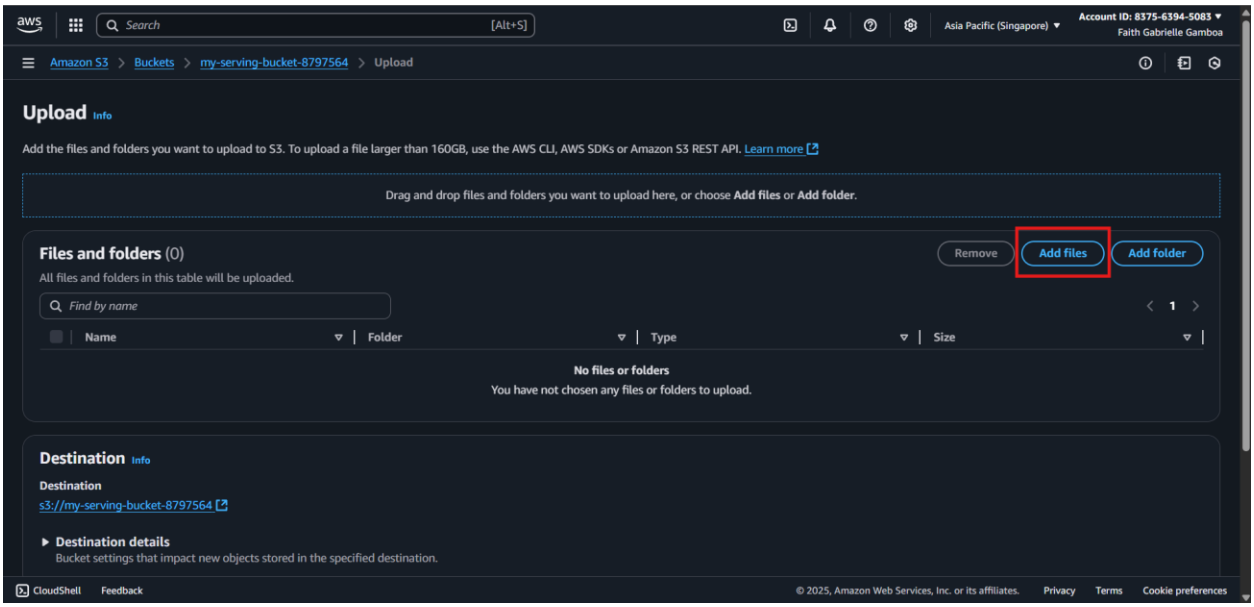


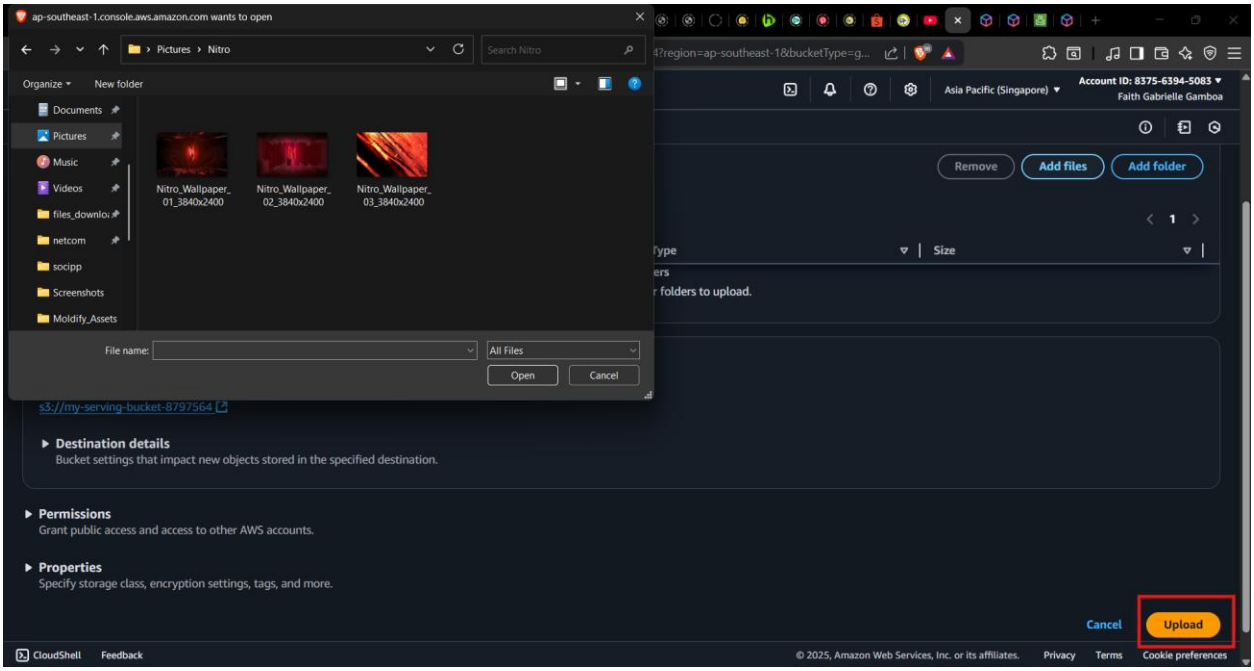


- If you want to manually upload all files, navigate to the Objects tab and click the Upload button.

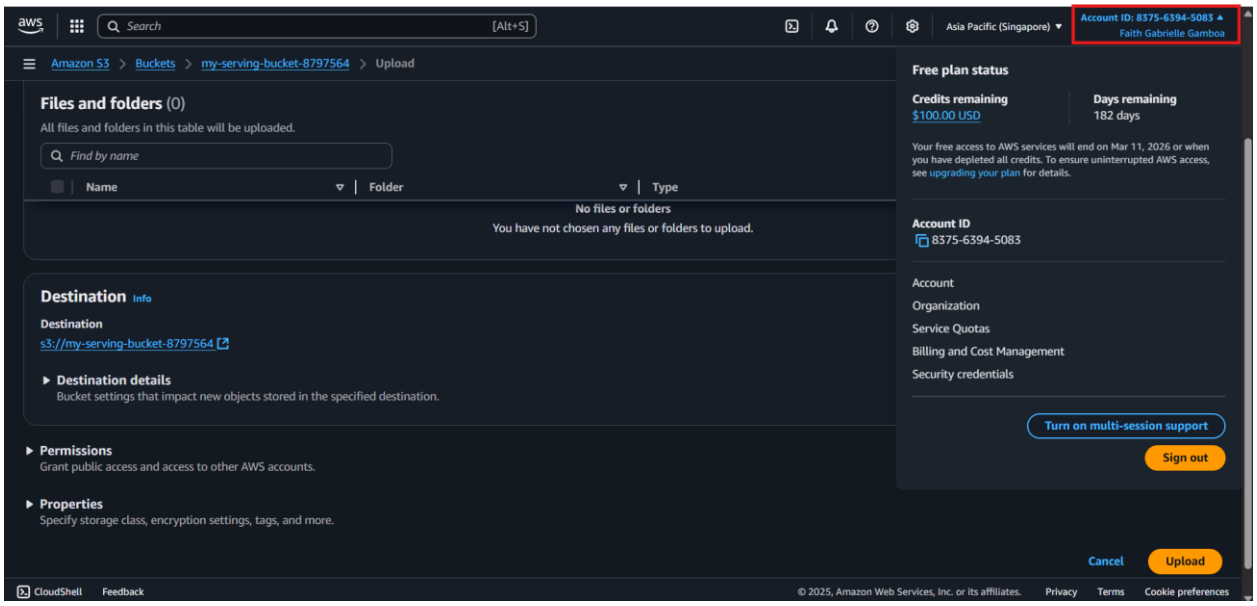


- Click Add files, and the file explorer will open to prompt you to upload your files. Click the Upload button from the bottom right to successfully upload your files.

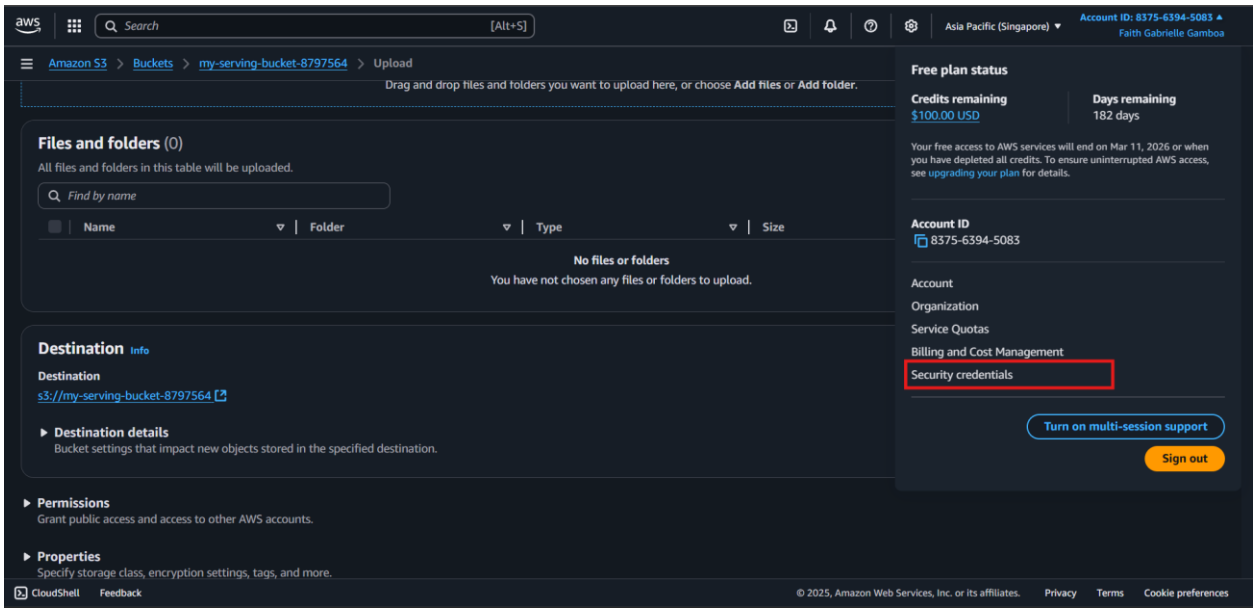


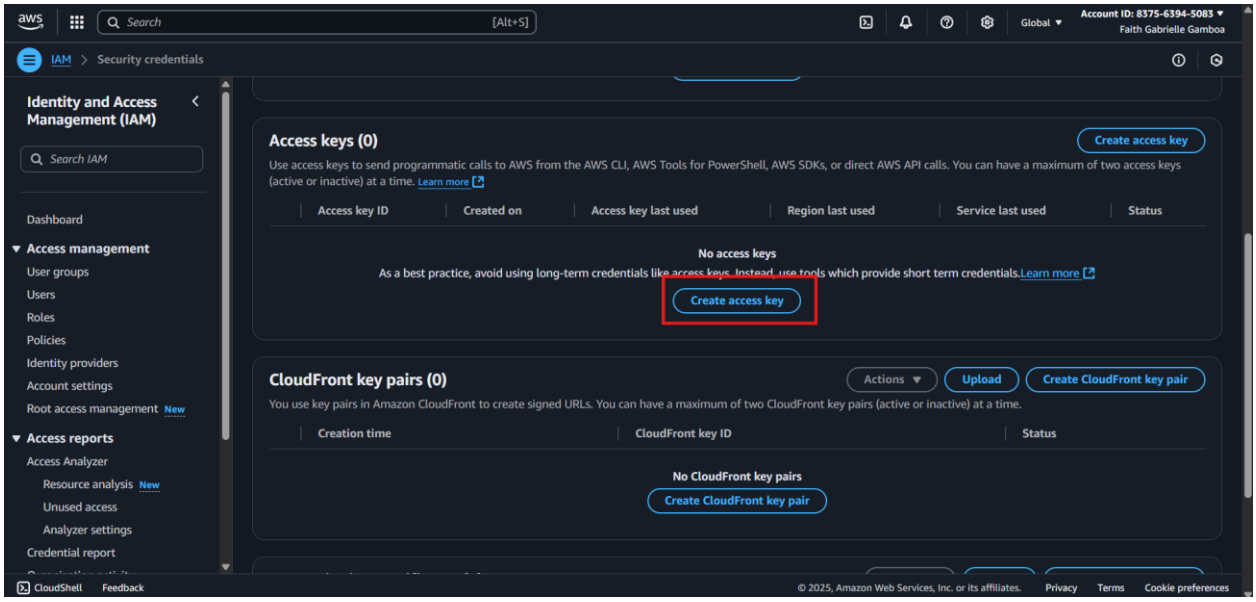


- If your website uploads files to the S3 bucket, you need to create an accessed key, in order for it to have permission to connect. Click on the Account Menu on the top right.

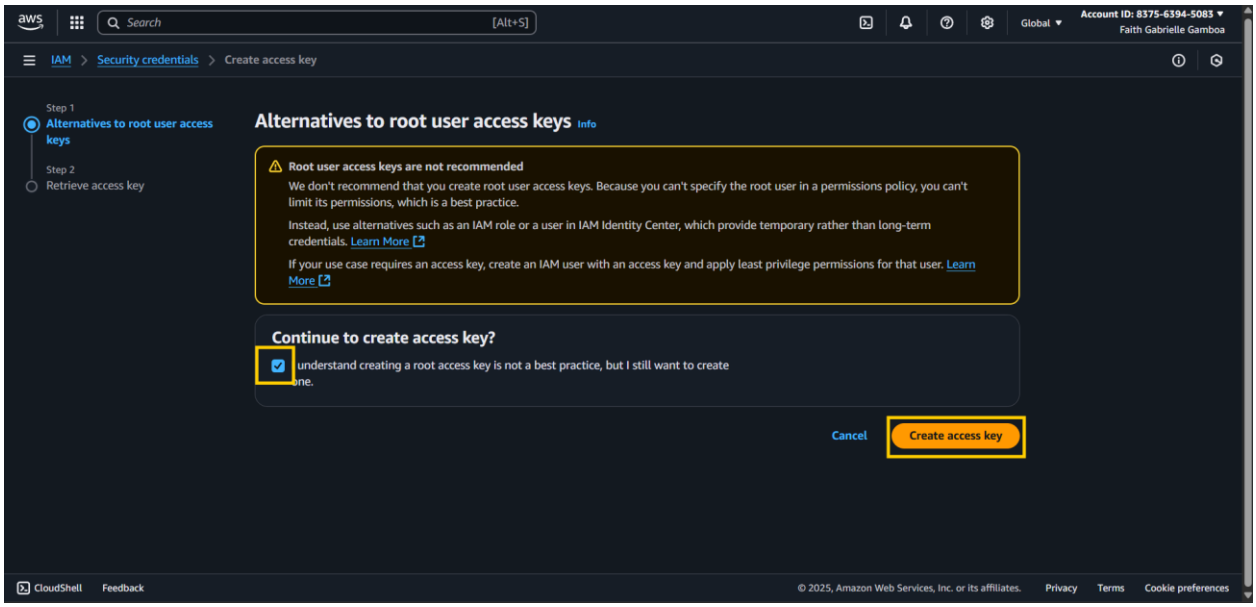


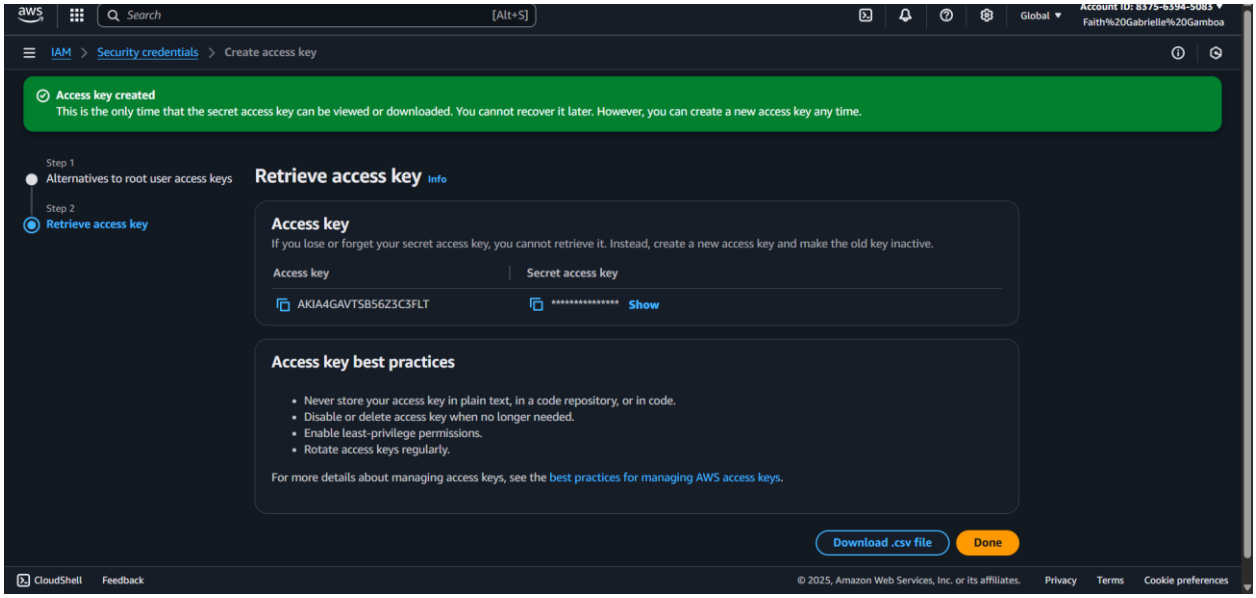
- Click security credentials. Scroll down to the Access Key section and click the Access Key button.



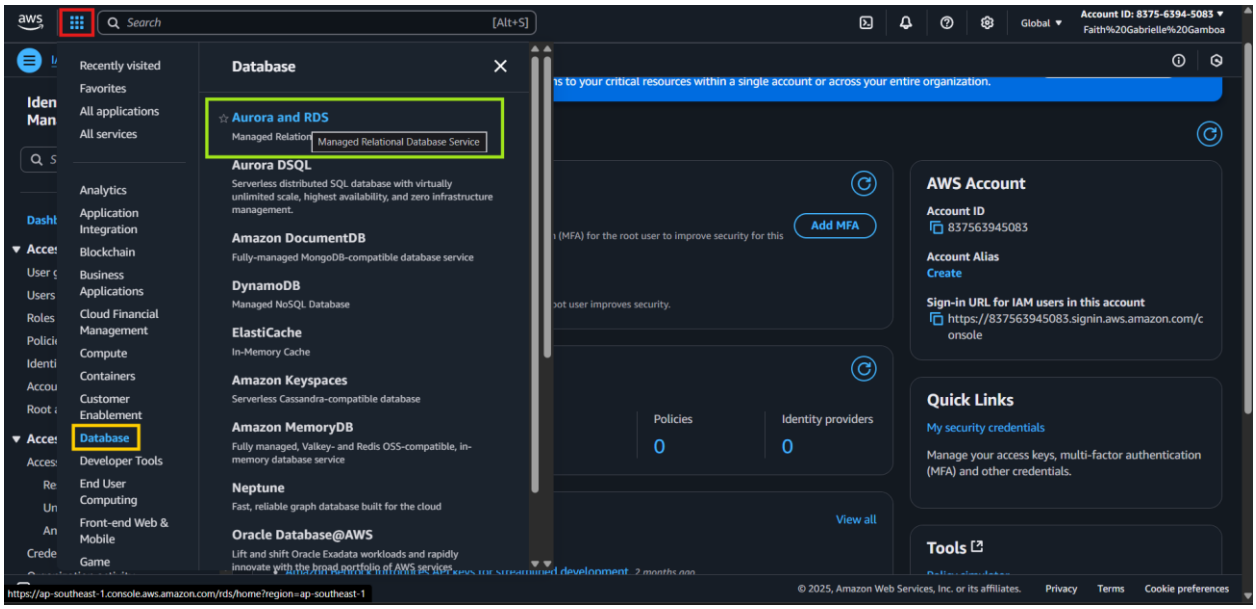


- You'll see a warning that using root user access keys is not a best practice. If you still want to proceed, check the box to acknowledge the warning, then click Create Access Key. Once created, AWS will display your access keys. Make sure to store them securely because you won't be able to view the secret key again later.

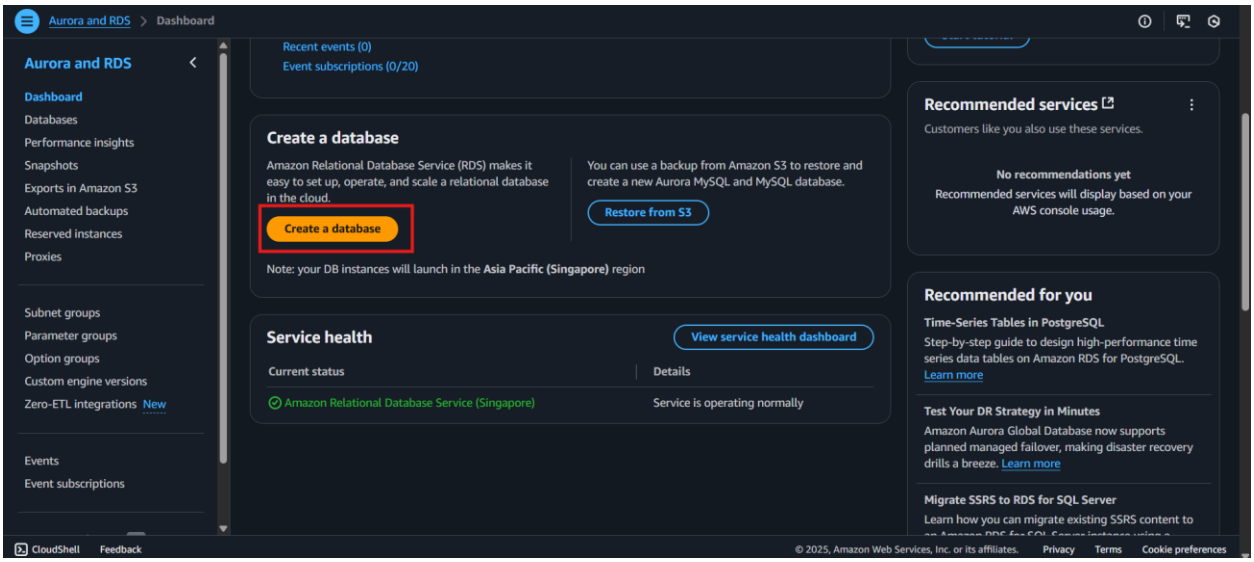


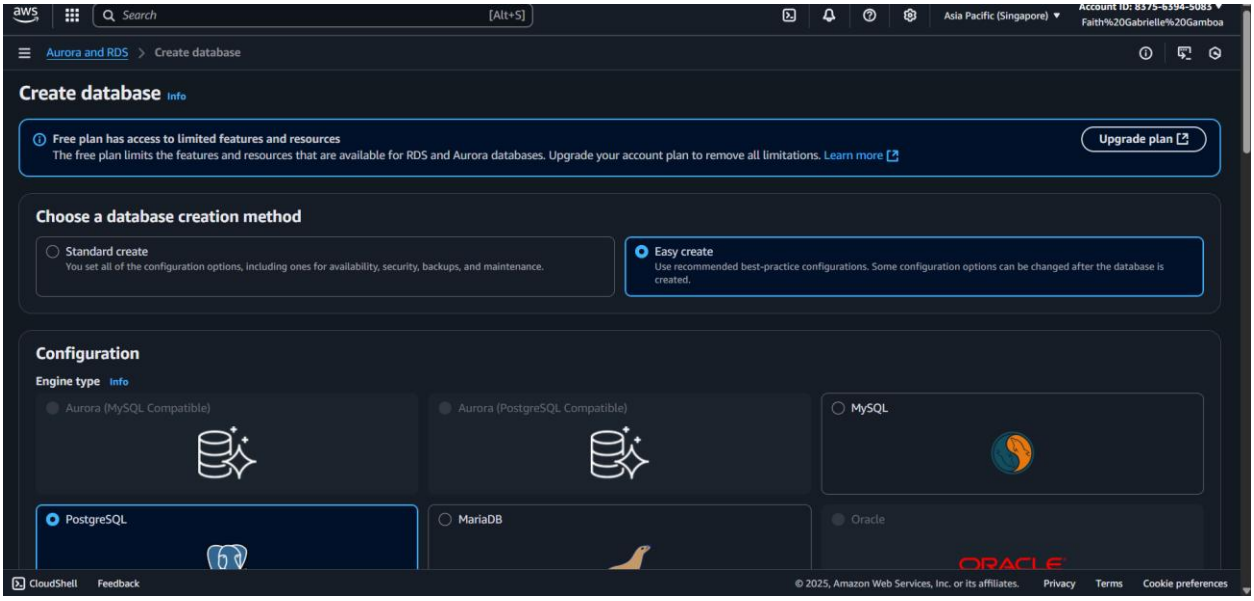


- **RDS - Creating a database instance**
    - Another way to find the services you are looking for in AWS is to use the Services Menu. Click the button on the top left and click Database, then click on Aurora and RDS.



    - Click the Create Database button and fill in all the necessary details such as Database Creation Method, Configuration, Database Size, Database Instance Name, Username and Password, then Set up the EC2 Connection. Once done, click the Create Database Button.




Search
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Asia Pacific (Singapore)
Account ID: 8375-6394-5083
Faith%20Gabrielle%20Gamboa
Aurora and RDS
Create database
Create database Info
Free plan has access to limited features and resources
The free plan limits the features and resources that are available for RDS and Aurora databases. Upgrade your account plan to remove all limitations. Learn more
Upgrade plan
Choose a database creation method
Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.
Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.
Configuration
Engine type Info
Aurora (MySQL Compatible)
Aurora (PostgreSQL Compatible)
MySQL
PostgreSQL
MariaDB
Oracle
CloudShell
Feedback
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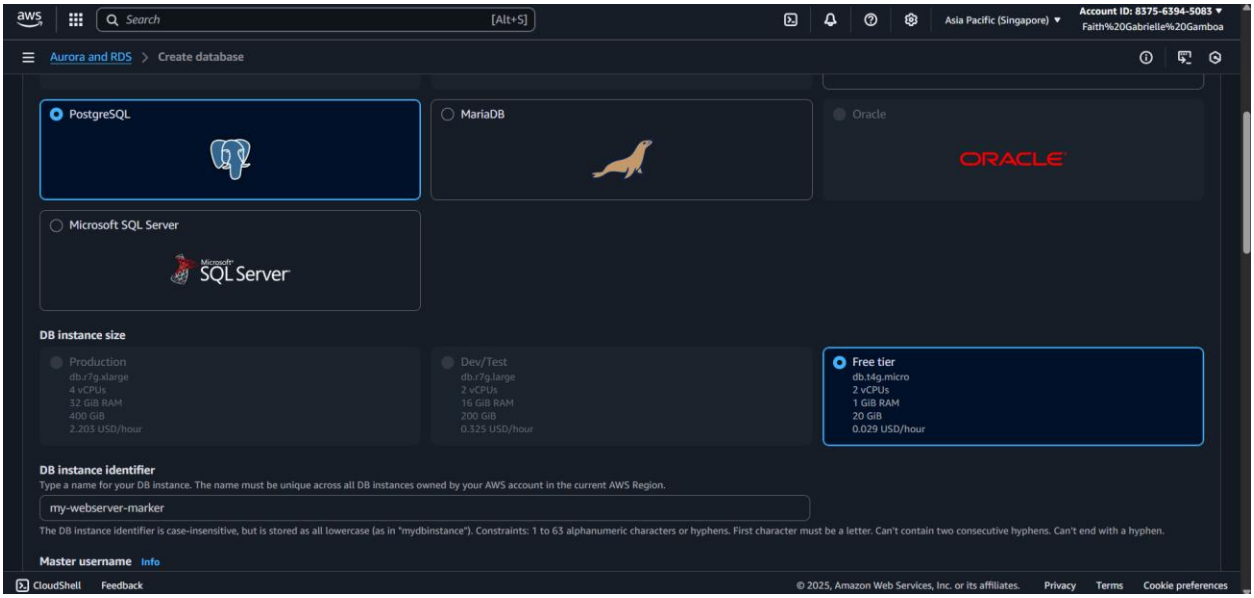
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Asia Pacific (Singapore)
Account ID: 8375-6394-5083
Faith%20Gabrielle%20Gamboa
Aurora and RDS
Create database
PostgreSQL
MariaDB
Oracle
Microsoft SQL Server
DB instance size
Production
db.r7g.xlarge
4 vCPUs
32 GiB RAM
400 GiB
2.203 USD/hour
Dev/Test
db.r7g.large
2 vCPUs
16 GiB RAM
200 GiB
0.325 USD/hour
Free tier
db.t4g.micro
2 vCPUs
1 GiB RAM
20 GiB
0.029 USD/hour
DB instance identifier
Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.
my-webserver-marker
The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 63 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.
Master username Info
CloudShell
Feedback
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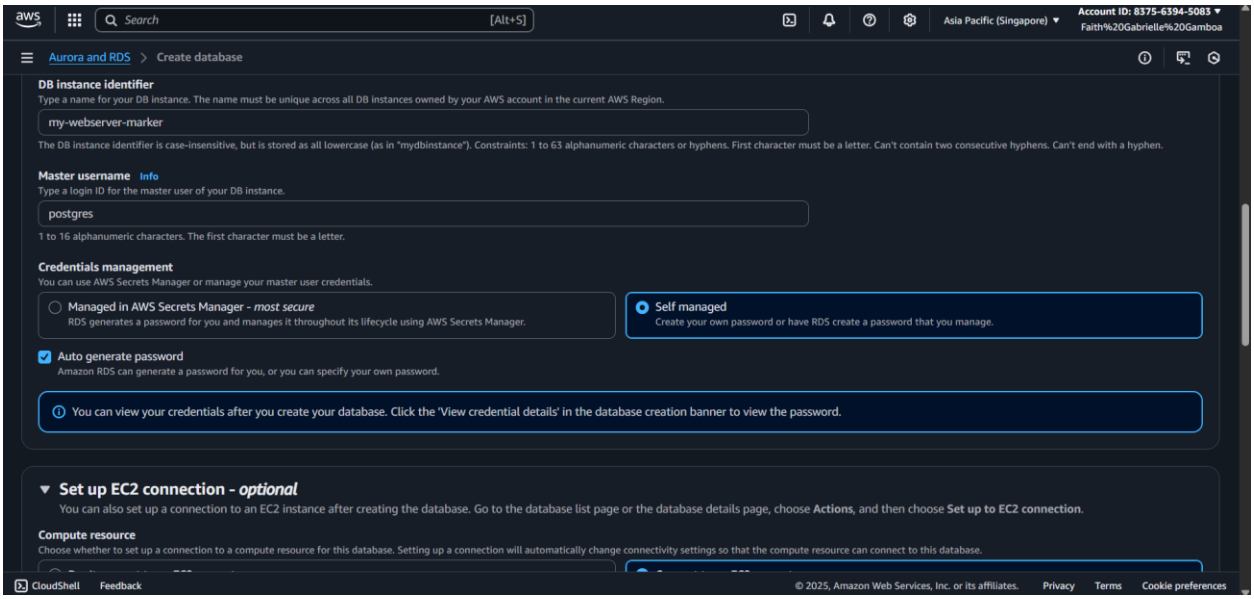
Privacy
Terms
Cookie preferences


Search [Alt+S]
Asia Pacific (Singapore)
Account ID: 8375-6394-5083
Faith%20Gabrielle%20Gamboa
Aurora and RDS > Create database
DB instance identifier
Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.
my-webserver-marker
The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 63 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.
Master username Info
Type a login ID for the master user of your DB instance.
postgres
1 to 16 alphanumeric characters. The first character must be a letter.
Credentials management
You can use AWS Secrets Manager or manage your master user credentials.
Managed in AWS Secrets Manager - most secure
RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.
Self managed
Create your own password or have RDS create a password that you manage.
Auto generate password
Amazon RDS can generate a password for you, or you can specify your own password.
You can view your credentials after you create your database. Click the 'View credential details' in the database creation banner to view the password.
Set up EC2 connection - optional
You can also set up a connection to an EC2 instance after creating the database. Go to the database list page or the database details page, choose Actions, and then choose Set up to EC2 connection.
Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.
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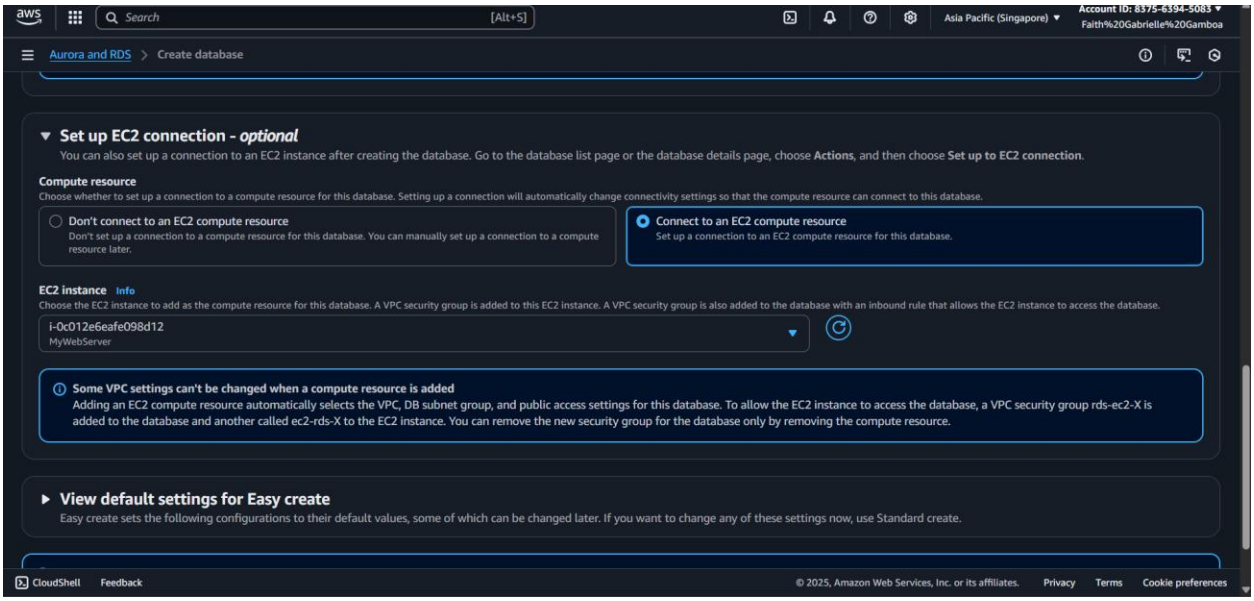
Search [Alt+S]
Asia Pacific (Singapore)
Account ID: 8375-6394-5083
Faith%20Gabrielle%20Gamboa
Aurora and RDS > Create database
Set up EC2 connection - optional
You can also set up a connection to an EC2 instance after creating the database. Go to the database list page or the database details page, choose Actions, and then choose Set up to EC2 connection.
Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.
Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.
Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.
EC2 instance Info
Choose the EC2 instance to add as the compute resource for this database. A VPC security group is added to this EC2 instance. A VPC security group is also added to the database with an inbound rule that allows the EC2 instance to access the database.
i-0c012e6eafe098d12
MyWebServer
Some VPC settings can't be changed when a compute resource is added
Adding an EC2 compute resource automatically selects the VPC, DB subnet group, and public access settings for this database. To allow the EC2 instance to access the database, a VPC security group rds-ec2-X is added to the database and another called ec2-rds-X to the EC2 instance. You can remove the new security group for the database only by removing the compute resource.
View default settings for Easy create
Easy create sets the following configurations to their default values, some of which can be changed later. If you want to change any of these settings now, use Standard create.
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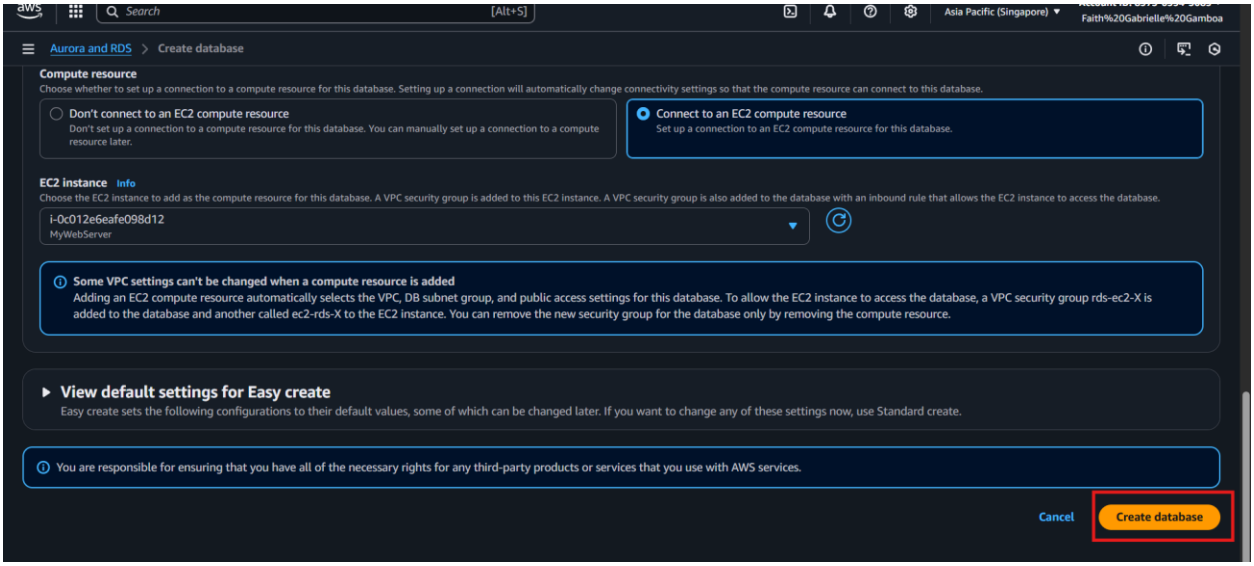
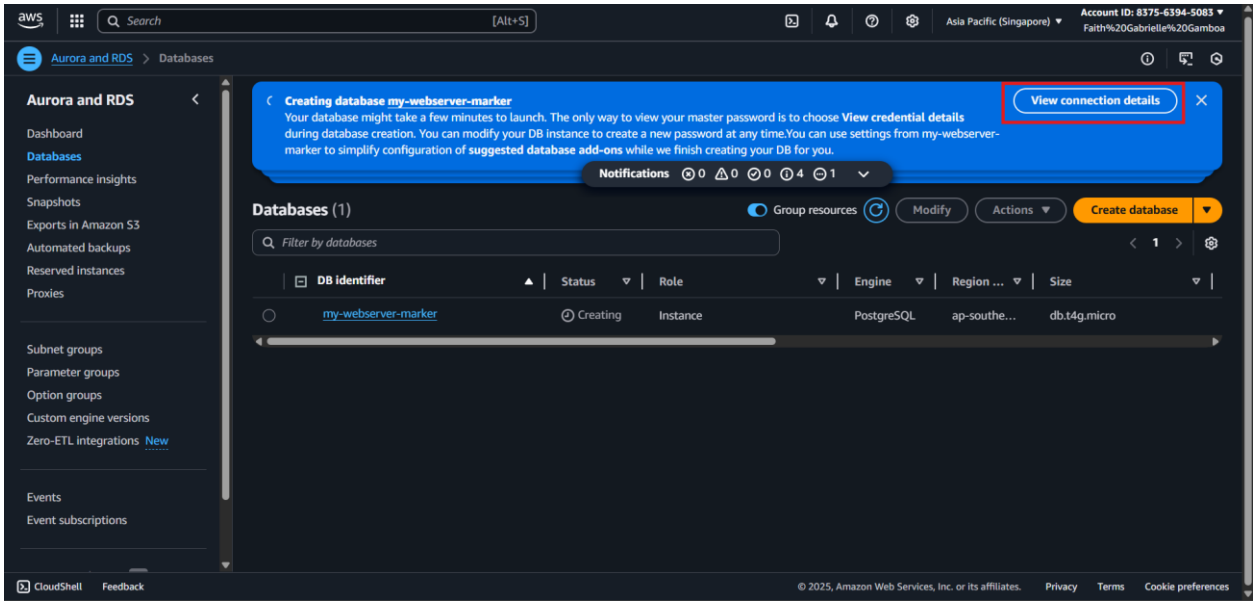
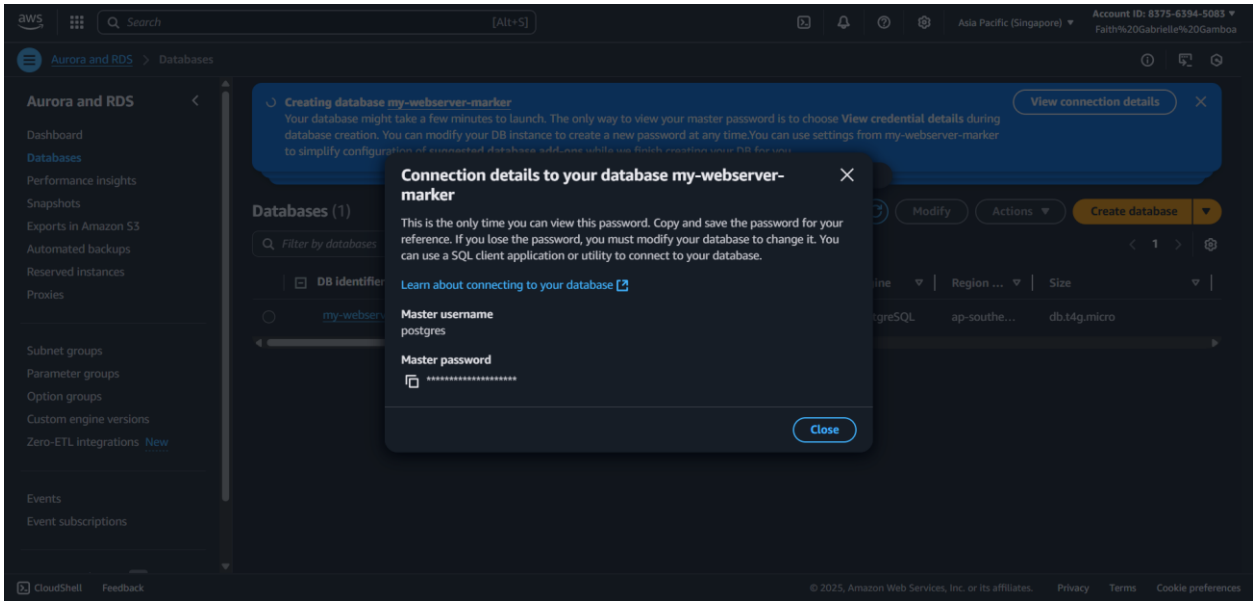
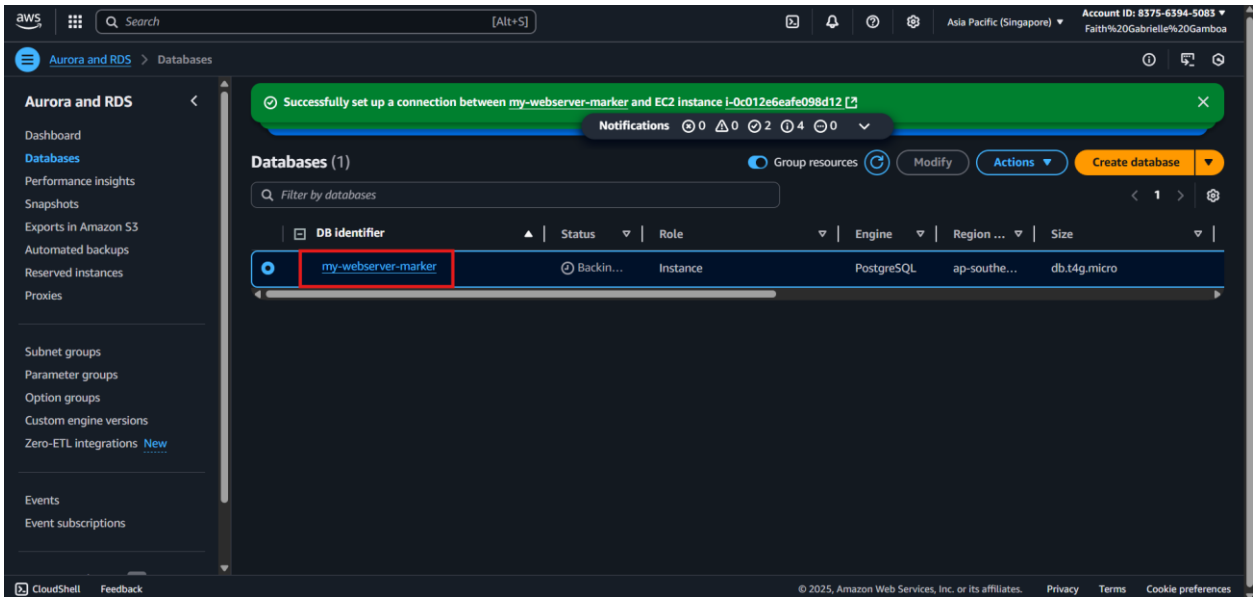


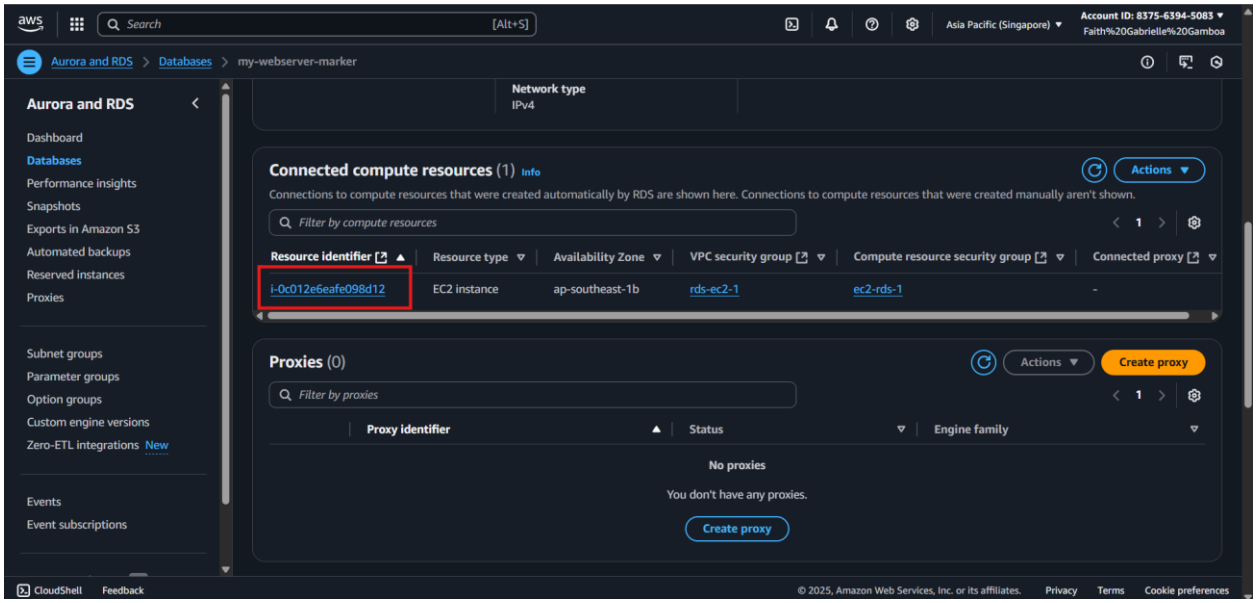
- To view your credentials, click the View Connection Details button which will show the username, and password generated by AWS for you. Make sure to save it in a secure location as it will be used for configuration later.





- **Connecting to an EC2 instance and running commands**
    - Click the database name, then scroll down to find the EC2 instance name to go directly there. Once there, click on the instance again, and click the Connect button.

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Account ID: 8375-6394-5083
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Aurora and RDS > Databases > my-webserver-marker
Aurora and RDS
Dashboard
Databases
Performance insights
Snapshots
Exports in Amazon S3
Automated backups
Reserved instances
Proxies
Subnet groups
Parameter groups
Option groups
Custom engine versions
Zero-ETL integrations New
Events
Event subscriptions
Network type
IPv4
Connected compute resources (1) Info
Actions
Connections to compute resources that were created automatically by RDS are shown here. Connections to compute resources that were created manually aren't shown.
Filter by compute resources
Resource identifier
Resource type
Availability Zone
VPC security group
Compute resource security group
Connected proxy
i-0c012e6eafe098d12
EC2 instance
ap-southeast-1b
rds-ec2-1
ec2-rds-1
-
Proxies (0)
Actions
Create proxy
Filter by proxies
Proxy identifier
Status
Engine family
No proxies
You don't have any proxies.
Create proxy
CloudShell
Feedback
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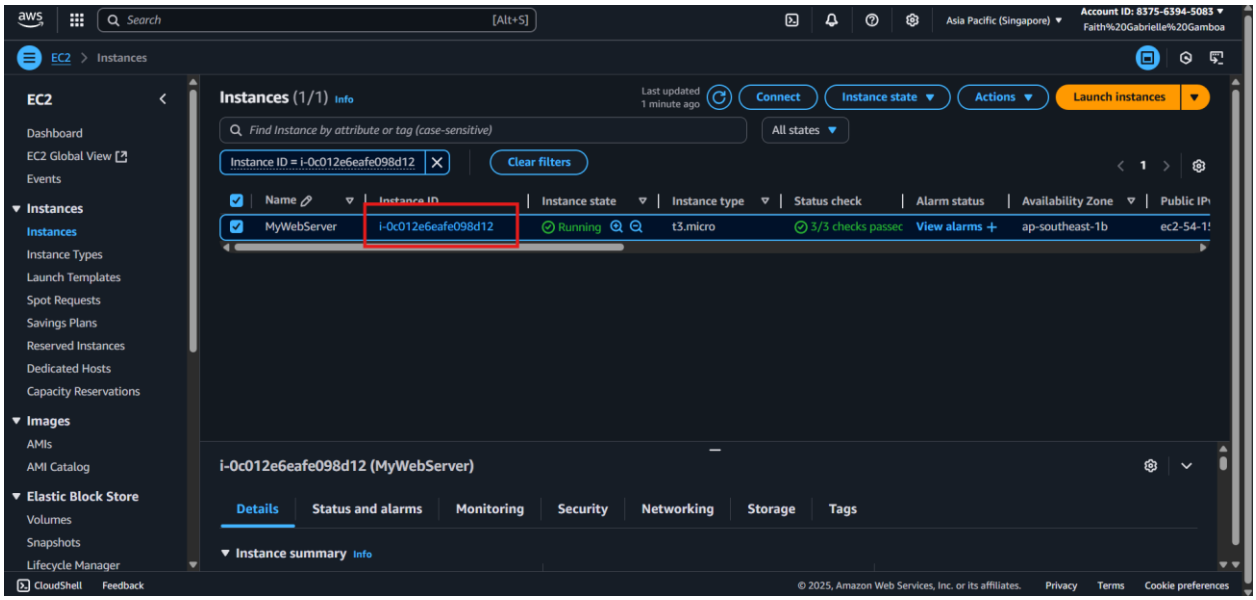
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Account ID: 8375-6394-5083
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EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Instances (1/1) Info
Last updated
1 minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Instance ID = i-0c012e6eafe098d12
Clear filters
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IP
MyWebServer
i-0c012e6eafe098d12
Running
t3.micro
3/3 checks passed
View alarms
ap-southeast-1b
ec2-54-1
i-0c012e6eafe098d12 (MyWebServer)
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
Instance summary Info
CloudShell
Feedback
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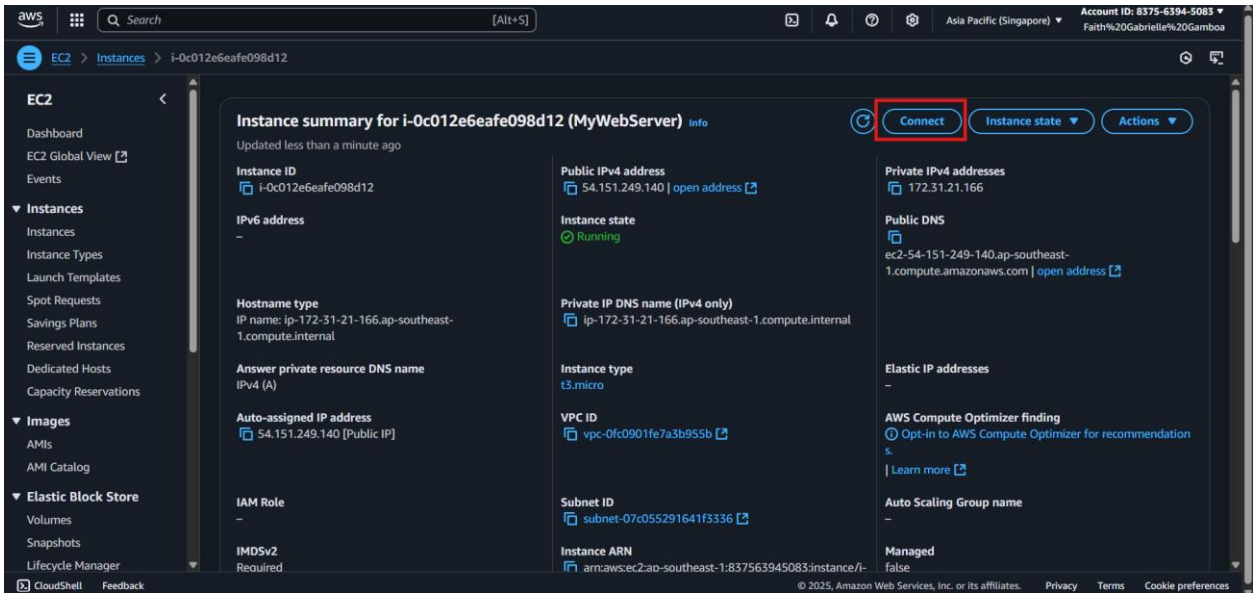
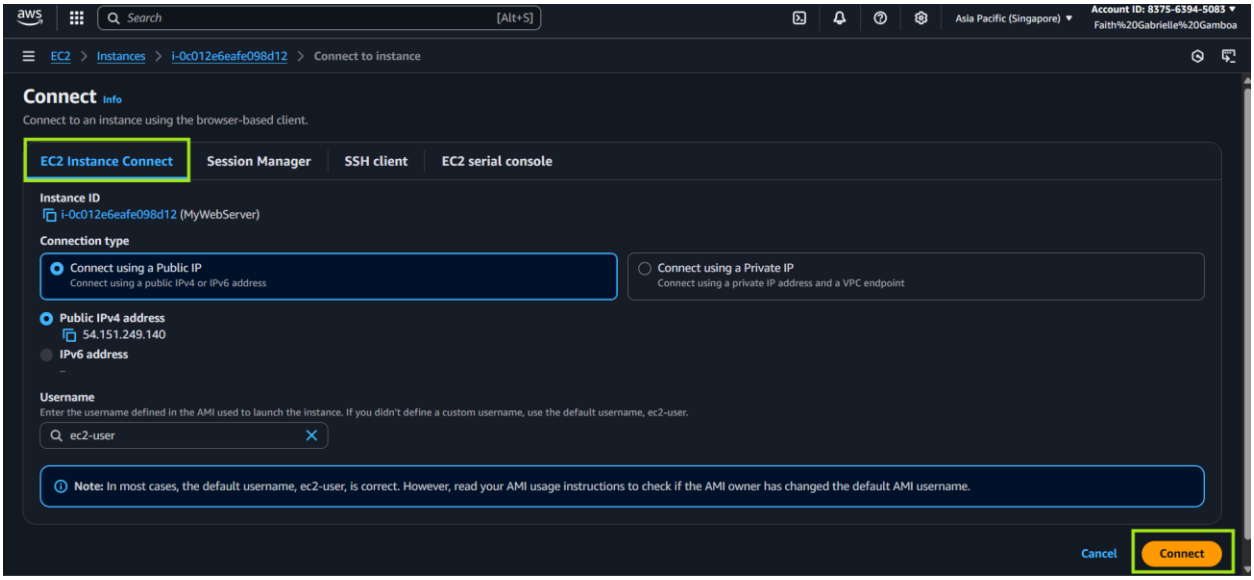
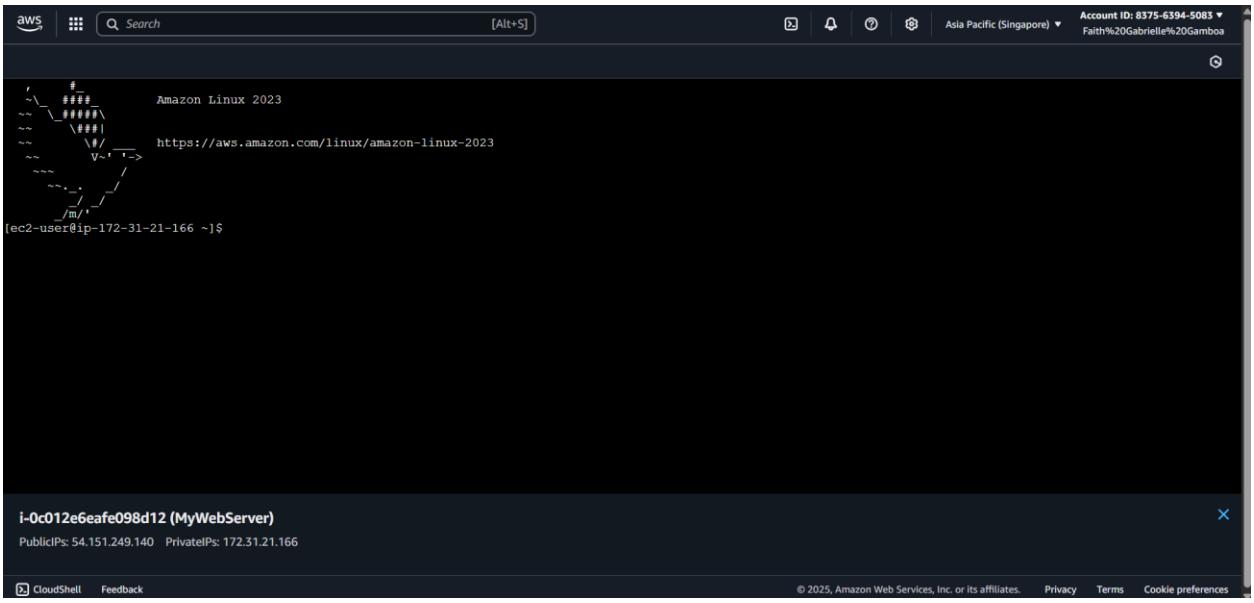


- There are multiple ways to connect an instance, the easiest way to connect is to pick the EC2 Instance Connect. Once picked, click the Connect button.



- Next, run the commands in the console after you click the Connect button.
  - Install Git using the dnf package manager:
    - sudo dnf install git -y
  - Clone the website source code from the GitHub repository:
    - git clone <repository-url>
  - Navigate to the project folder:
    - cd <project-folder-name>
  - Install Node.js and npm using dnf:
    - sudo dnf install nodejs -y

- Install project dependencies with npm:
  - npm install
- Start the Node.js web application with npm start.
  - npm start
- To keep the web server running after closing SSH session:
  - Start the process as a background job by appending &:
    - npm start &
  - Then, detach it from your terminal using:
    - disown



- **Tips for cost savings on AWS**
  - Prices can vary depending on the region you choose. Regions in the US and Europe are usually the cheapest. Just try to avoid US West (N. California) since it's often more expensive.
  - If you're going to use something like EC2 regularly, you can prepay to get a discount. If you're flexible with your usage, you can also use Spot Instances, which let you bid on extra AWS capacity at lower prices.
  - It's a good idea to set a spending limit or billing alert in your AWS account. This helps you stay within the Free Tier and avoid unexpected charges.
- **Continuing your AWS journey with AI, Machine Learning, and AWS Certifications**
  - AWS offers a wide range of services like AI, machine learning, fraud detection, and analytics. Plus, getting AWS certifications is a great way to boost your career.