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Cloud Computing

Deploying E-Commerce Website in AWS

Cloud Computing - MSIS402.O11.CTTT

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Contents

I.	INTRODUCTION	4
A.	Elastic Compute Cloud (EC2).....	4
B.	Virtual Private Cloud (VPC)	4
C.	CloudWatch.....	5
D.	Simple Storage Service (S3)	5
II.	METHODOLOGY	5
A.	Planning and Requirements Analysis.....	6
1.	Requirement Gathering:	6
2.	Architectural Planning:.....	6
B.	Setting Up AWS Environment.....	6
1.	AWS Account Setup:	6
2.	VPC Configuration:.....	6
3.	S3 Bucket Initialization:.....	6
C.	EC2 Instance Deployment.....	6
1.	Instance Selection and Setup:.....	6
2.	Application and Data Layer Setup:	6
D.	Security Configuration	6
1.	Security Groups and Network ACLs:	6
2.	Data Encryption and IAM Policies:	7
E.	Monitoring and Management	7
1.	CloudWatch Setup:.....	7
2.	Log Management:.....	7
F.	Testing and Optimization	7
1.	Load Testing:.....	7
2.	Performance Tuning:	7
G.	Deployment and Scaling	7
1.	Auto-Scaling Configuration:	7
2.	Final Deployment:	7
H.	Continuous Monitoring and Updating	7
1.	Regular Monitoring:	7

2. Updates and Maintenance:	7
III. STEP BY STEP IN PROCESS OF DEPLOYING WEBSITE IN AWS ...	8
A. Overview register and setup	8
1. Register an account	8
B. Step up an EC2 Instance.....	14
1. Launch an Instance	14
2. Select an Amazon Machine Image (AMI)	15
3. Choose an Instance Type.....	16
4. Choose key Pair.....	17
5. Network Setting.....	17
6. EBS Setting	18
C. Deploy E-Commerce Website.....	19
1. Convert PEM to PPK	19
2. Open PuTTY	24
3. Install WebServer	28
4. Set Permission	33
D. Virtual Private Cloud (VPC)	34
1. Create a Virtual Private Cloud (VPC).....	34
E. CloudWatch	36
1. Create an IAM Role for CloudWatch	36
2. Attach the IAM Role to Your EC2 Instances.....	41
3. Create CloudWatch Alarms.....	44
F. S3 Bucket.....	52
1. Create S3 Bucket	52
G. IAM Role or Credentials for S3	56
1. Create a IAM role for S3	56
2. Attach the IAM Role to Your EC2 Instance	60
3. Set up CLI.....	62
4. Confire AWS CLI	63
5. Retrieve the Access Key.....	68
H. Transfer data from EC2 to S3 in the same region.....	69

1.	Connect to Your EC2 Instance.....	69
2.	Update the Instance (Optional but Recommended)	69
3.	Install AWS CLI.....	70
IV.	DEMO WEBSITE IN AWS	78
A.	Home screen	78
B.	Categories screen.....	79
C.	Detail categories screen.....	79
D.	Hygiene screen	80
E.	Contact Us	80
V.	REFERENCE	80

I. INTRODUCTION

The deployment of e-commerce solutions in a cloud computing environment, utilizing Amazon Web Services (AWS) components such as EC2, VPC, CloudWatch, and S3, represents a comprehensive approach to leveraging cloud technology for enhanced scalability, reliability, and performance. This integration is particularly pertinent in the context of e-commerce, where the ability to efficiently manage web traffic, data storage, and application performance is crucial.

A. Elastic Compute Cloud (EC2)

EC2 forms the backbone of the computing environment in AWS. It provides resizable computing capacity in the cloud, allowing for the rapid scaling of application servers to meet the fluctuating demands of e-commerce traffic. EC2's flexibility in terms of configurations, operating systems, and network capacities makes it an ideal choice for hosting e-commerce applications. It enables businesses to operate with the increased compute capacity when needed, thus ensuring smooth user experiences during peak traffic times.

B. Virtual Private Cloud (VPC)

AWS's VPC offers a logically isolated section of the AWS cloud where resources can be launched in a defined virtual network. This is critical for e-commerce platforms, as it allows for the creation of a secure and

scalable environment. Within a VPC, network gateways, subnets, and security settings can be customized, ensuring that the e-commerce infrastructure is both secure and optimized for performance.

C. CloudWatch

Monitoring is a vital aspect of managing any e-commerce platform. AWS CloudWatch provides real-time monitoring and logging services. It allows for the tracking of application and infrastructure performance, enabling timely detection and rectification of issues. For e-commerce, where uptime and performance directly impact revenue and customer experience, CloudWatch's capabilities are essential for maintaining operational health.

D. Simple Storage Service (S3)

S3 offers highly scalable object storage, suitable for storing and retrieving any amount of data from anywhere on the web. It is particularly useful in an e-commerce context for storing product images, catalogues, and backups. Its durability, availability, and secure nature make it an excellent choice for e-commerce businesses that require reliable and scalable storage solutions.

The integration of these AWS services facilitates a robust and flexible e-commerce platform. It allows for the handling of high traffic volumes, ensures data security, and provides scalability, which are all critical factors for the success of an e-commerce operation. This cloud-based approach not only optimizes operational efficiency but also reduces the costs associated with physical hardware and infrastructure maintenance. The use of these AWS components signifies a strategic move towards a more resilient, scalable, and performance-oriented e-commerce ecosystem.

II. METHODOLOGY

The methodology for deploying an e-commerce cloud computing architecture using Amazon Web Services (AWS) components such as EC2, VPC, CloudWatch, and S3 is a complex and multi-step process. This methodology can be broken down into several key stages:

A. Planning and Requirements Analysis

1. Requirement Gathering:

- Identifying business needs and technical requirements for the e-commerce platform.
- Establishing performance, scalability, security, and compliance objectives.

2. Architectural Planning:

- Designing an architecture that leverages EC2 for computing, VPC for networking, CloudWatch for monitoring, and S3 for storage.
- Ensuring scalability and fault tolerance in the design.

B. Setting Up AWS Environment

1. AWS Account Setup:

- Creating an AWS account and setting up IAM (Identity and Access Management) for secure access control.

2. VPC Configuration:

- Establishing a Virtual Private Cloud (VPC) for network isolation.
- Configuring subnets, internet gateways, route tables, and network access control lists.

3. S3 Bucket Initialization:

- Creating and configuring S3 buckets for storing static content (like images, stylesheets, and JavaScript files).

C. EC2 Instance Deployment

1. Instance Selection and Setup:

- Choosing appropriate EC2 instance types based on the application's resource needs.
- Configuring and launching EC2 instances within the VPC.

2. Application and Data Layer Setup:

- Installing necessary software, such as web servers, databases, and the e-commerce application itself.
- Setting up replication and load balancing as needed.

D. Security Configuration

1. Security Groups and Network ACLs:

- Defining security groups for EC2 instances to control inbound and outbound traffic.
- Implementing network ACLs for additional security at the subnet level.

2. Data Encryption and IAM Policies:

Implementing data encryption at rest and in transit.

- Setting up IAM policies and roles for secure access to AWS services.

E. Monitoring and Management

1. CloudWatch Setup:

- Implementing Amazon CloudWatch for monitoring EC2 instances, S3 buckets, and other AWS resources.
- Setting up alarms and notifications for performance metrics and anomaly detection.

2. Log Management:

- Configuring logging for VPC, EC2, and S3. Centralizing and analyzing logs for security and performance insights.

F. Testing and Optimization

1. Load Testing:

- Conducting load testing to evaluate the performance of the e-commerce platform under high traffic conditions.

2. Performance Tuning:

- Analyzing performance data and making adjustments to EC2 instances, database configurations, and scaling policies.

G. Deployment and Scaling

1. Auto-Scaling Configuration:

- Setting up auto-scaling for EC2 instances to handle varying loads efficiently.

2. Final Deployment:

- Deploying the e-commerce application in a production environment.
- Ensuring all components are functioning as intended.

H. Continuous Monitoring and Updating

1. Regular Monitoring:

- Continuously monitoring the system's performance, security, and availability.
- Using CloudWatch metrics and logs for ongoing insights.

2. Updates and Maintenance:

- Regularly updating software and applications.
- Performing routine security audits and compliance checks.

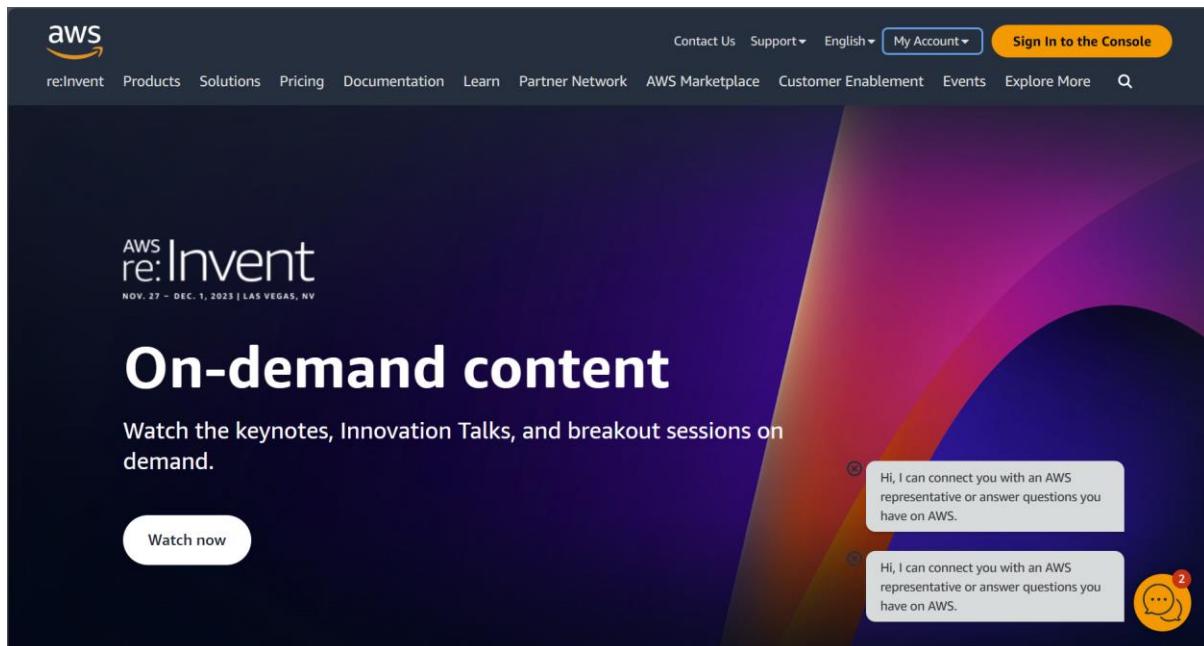
This methodology provides a comprehensive approach to deploying a robust and scalable e-commerce platform using AWS cloud services. It emphasizes security, scalability, and performance monitoring, which are crucial for the successful operation of an online e-commerce platform.

III. STEP BY STEP IN PROCESS OF DEPLOYING WEBSITE IN AWS

A. Overview register and setup

1. Register an account

Visit the AWS Homepage: Start by navigating to the AWS homepage at <https://aws.amazon.com>.



Create a New AWS Account: On the AWS homepage, you will find an option to create a new account. This is typically labeled as “Create an AWS Account” or a similar phrase.



Provide Basic Information: You will be prompted to enter basic information such as your email address, password, and AWS account name. The account name is a unique identifier for your AWS account.

Contact Details: After setting up the initial login credentials, you will be required to provide contact details. This includes your full name, phone number, and address. It's important to ensure that this information is accurate and up-to-date.



Sign up for AWS

Explore Free Tier products with a new AWS account.

To learn more, visit aws.amazon.com/free.



Root user email address

Used for account recovery and some administrative functions

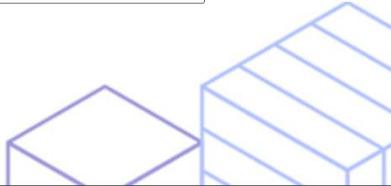
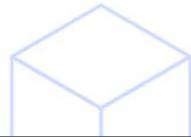
AWS account name

Choose a name for your account. You can change this name in your account settings after you sign up.

Verify email address

OR

Sign in to an existing AWS account



Identity Verification: AWS requires identity verification to enhance security. This process might involve receiving a phone call and entering a PIN provided by AWS.



Sign up for AWS

Explore Free Tier products with a new AWS account.

To learn more, visit aws.amazon.com/free.



Confirm you are you

Making sure you are secure -- it's what we do.

We sent an email with a verification code to ungdung254@gmail.com. (not you?)

Enter it below to confirm your email.

Verification code

Verify

Resend code

Didn't get the code?

- Codes can take up to 5 minutes to arrive.
- Check your spam folder.



Payment Information: Enter your credit card details. AWS uses this for billing purposes. Most AWS services are not free, and charges are based on your usage.

Secure verification

 We will not charge you for usage below AWS Free Tier limits. We may temporarily hold up to \$1 USD (or an equivalent amount in local currency) as a pending transaction for 3-5 days to verify your identity.



Sign up for AWS

Billing Information

Credit or Debit card number



AWS accepts all major credit and debit cards. To learn more about payment options, review our [FAQ](#)

Expiration date

Month Year

Cardholder's name

Billing address

Use my contact address

Use a new address

Verify and Continue (step 3 of 5)

You might be redirected to your bank's website to authorize the verification charge.

Select a Support Plan: AWS offers various support plans, ranging from a basic plan, which is free, to more comprehensive plans that come with a fee. Choose a plan that best suits your needs and budget.

Sign up for AWS

Free Tier offers

All AWS accounts can explore 3 different types of free offers, depending on the product used.

-  **Always free**
Never expires
-  **12 months free**
Start from initial sign-up date
-  **Trials**
Start from service activation date

Contact Information

How do you plan to use AWS?

Business - for your work, school, or organization

Personal - for your own projects

Who should we contact about this account?

Full Name

Phone Number
 +1

Country or Region

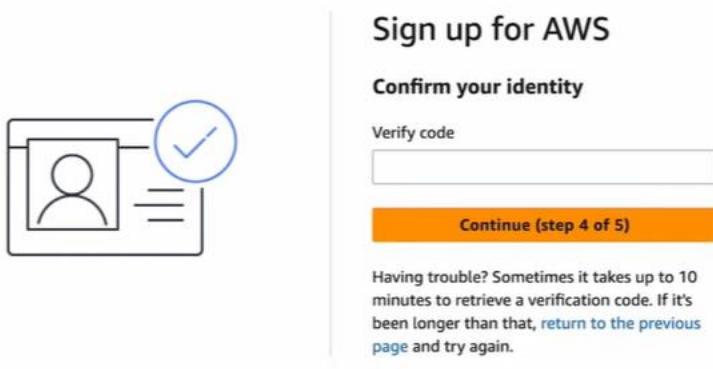
Address

Apartment, suite, unit, building, floor, etc.

City

State, Province, or Region

Confirmation and Sign-In: Once all the details are provided and verified, your AWS account will be created. You will receive a confirmation email. You can then sign in to the AWS Management Console to start using AWS services.



Complete the AWS Sign-Up: The final step involves completing the AWS sign-up process. This might include answering questions about your intended use of AWS, which helps AWS provide tailored suggestions and support.

Sign in

Root user
Account owner that performs tasks requiring unrestricted access. [Learn more](#)

IAM user
User within an account that performs daily tasks.
[Learn more](#)

Root user email address

Next

By continuing, you agree to the [AWS Customer Agreement](#) or other agreement for AWS services, and the [Privacy Notice](#). This site uses essential cookies. See our [Cookie Notice](#) for more information.

New to AWS?

[Create a new AWS account](#)



Security Best Practices: As a new AWS user, it's crucial to follow security best practices. This includes setting up Multi-Factor Authentication (MFA), creating IAM (Identity and Access Management) users, and assigning appropriate permissions.

B. Step up an EC2 Instance

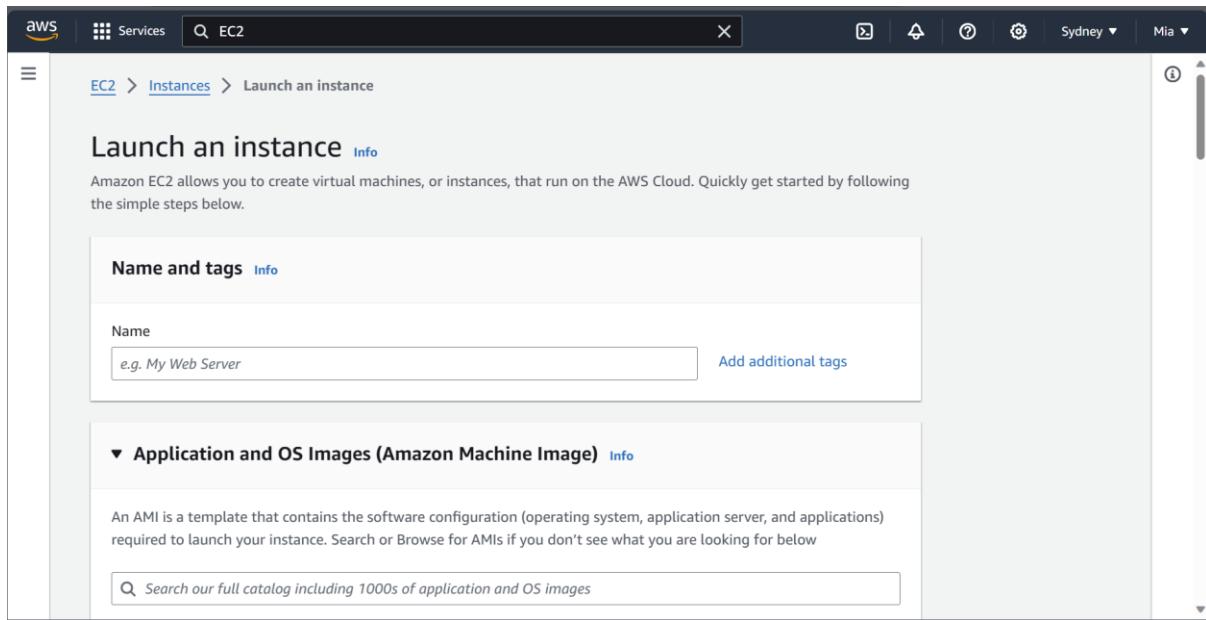
1. Launch an Instance

Go to the EC2 Dashboard in the AWS Management Console.

The screenshot shows the AWS Management Console search interface. The search bar at the top contains the query 'EC2'. Below the search bar, there is a sidebar with navigation links for EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (selected), AMIs, and AMI Catalog. The main content area displays search results for 'EC2' under 'Services (13)' and 'Features (53)'. Under 'Services', the first result is 'EC2' with a description 'Virtual Servers in the Cloud'. Other services listed include EC2 Image Builder, Recycle Bin, and Amazon Inspector. Under 'Features', there is a link to 'See all 53 results'.

Click on “Launch Instance” to start the process of creating a new EC2 instance.

The screenshot shows the EC2 Instances page. The sidebar on the left is identical to the one in the previous screenshot, with 'Instances' selected. The main area displays a table for 'Instances (1)'. The table has columns for Name, Instance ID, Instance state, Instance type, Status check, and Alarms. One instance is listed: 'WebAppAPI' with Instance ID 'i-047fc4d796dca4cc5', currently 'Stopped'. At the bottom of the page, there is a modal window titled 'Select an instance' with a single option 'WebAppAPI' and a close button 'X'.



2. Select an Amazon Machine Image (AMI)



Choose an AMI that serves as the template for my instance. This includes the operating system and any pre-installed software.

For a basic web server, common choices are Amazon Linux 2 or Ubuntu Server. Both are user-friendly and widely supported.

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

[Search our full catalog including 1000s of application and OS images](#)

Quick Start



[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI ami-0361bbf2b99f46c1d (64-bit (x86)) / ami-007ae991b28747ff8 (64-bit (Arm)) Virtualization: hvm ENA enabled: true Root device type: ebs	Free tier eligible	▼
---	--------------------	-------------------

3. Choose an Instance Type

Select the instance type based on CPU, memory, storage, and networking capacity that fits my website's needs.

Instance types (1/567+)								
<input type="text"/> Find resources by attribute or tag								
	Instance type	vCPUs	Architecture	Memory (GiB)	Storage (GB)	Storage type	Net	
<input type="radio"/>	t1.micro	1	i386, x86_64	0.612	-	-	Very Low	
<input type="radio"/>	t2.nano	1	i386, x86_64	0.5	-	-	Low	
<input checked="" type="radio"/>	t2.micro	1	i386, x86_64	1	-	-	Low	
<input type="radio"/>	t2.small	1	i386, x86_64	2	-	-	Low	
<input type="radio"/>	t2.medium	2	i386, x86_64	4	-	-	Low	
<input type="radio"/>	t2.large	2	x86_64	8	-	-	Low	
<input type="radio"/>	t2.xlarge	4	x86_64	16	-	-	Medium	
<input type="radio"/>	t2.2xlarge	8	x86_64	32	-	-	Medium	
<input type="radio"/>	t3.nano	2	x86_64	0.5	-	-	Up to 100 Gbps	

[Cancel](#)

[Select instance type](#)

For small to medium websites, instance types like t2.micro or t2.small are often sufficient (the t2.micro is eligible for the free tier, if applicable).

▼ Instance type [Info](#)

Instance type

t2.micro	Free tier eligible
Family: t2	1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing:	0.0146 USD per Hour
On-Demand Windows base pricing:	0.0192 USD per Hour
On-Demand SUSE base pricing:	0.0146 USD per Hour
On-Demand RHEL base pricing:	0.0746 USD per Hour

All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

4. Choose key Pair

If you don't have Key Pair before, please click to create new key pair

▼ 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*

Select [Create new key pair](#)

aws Services EC2

Instance type

t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0146 USD per Hour
On-Demand Windows base pricing: 0.0192 USD per Hour
On-Demand SUSE base pricing: 0.0146 USD per Hour
On-Demand RHEL base pricing: 0.0746 USD per Hour

Additional costs apply for AMIs with pre-installed software

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance before you launch the instance.

Key pair name - *required*

Select [Create new key pair](#)

▼ Network settings [Info](#)

Network Info

Create key pair

Key pair name
Key pairs allow you to connect to your instance securely.

Key pair type
 RSA RSA encrypted private and public key pair
 ED25519 ED25519 encrypted private and public key pair

Private key file format
 .pem For use with OpenSSH
 .ppk For use with PuTTY

⚠ When prompted, store the private key in a secure and accessible location on

Cancel [Create key pair](#)

5. Network Setting

▼ Network settings [Info](#)

[Edit](#)

Network [Info](#)
vpc-0ad35e8f259717228

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-2**' with the following rules:

<input checked="" type="checkbox"/> Allow SSH traffic from Helps you connect to your instance	Anywhere 0.0.0.0/0
<input checked="" type="checkbox"/> Allow HTTPS traffic from the internet To set up an endpoint, for example when creating a web server	
<input type="checkbox"/> Allow HTTP traffic from the internet To set up an endpoint, for example when creating a web server	

6. EBS Setting

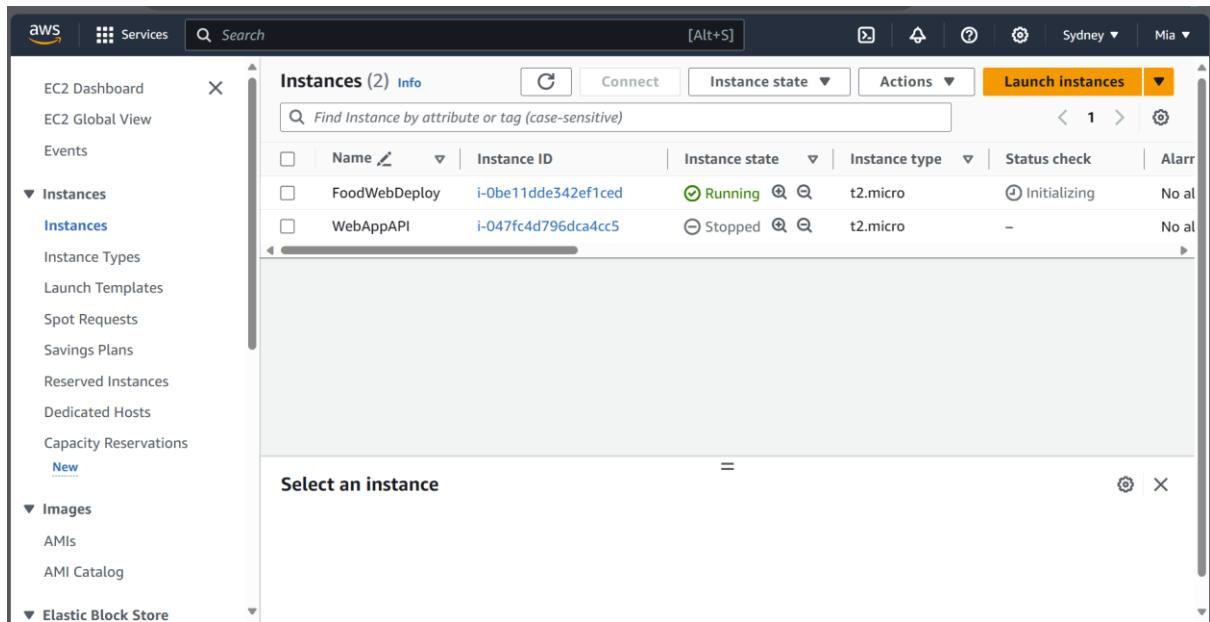
EBS Volumes [Hide details](#)

▼ Volume 1 (AMI Root)

Storage type Info EBS	Device name - <i>required</i> Info /dev/xvda	Snapshot Info snap-0155f8a6b8e7aca74
Size (GiB) Info 8	Volume type Info gp3	IOPS Info 3000
Delete on termination Info Yes	Encrypted Info Not encrypted	KMS key Info Select
KMS keys are only applicable when encryption is set on this volume.		
Throughput Info 125		

Info Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage [X](#)

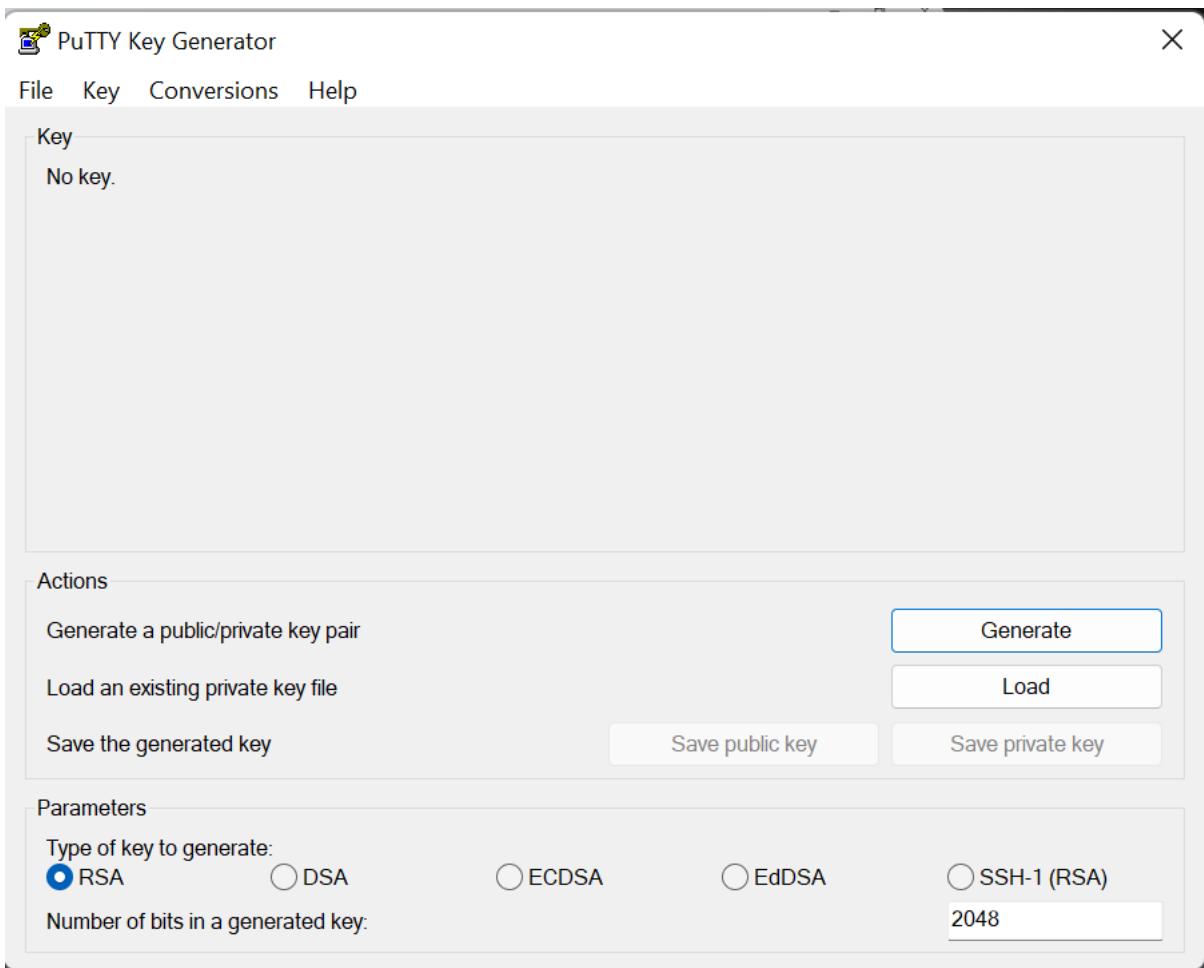
Here is result after launch instances

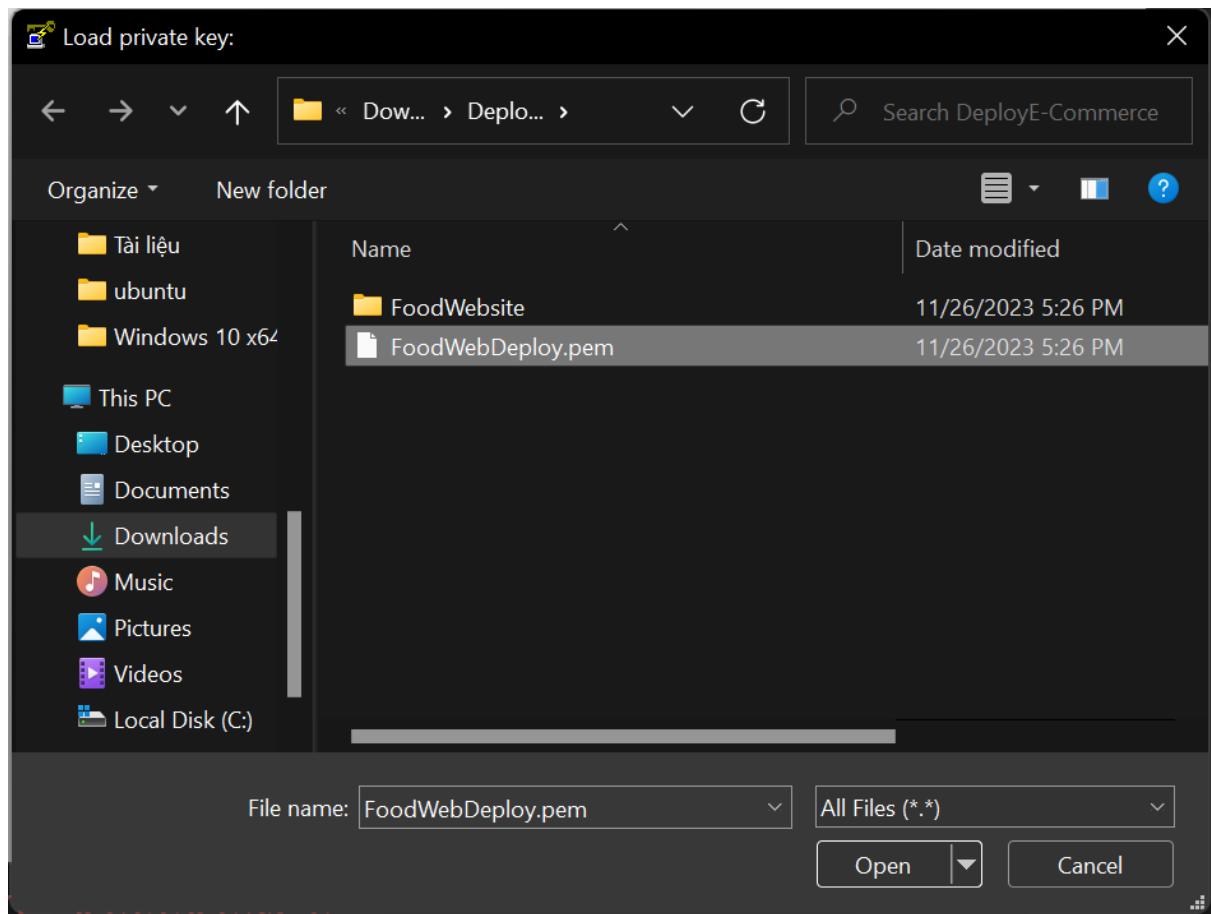


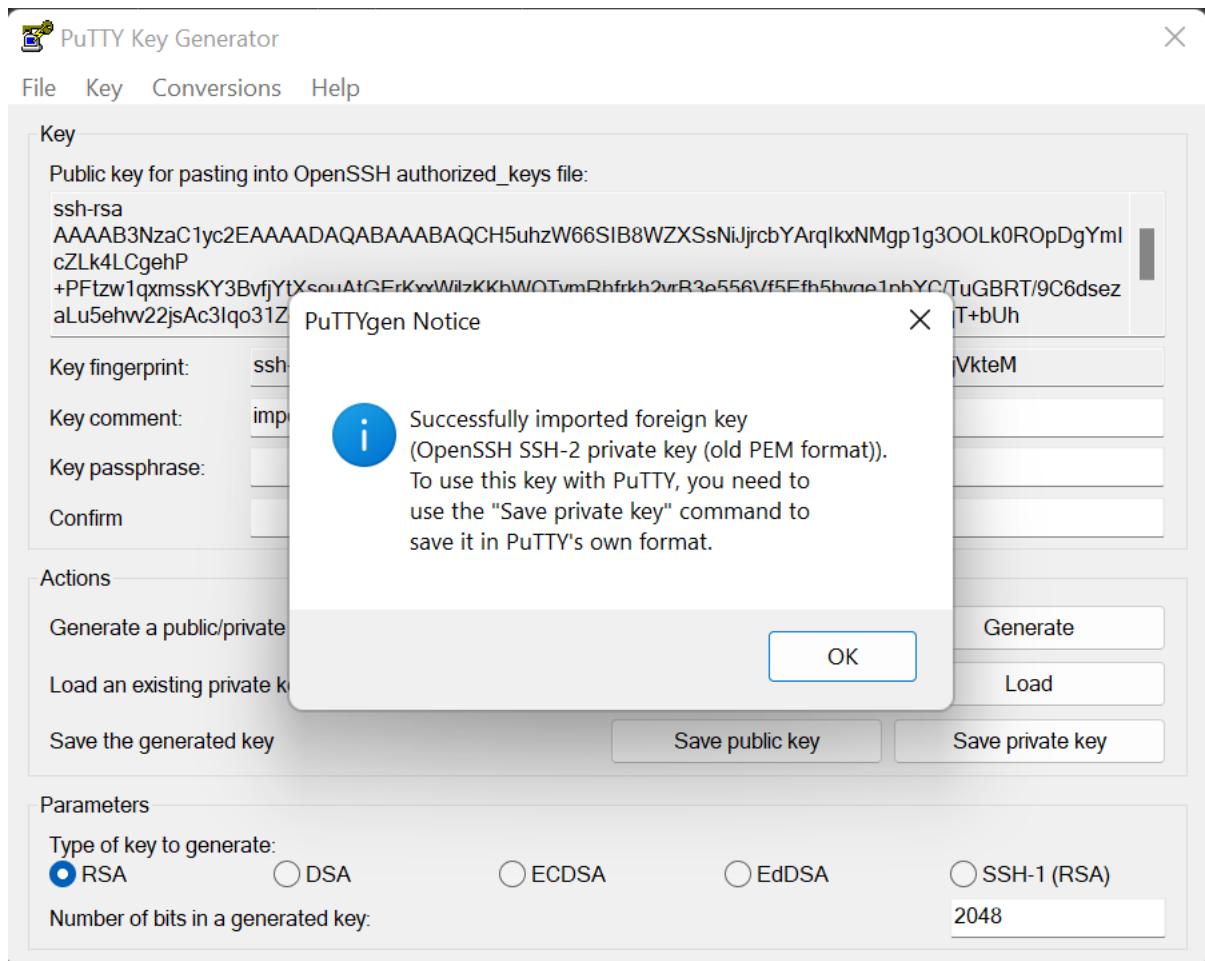
C. Deploy E-Commerce Website

1. Convert PEM to PPK

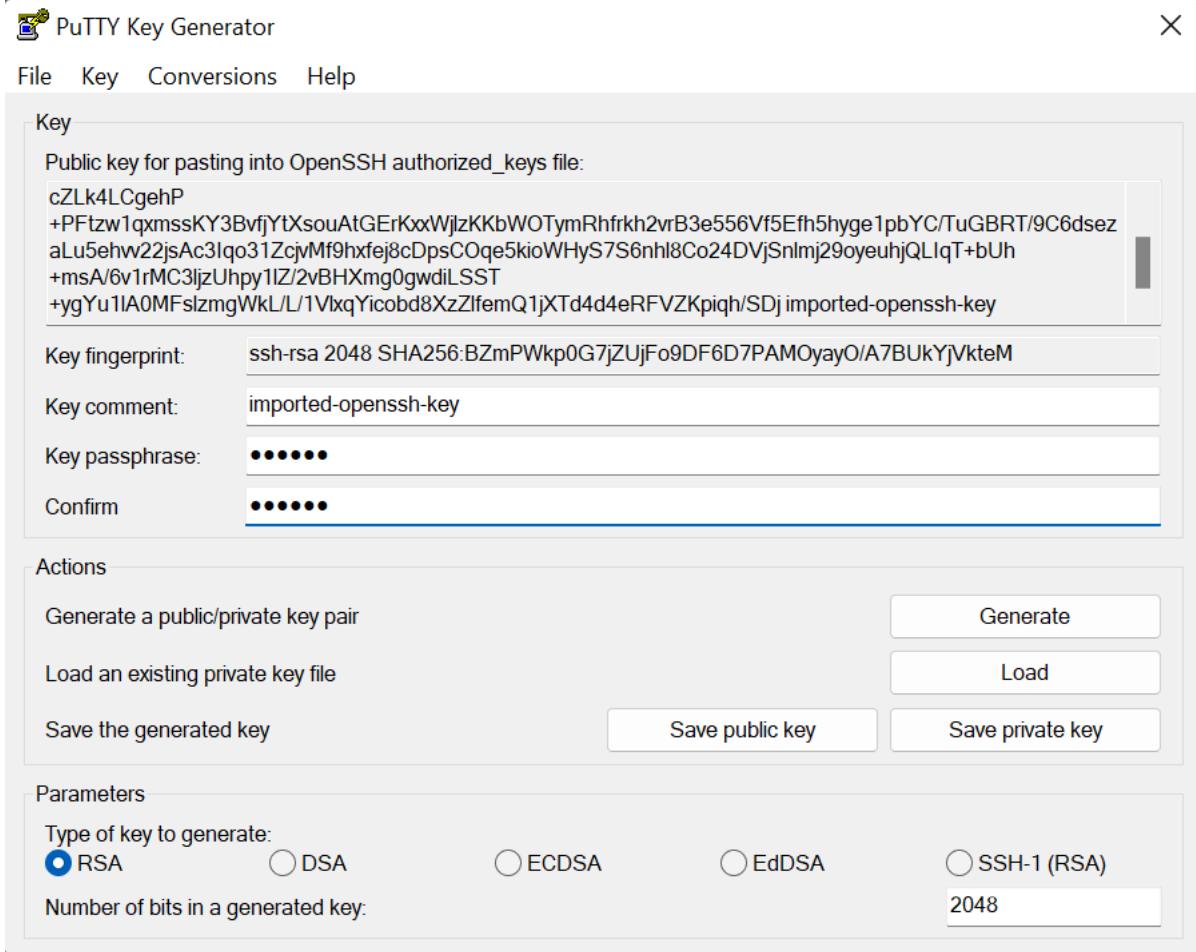
Open PuTTYgen, click "Load", and select your .pem file.

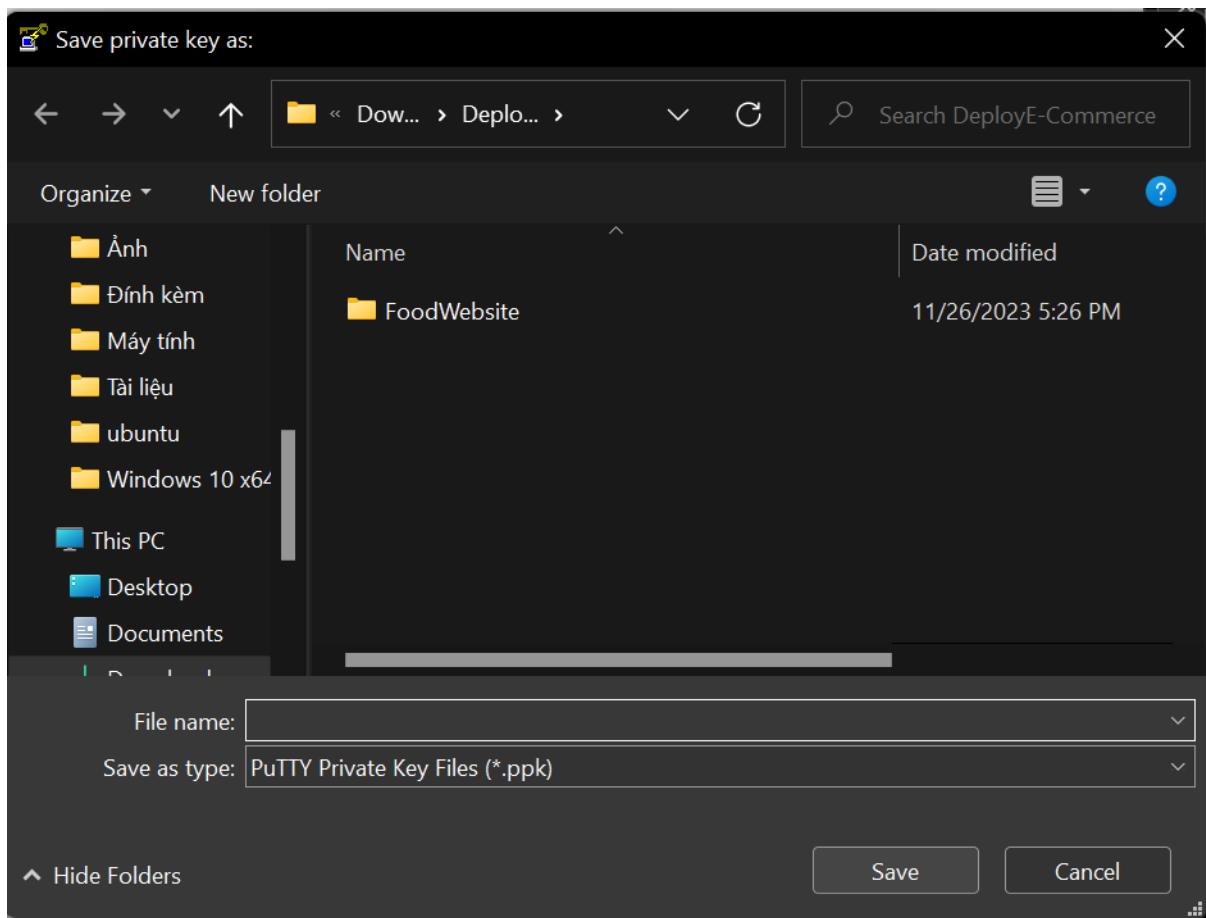






Once the key is loaded, click "Save private key" to save it as a .ppk file.

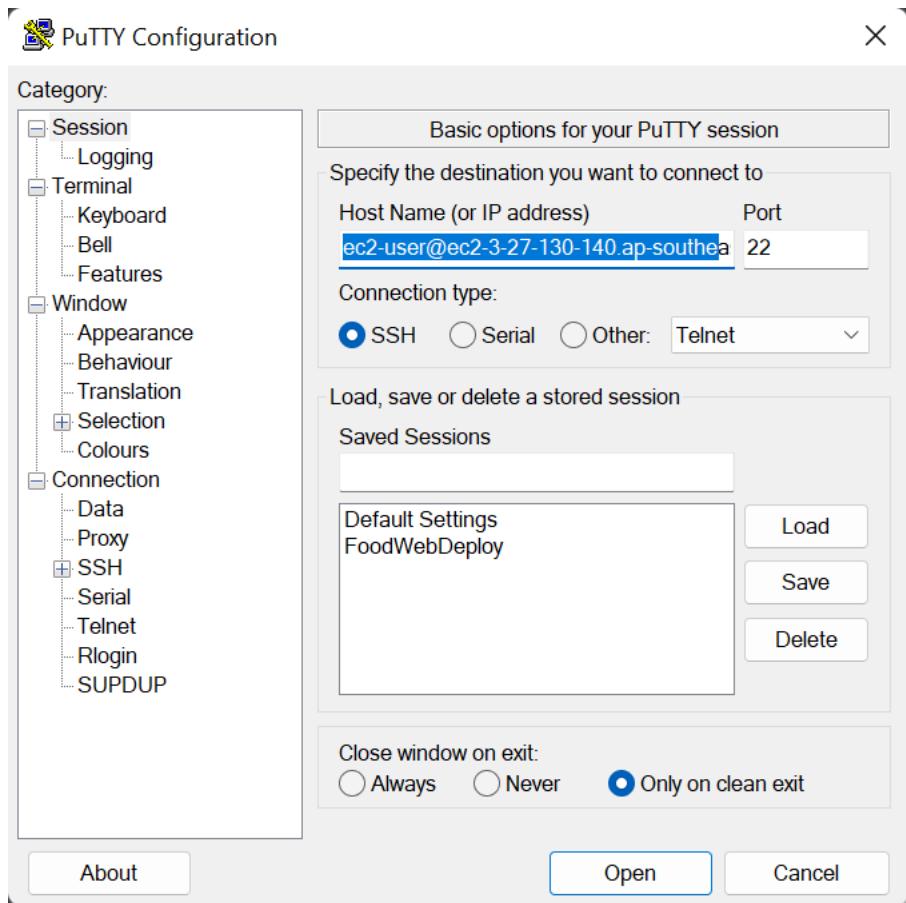




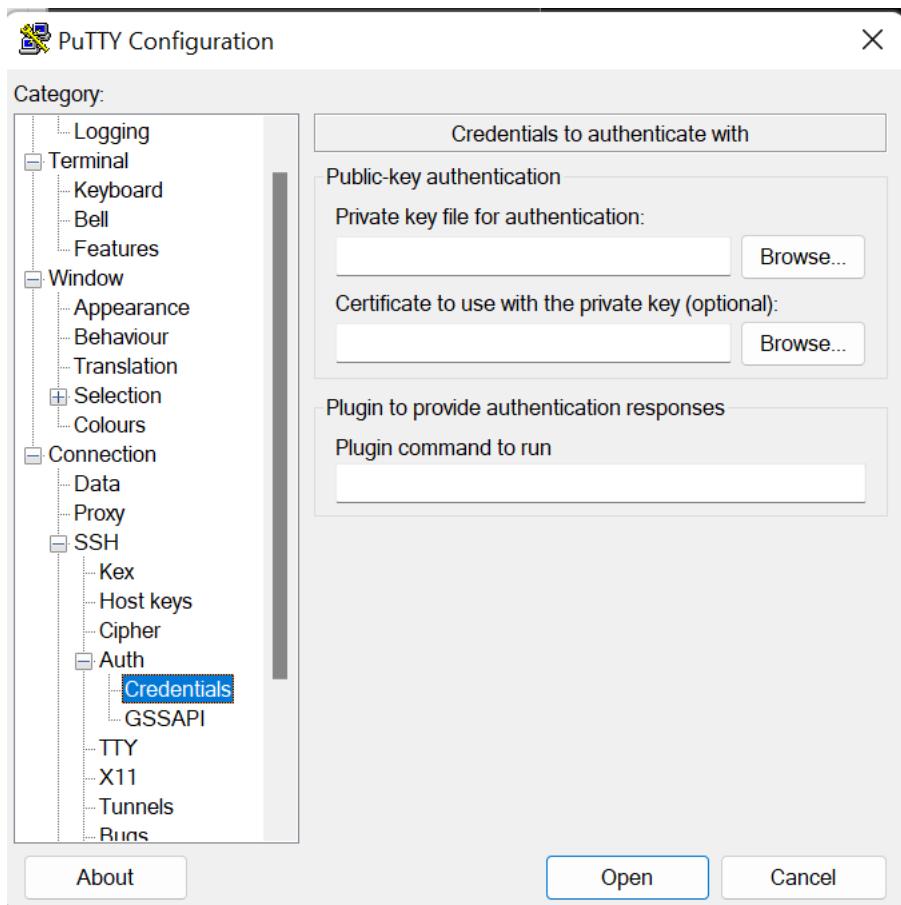
Downloads > DeployE-Commerce				
	Name	Date modified	Type	Size
	FoodWebsite	11/26/2023 5:26 PM	File folder	
	FoodWebDeploy.pem	11/26/2023 5:26 PM	PEM File	2 KB
	FoodWebDeploy	11/27/2023 1:01 AM	PutTY Private Key File	2 KB

2. Open PuTTY

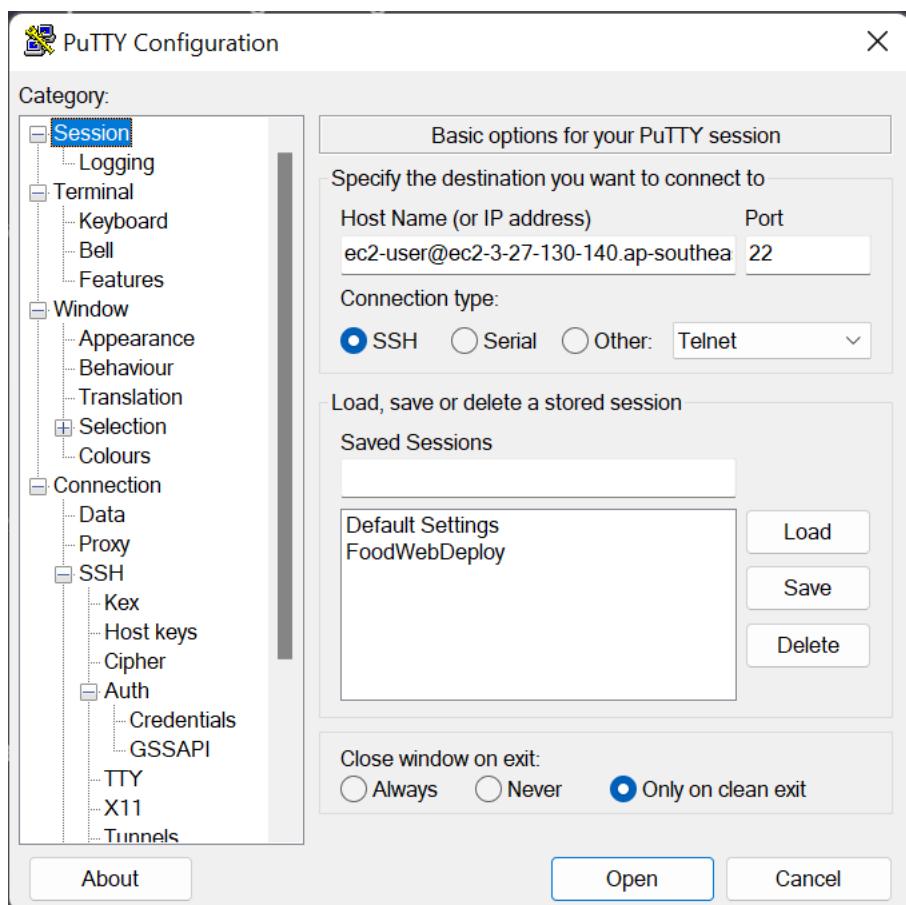
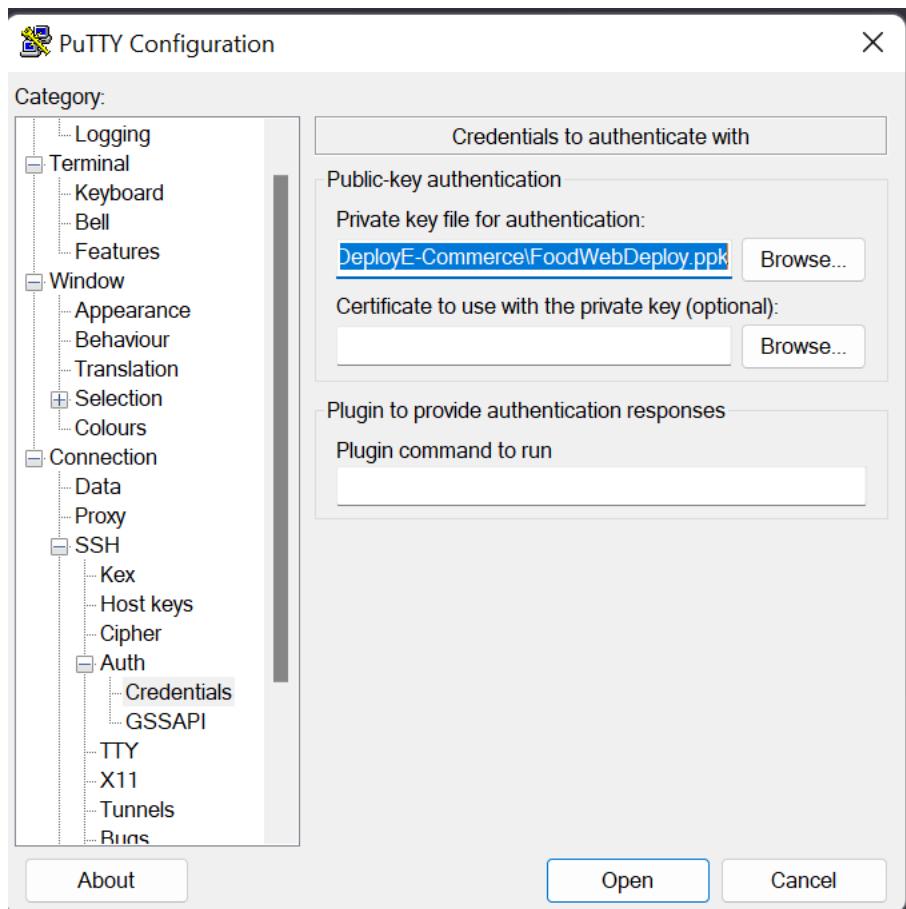
In the "Host Name (or IP address)" field, enter `ec2-user@ec2-instance-public-dns` (substitute `ec2-user` and `ec2-instance-public-dns` as above).

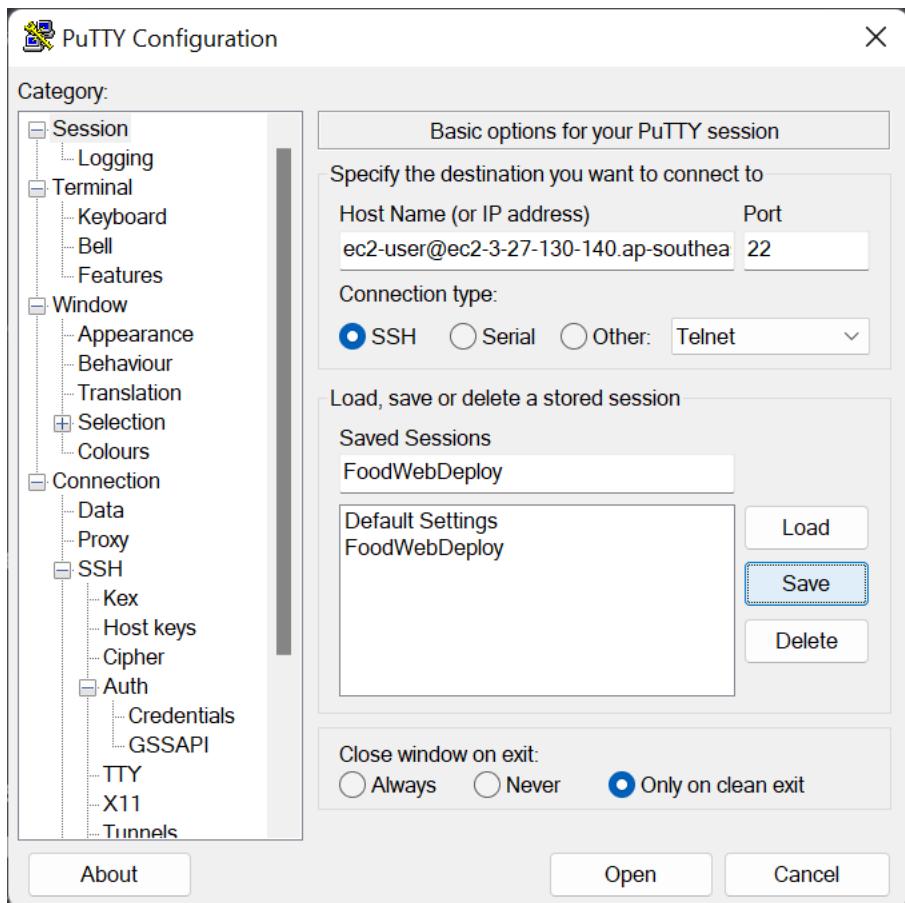


In the "Category" pane, navigate to "Connection" > "SSH" > "Auth".



Click "Browse" and select the .ppk file you created.



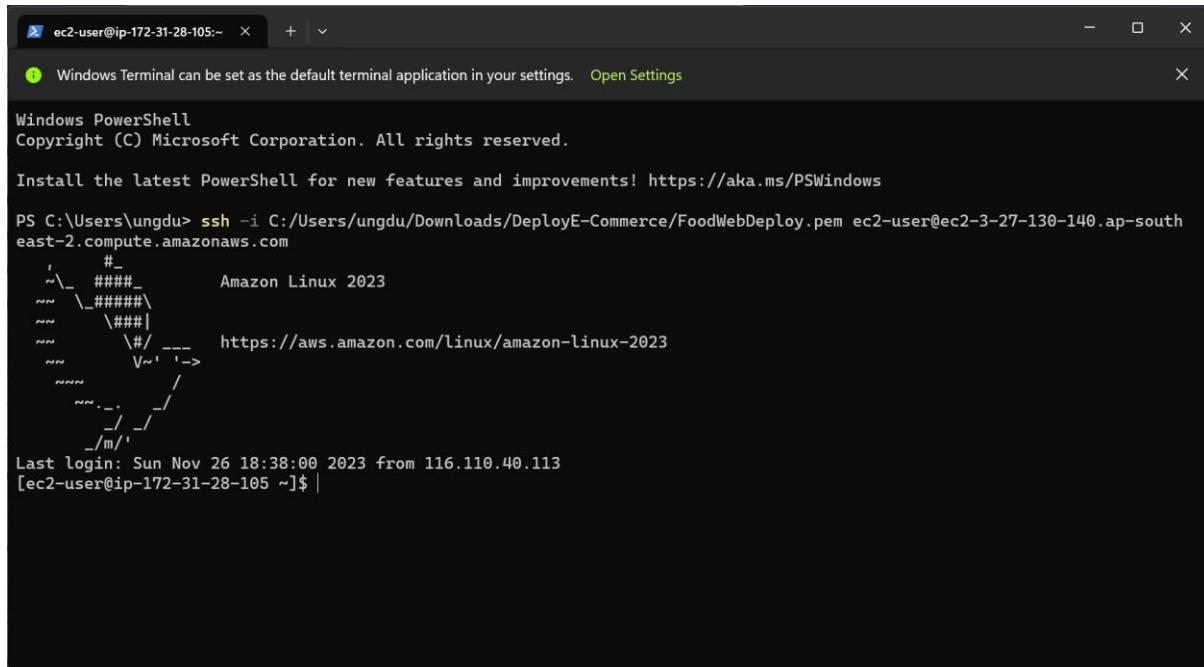


```
Using username "ec2-user".
Authenticating with public key "imported-ssh-key"
Passphrase for key "imported-ssh-key":  
#  
# ## #  
## ## ## ##  
## ## ## |  
## ## ## /  
## ## ## V~' '-->  
## ## ## /  
## ## ## /  
## ## ## /m/  
Amazon Linux 2023  
https://aws.amazon.com/linux/amazon-linux-2023  
[ec2-user@ip-172-31-28-105 ~]$
```

3. Install WebServer

Connect to Your EC2 Instance via SSH key

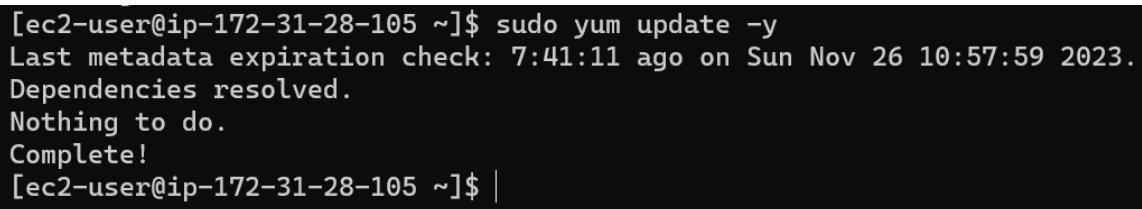
```
ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem  
ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com
```



```
Windows Terminal can be set as the default terminal application in your settings. Open Settings  
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.  
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows  
PS C:\Users\ungdu> ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem ec2-user@ec2-3-27-130-140.ap-south  
east-2.compute.amazonaws.com  
'`#_  
~\_\####_      Amazon Linux 2023  
~~ \#####\  
~~ \|##|  
~~ \#/ ___  https://aws.amazon.com/linux/amazon-linux-2023  
~~ V~' '--->  
~~ /  
~~ .-. /  
~~ /_/  
~/m/'  
Last login: Sun Nov 26 18:38:00 2023 from 116.110.40.113  
[ec2-user@ip-172-31-28-105 ~]$ |
```

Update my instance:

```
sudo yum update -y
```



```
[ec2-user@ip-172-31-28-105 ~]$ sudo yum update -y  
Last metadata expiration check: 7:41:11 ago on Sun Nov 26 10:57:59 2023.  
Dependencies resolved.  
Nothing to do.  
Complete!  
[ec2-user@ip-172-31-28-105 ~]$ |
```

Install Apache:

```
sudo yum install httpd -y
```

```
[ec2-user@ip-172-31-28-105 ~]$ sudo yum install httpd -y
Last metadata expiration check: 7:42:13 ago on Sun Nov 26 10:57:59 2023.
Dependencies resolved.
=====
 Package          Architecture Version      Repository   Size
=====
 Installing:
 httpd           x86_64      2.4.58-1.amzn2023 amazonlinux 47 k
 Installing dependencies:
 apr              x86_64      1.7.2-2.amzn2023.0.2 amazonlinux 129 k
 apr-util         x86_64      1.6.3-1.amzn2023.0.1 amazonlinux 98 k
 generic-logos-httpd noarch      18.0.0-12.amzn2023.0.3 amazonlinux 19 k
 httpd-core       x86_64      2.4.58-1.amzn2023 amazonlinux 1.4 M
 httpd-filesystem noarch      2.4.58-1.amzn2023 amazonlinux 14 k
 httpd-tools       x86_64      2.4.58-1.amzn2023 amazonlinux 81 k
 libbrotli        x86_64      1.0.9-4.amzn2023.0.2 amazonlinux 315 k
 mailcap          noarch      2.1.49-3.amzn2023.0.3 amazonlinux 33 k
 Installing weak dependencies:
 apr-util-openssl x86_64      1.6.3-1.amzn2023.0.1 amazonlinux 17 k
 mod_http2        x86_64      2.0.11-2.amzn2023 amazonlinux 150 k
 mod_lua          x86_64      2.4.58-1.amzn2023 amazonlinux 61 k
 Transaction Summary
=====
 Install 12 Packages
```

Start and enable Apache:

```
sudo systemctl start httpd
```

```
sudo systemctl enable httpd
```

```
[ec2-user@ip-172-31-28-105 ~]$ sudo systemctl start httpd
sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-28-105 ~]$ |
```

When you upload the file, if you get this issues,

```
[ec2-user@ip-172-31-28-105 ~]$ scp -i "C:\Users\ungdu\Downloads\DeployE-Commerce\FoodWebDeploy.pem" "C:\Users\ungdu\Downloads\DeployE-Commerce\FoodWebsite\index.html" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html
Warning: Identity file C:\Users\ungdu\Downloads\DeployE-Commerce\FoodWebDeploy.pem not accessible: No such file or directory.
ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
Connection closed
[ec2-user@ip-172-31-28-105 ~]$ |
```

scp -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem
C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/index.html ec2-
user@ec2-3-27-130-140.ap-southeast-
2.compute.amazonaws.com:/var/www/html

```
[ec2-user@ip-172-31-28-105 ~]$ scp -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/index.html ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html
Warning: Identity file C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem not accessible: No such file or directory.
ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
Connection closed
[ec2-user@ip-172-31-28-105 ~]$ |
```

Check /var/www/html permission:

```
ls -l /var/www/html
```

```
[ec2-user@ip-172-31-28-105 ~]$ ls -l /var/www/html  
total 0
```

add write permission to the owner of the directory:

```
sudo chmod +w /var/www/html
```

```
[ec2-user@ip-172-31-28-105 ~]$ sudo chmod +w /var/www/html  
[ec2-user@ip-172-31-28-105 ~]$ |
```

Run the below command to use the private key for SSH authentication with your EC2 instance.

```
icacls "C:\Users\ungdu\Downloads\DeployE-Commerce\FoodWebDeploy.pem"  
/inheritance:r /grant:r "sophiaserenity\ungdu:R"
```

```
PS C:\Users\ungdu\Downloads\DeployE-Commerce> icacls "C:\Users\ungdu\Downloads\DeployE-Commerce\FoodWebDeploy.pem" /inhe  
ritance:r /grant:r "sophiaserenity\ungdu:R"  
processed file: C:\Users\ungdu\Downloads\DeployE-Commerce\FoodWebDeploy.pem  
Successfully processed 1 files; Failed processing 0 files  
PS C:\Users\ungdu\Downloads\DeployE-Commerce> |
```

Upload file again:

```
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" "C:/Users/ungdu/Downloads/Deploy  
E-Commerce/FoodWebsite/index.html" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/  
index.html  
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" "C:/Users/ungdu/Downloads/Deploy  
E-Commerce/FoodWebsite/styles.css" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/  
styles.css  
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" "C:/Users/ungdu/Downloads/Deploy  
E-Commerce/FoodWebsite/contactus.html" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/  
contactus.html  
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" "C:/Users/ungdu/Downloads/Deploy  
E-Commerce/FoodWebsite/contactus.css" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/  
contactus.css  
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" "C:/Users/ungdu/Downloads/Deploy  
E-Commerce/FoodWebsite/nav.css" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/  
nav.css  
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" "C:/Users/ungdu/Downloads/Deploy  
E-Commerce/FoodWebsite/index.js" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/  
index.js  
PS C:\Users\ungdu> |
```

Next, I will update my image and icon to this directory

```
scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem"  
-r "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/images/"  
ec2-user@ec2-3-27-130-140.ap-southeast-  
2.compute.amazonaws.com:/var/www/html/
```

```

PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" -r "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/images/" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/
central.png                                         100% 2364KB   1.0MB/s  00:02
cook.gif                                           100% 916KB   2.0MB/s  00:00
food.png                                           100% 4840    23.2KB/s 00:00
foodfavor.png                                     100% 2017KB   2.6MB/s  00:00
icon.png                                           100% 299     1.4KB/s  00:00
northern.png                                      100% 2435KB   3.3MB/s  00:00
smallfood.png                                     100% 11KB    38.0KB/s  00:00
southern.png                                      100% 2236KB   3.6MB/s  00:00
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" -r "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/svg/" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/
clean.svg                                          100% 14KB   106.7KB/s 00:00
mask.svg                                           100% 3653    27.6KB/s 00:00
sanitizer.svg                                     100% 1213    5.8KB/s  00:00
thermo.svg                                         100% 1639    5.0KB/s  00:00
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" -r "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/icons/" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/
email.gif                                          100% 67KB   125.4KB/s 00:00
maps.gif                                           100% 40KB   197.7KB/s 00:00
phone.gif                                          100% 159KB   509.7KB/s 00:00
PS C:\Users\ungdu> scp -i "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem" -r "C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebsite/fonts/" ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com:/var/www/html/
EMcomic-Bold.ttf                                    100% 38KB   91.1KB/s  00:00
PS C:\Users\ungdu>

```

To check it upload successfully

```

ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem
ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com

```

```

PS C:\Users\ungdu> ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem ec2-user@ec2-3-27-130-140.ap-southeast-2.compute.amazonaws.com
  _#_
 /_\_ #####_      Amazon Linux 2023
 ~~ \_\#####\_
 ~~ \|##|
 ~~  \#/ ___ https://aws.amazon.com/linux/amazon-linux-2023
 ~~  V~' '-->
 ~~ /
 ~~ .-' _/-
 ~~ /_ _/
 ~~ /m/'

Last login: Sun Nov 26 20:39:26 2023 from 116.110.40.113
[ec2-user@ip-172-31-28-105 ~]$ |

```

```
cd /var/www/html/
```

```
ls
```

```
[ec2-user@ip-172-31-28-105 html]$ ls
contactus.css contactus.html fonts icons images index.html index.js nav.css styles.css svg
[ec2-user@ip-172-31-28-105 html]$ |
```

```
sudo chown -R ec2-user:apache /var/www
```

```
sudo chmod -R 755 /var/www
```

```
sudo systemctl restart httpd
```

```
cd /var/www/html
```

```
ls
```

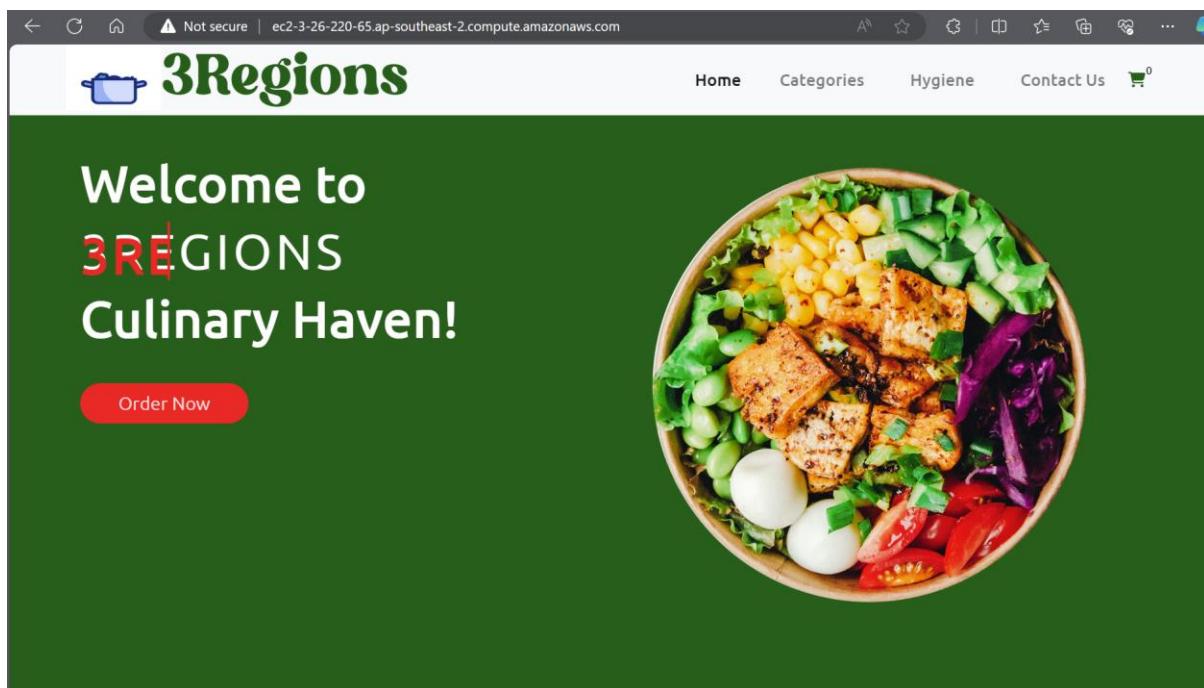
```
[ec2-user@ip-172-31-28-105 html]$ cd
[ec2-user@ip-172-31-28-105 ~]$ sudo chown -R ec2-user:apache /var/www
[ec2-user@ip-172-31-28-105 ~]$ sudo chmod -R 755 /var/www
[ec2-user@ip-172-31-28-105 ~]$ sudo systemctl restart httpd
[ec2-user@ip-172-31-28-105 ~]$ cd /var/www/html
[ec2-user@ip-172-31-28-105 html]$ ls
contactus.css contactus.html fonts icons images index.html index.js nav.css styles.css svg
```

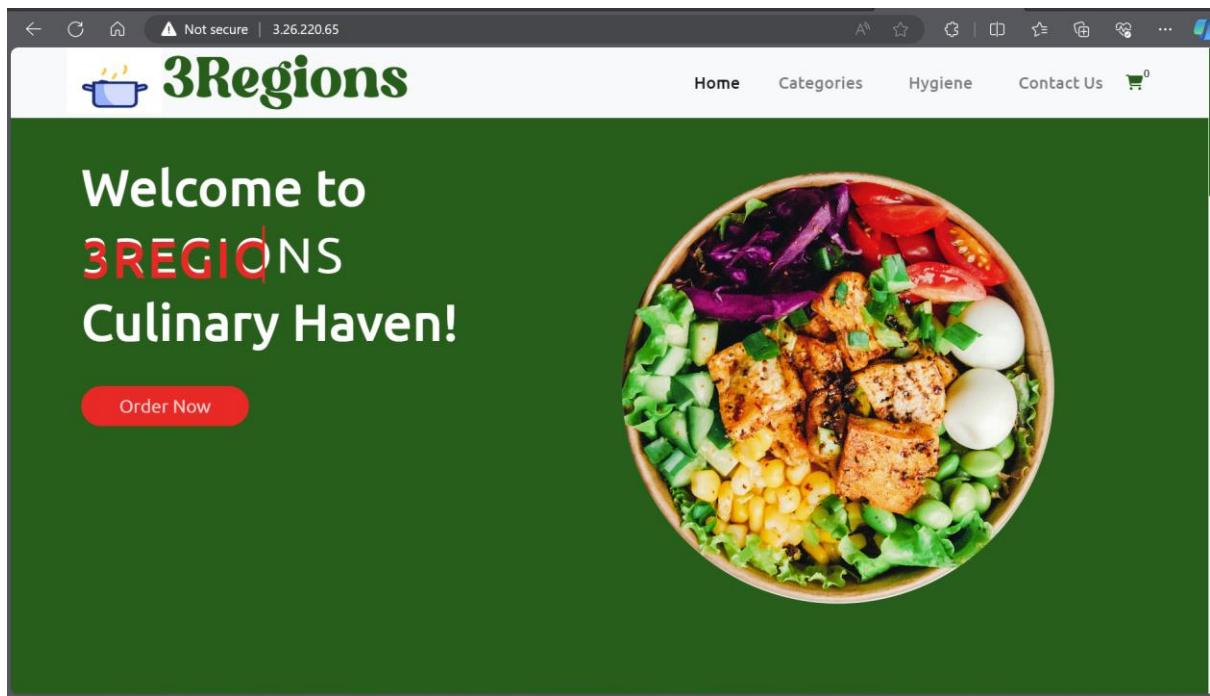
4. Set Permission

Inbound rules Info					
Security group rule ID	Type Info	Protocol Info	Port range	Source Info	Description - optional Info
sgr-00aac74974c75497e	SSH ▾	TCP	22	Custom ▾ <input type="text" value="0.0.0.0"/> X	Delete
sgr-0e54bc661435452f5	HTTP ▾	TCP	80	Custom ▾ <input type="text" value="0.0.0.0"/> X	Delete
sgr-01522e9ac6b2858d9	HTTPS ▾	TCP	443	Custom ▾ <input type="text" value="0.0.0.0"/> X	Delete

[Add rule](#)

Result:





D. Virtual Private Cloud (VPC)

1. Create a Virtual Private Cloud (VPC)

Navigate to VPC

A screenshot of the AWS search interface. The search bar at the top contains the text 'VPC'. Below the search bar, there's a sidebar with categories like Services (12), Features (57), Resources (New), Documentation (12,555), Knowledge Articles (239), Marketplace (571), Blogs (815), Events (15), and Tutorials (10). The main area shows search results for 'VPC'. It includes a summary for 'Services' with 12 results, a 'Top features' section for 'Your VPCs', and three cards for 'VPC', 'AWS Firewall Manager', and 'Managed Services'.

Click on "Your VPCs" in the left navigation pane.

The screenshot shows the AWS VPC dashboard with the following details:

- VPC dashboard**: A link to the main VPC page.
- EC2 Global View**: A link to the EC2 Global View page.
- Filter by VPC:** A dropdown menu with the option **Select a VPC**.
- Virtual private cloud**: A section with the following items:
 - Your VPCs**
 - Subnets
 - Route tables
 - Internet gateways
 - Egress-only internet gateways
 - DHCP option sets
 - Elastic IPs
 - Managed prefix lists
 - Endpoints
 - Endpoint services
 - NAT gateways
- Your VPCs (1)**: A table showing one VPC entry.

Name	VPC ID	State	IPv4 CIDR
-	vpc-0ad35e8f259717228	Available	172.31.0.0/16
- Create VPC**: A yellow button to create a new VPC.

See Detail information about VPC connect to EC2 instance

The screenshot shows the VPC details page for the VPC with ID **vpc-0ad35e8f259717228**. The page includes the following sections:

- Actions**: A dropdown menu.
- Details**: A tabbed section with the **Info** tab selected.
- VPC ID**: vpc-0ad35e8f259717228
- Tenancy**: Default
- Default VPC**: Yes
- Network Address Usage metrics**: Disabled
- State**: Available
- DHCP option set**: dopt-0d2266e9d97ba1a30
- IPv4 CIDR**: 172.31.0.0/16
- Route 53 Resolver DNS Firewall rule groups**: -
- DNS hostnames**: Enabled
- Main route table**: rtb-0edb984e87d0dfbe0
- IPv6 pool**: -
- Owner ID**: 614018551910
- DNS resolution**: Enabled
- Main network ACL**: acl-0a6967757eeb69fb0
- IPv6 CIDR (Network border group)**: -

The screenshot shows the AWS Resource Map interface. At the top, there are tabs: Resource map New, CIDRs, Flow logs, Tags, and Integrations. The Resource map tab is selected. Below the tabs, there's a section titled "Resource map" with an "Info" link. On the left, a box for "VPC" shows "Show details" and "Your AWS virtual network". It contains the ID "vpc-0ad35e8f259717228". A feedback box asks if the resource map was helpful today, encouraging users to give feedback as often as possible. To the right, a box for "Subnets (3)" lists three subnets under the VPC: "ap-southeast-2a" (with subnets "subnet-02d8201aec6d720c9" and "subnet-0c5d07ec73cba2fd7"), "ap-southeast-2b" (with subnet "subnet-057c6433a50260a33"), and "ap-southeast-2c". A legend on the right indicates "Resource Type" (RT) and "Region" (Ro). A vertical scroll bar is visible on the right side of the interface.

E. CloudWatch

1. Create an IAM Role for CloudWatch

Navigate to IAM

The screenshot shows the AWS IAM search results page. The search bar at the top contains the query "IAM". The sidebar on the left includes sections for Services (11), Features (20), and Resources (New). The main content area displays search results for "IAM". It includes a "Services" section with a link to "See all 11 results" and a "Features" section with a link to "See all 20 results". The first result in the "Services" section is "IAM" (Manage access to AWS resources). The second result is "IAM Identity Center" (Manage workforce user access to multiple AWS accounts and cloud applications). The third result is "Resource Access Manager" (Share AWS resources with other accounts or AWS Organizations). The fourth result is "AWS App Mesh" (Easily monitor and control microservices).

Click on "Roles" in the left sidebar.

The screenshot shows the AWS Identity and Access Management (IAM) dashboard. On the left, a sidebar lists navigation options: Dashboard, Access management (User groups, Users, Roles, Policies, Identity providers, Account settings), and Access reports (Access analyzer, External access, Unused access, Analyzers and settings). The main content area displays account statistics: 0 User groups, 0 Users, 2 Roles, 0 Policies, and 0 Identity providers. A prominent message at the top right encourages adding MFA for the root user. Below this, a "What's new" section lists recent updates, including the availability of IAM Roles Anywhere in AWS GovCloud (US) Regions and action last accessed information for over 140 services.

Click "Create Role."

The screenshot shows the "Roles" page under the IAM service. It displays two existing roles: "AWSServiceRoleForSupport" and "AWSServiceRoleForTrustedAdvisor". Both roles are associated with the "AWS Service: support (Service-Linked)" and "AWS Service: trustedadvisor (Service-Linked)" entities respectively. A "Create role" button is visible at the top right of the list. Below the list, there is a "Roles Anywhere" section with a "Manage" button.

Choose the trusted entity type as "AWS service" and select "EC2" as the use case.

Select trusted entity Info

Trusted entity type

AWS service

Allow AWS services like EC2, Lambda, or others to perform actions in this account.

AWS account

Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.

Web identity

Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.

SAML 2.0 federation

Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.

Custom trust policy

Create a custom trust policy to enable others to perform actions in this account.

Use case

Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

Service or use case

EC2



Choose a use case for the specified service.

Use case

EC2

Allows EC2 instances to call AWS services on your behalf.

EC2 Role for AWS Systems Manager

Allows EC2 instances to call AWS services like CloudWatch and Systems Manager on your behalf.

EC2 Spot Fleet Role

Allows EC2 Spot Fleet to request and terminate Spot Instances on your behalf.

EC2 - Spot Fleet Auto Scaling

Allows Auto Scaling to access and update EC2 spot fleets on your behalf.

EC2 - Spot Fleet Tagging

Allows EC2 to launch spot instances and attach tags to the launched instances on your behalf.

EC2 - Spot Instances

Allows EC2 Spot Instances to launch and manage spot instances on your behalf.

EC2 - Spot Fleet

Allows EC2 Spot Fleet to launch and manage spot fleet instances on your behalf.

EC2 - Scheduled Instances

Allows EC2 Scheduled Instances to manage instances on your behalf.

Click "Next: Permissions."

In the permissions policy, search for "CloudWatchFullAccess" and select it (this policy provides full access to CloudWatch resources).

Add permissions Info

Permissions policies (891) Info

Choose one or more policies to attach to your new role.

Filter by Type



CloudWatchFullAccess



All types

2 matches



1



Policy name Info

Type

Description



[CloudWatchFullAcc...](#)

AWS managed

Provides full access to CloudWatch.



[CloudWatchFullAcc...](#)

AWS managed

Provides full access to CloudWatch.



► Set permissions boundary - *optional*

Cancel

Previous

Next

Add permissions Info

Permissions policies (1/891) Info

Choose one or more policies to attach to your new role.

Filter by Type



CloudWatchFullAccess



All types

2 matches



1



Policy name Info

Type

Description



[CloudWatchFullAcc...](#)

AWS managed

Provides full access to CloudWatch.



[CloudWatchFullAcc...](#)

AWS managed

Provides full access to CloudWatch.



► Set permissions boundary - *optional*

Cancel

Previous

Next

Proceed through the next steps, providing a name and optional tags for the role, and then click "Create Role."

Name, review, and create

Role details

Role name

Enter a meaningful name to identify this role.

Maximum 64 characters. Use alphanumeric and '+-=,.@-_' characters.

Description

Add a short explanation for this role.

Maximum 1000 characters. Use alphanumeric and '+-=,.@-_' characters.

Step 1: Select trusted entities

Edit

Trust policy

```
1  [ {  
2      "Version": "2012-10-17",  
3      "Statement": [  
4          {  
5              "Effect": "Allow",  
6              "Action": [  
7                  "sts:AssumeRole"  
8              ],  
9              "Principal": {  
10                  "Service": [  
11                      "ec2.amazonaws.com"  
12                  ]  
13              }  
14          }  
15      ]  
16  }
```

Step 2: Add permissions

Edit

Permissions policy summary

Policy name	Type	Attached as
CloudWatchFullAccessV2	AWS managed	Permissions policy

Step 3: Add tags

Add tags - *optional* [Info](#)

Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

[Add new tag](#)

You can add up to 50 more tags.

[Cancel](#) [Previous](#) [Create role](#)

Result:

[IAM](#) > [Roles](#) > **3Regions@@**

3Regions@@ [Info](#) [Delete](#)

Allows EC2 instances to call AWS services on your behalf.

Summary		
Creation date November 28, 2023, 04:51 (UTC+07:00)	ARN arn:aws:iam::614018551910:role/3Regions@@	Instance profile ARN arn:aws:iam::614018551910:instance-profile/3Regions@@
Last activity -	Maximum session duration 1 hour	

[Edit](#)

[Permissions](#) [Trust relationships](#) [Tags](#) [Access Advisor](#) [Revoke sessions](#)

Permissions policies (1) [Info](#) [Simulate](#) [Remove](#) [Add permissions ▾](#)

You can attach up to 10 managed policies.

2. Attach the IAM Role to Your EC2 Instances

Go to the EC2 Dashboard in the AWS Management Console.

EC2

Search results for 'EC2'

Try searching with longer queries for more relevant results

Services (13)

- Features (54)
- Resources **New**
- Documentation (34,068)
- Knowledge Articles (597)
- Marketplace (3,237)
- Blogs (2,087)
- Events (30)
- Tutorials (21)

Services

See all 13 results ►

 EC2 ☆
Virtual Servers in the Cloud

 EC2 Image Builder ☆
A managed service to automate build, customize and deploy OS images

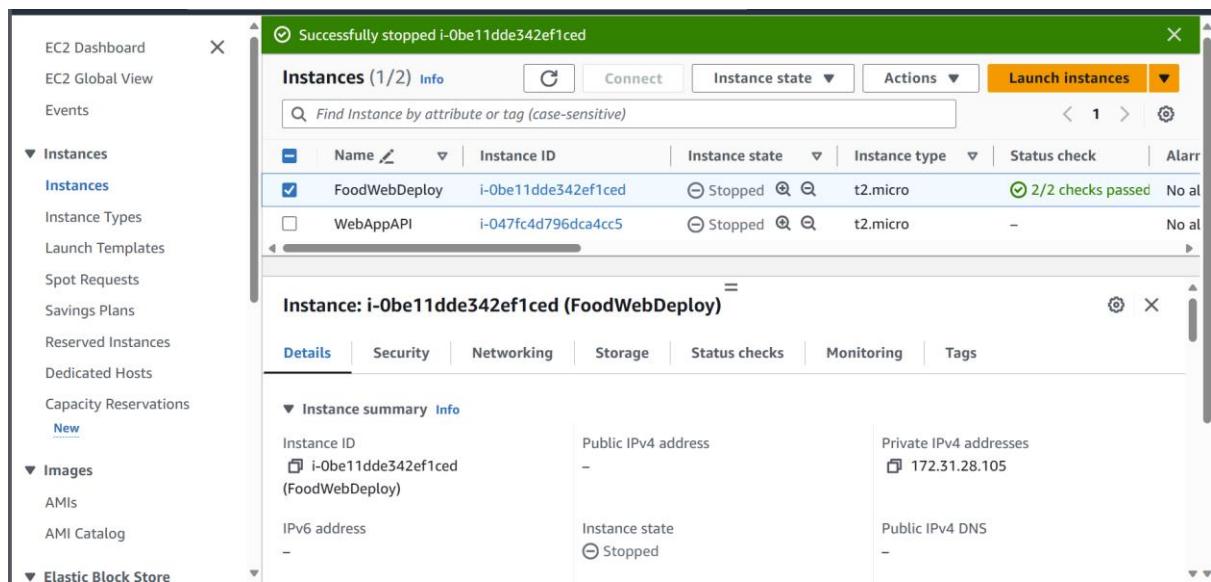
 Recycle Bin
Protect resources from accidental deletion

 Amazon Inspector ☆
Continual vulnerability management at scale

Features

See all 54 results ►

Select the EC2 instances you want to monitor with CloudWatch.



The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like EC2 Dashboard, EC2 Global View, Events, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store. The main area has a green header bar with a success message: "Successfully stopped i-0be11dde342ef1ced". Below it, a table lists instances:

Name	Instance ID	Instance state	Instance type	Status check
FoodWebDeploy	i-0be11dde342ef1ced	Stopped	t2.micro	2/2 checks passed
WebAppAPI	i-047fc4d796dca4cc5	Stopped	t2.micro	-

Below the table, a detailed view for the instance "FoodWebDeploy" is shown. It includes sections for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. Under the Details tab, the "Instance summary" section shows:

- Instance ID: i-0be11dde342ef1ced (FoodWebDeploy)
- Public IPv4 address: -
- Private IPv4 addresses: 172.31.28.105
- IPv6 address: -
- Instance state: Stopped
- Public IPv4 DNS: -

Choose "Actions" -> "Security" -> "Modify IAM role"

EC2 > Instances > i-0be11dde342ef1ced

Instance summary for i-0be11dde342ef1ced (FoodWebDeploy) [Info](#)

[Connect](#) [Instance state ▾](#) [Actions ▾](#)

Updated less than a minute ago

Instance ID i-0be11dde342ef1ced (FoodWebDeploy)	Public IPv4 address -	Private IPv4 addresses 172.31.28.105
IPv6 address -	Instance state Stopped	Public IPv4 DNS -
Hostname type IP name: ip-172-31-28-105.ap-southeast-2.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-28-105.ap-southeast-2.compute.internal	
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	Elastic IP addresses -
Auto-assigned IP address -	VPC ID vpc-0ad35e8f259717228 Edit	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more

EC2 > Instances > i-0be11dde342ef1ced

Instance summary for i-0be11dde342ef1ced (FoodWebDeploy) [Info](#)

[Connect](#) [Instance state ▾](#) [Actions ▾](#)

Updated less than a minute ago

Instance ID i-0be11dde342ef1ced (FoodWebDeploy)	Public IP -	Manage instance state View details
IPv6 address -	Instance type Stop	Instance settings Networking Security Image and templates Monitor and troubleshoot
Hostname type IP name: ip-172-31-28-105.ap-southeast-2.compute.internal	Private IP -	Change security groups Get Windows password Modify IAM role
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	Elastic IP addresses -
Auto-assigned IP address -	VPC ID vpc-0ad35e8f259717228 Edit	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more

Select the IAM role created in Step 2 and click "Update."

Modify IAM role Info

Attach an IAM role to your instance.

Instance ID

i-0be11dde342ef1ced (FoodWebDeploy)

IAM role

Select an IAM role to attach to your instance or create a new role if you haven't created any. The role you select replaces any roles that are currently attached to your instance.

3Regions@@



Create new IAM role

[Cancel](#)

[Update IAM role](#)

Here is result:

Instance ID	Public IPv4 address	Private IPv4 addresses
<input type="checkbox"/> i-0be11dde342ef1ced (FoodWebDeploy)	-	<input type="checkbox"/> 172.31.28.105
IPv6 address	Instance state	Public IPv4 DNS
-	<input type="checkbox"/> Stopped	-
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-172-31-28-105.ap-southeast-2.compute.internal	<input type="checkbox"/> ip-172-31-28-105.ap-southeast-2.compute.internal	
Answer private resource DNS name	Instance type	Elastic IP addresses
IPv4 (A)	t2.micro	-
Auto-assigned IP address	VPC ID	AWS Compute Optimizer finding
-	<input type="checkbox"/> vpc-0ad35e8f259717228 <input type="button" value=""/>	<input type="checkbox"/> Opt-in to AWS Compute Optimizer for recommendations. Learn more <input type="button" value=""/>
IAM Role	Subnet ID	Auto Scaling Group name
<input type="checkbox"/> 3Regions@@ <input type="button" value=""/>	<input type="checkbox"/> subnet-057c6433a50260a33 <input type="button" value=""/>	-
IMDSv2		
Required		

3. Create CloudWatch Alarms

In the AWS Management Console, navigate to the CloudWatch service.

Q CloudWatch X

Search results for 'CloudWatch'

Try searching with longer queries for more relevant results

Services (3)

Features (15)

Resources New

Documentation (11,854)

Knowledge Articles (141)

Marketplace (1,479)

Blogs (564)

Events (4)

Tutorials (1)

Services

CloudWatch ☆
Monitor Resources and Applications

Amazon EventBridge ☆
Serverless service for building event-driven applications.

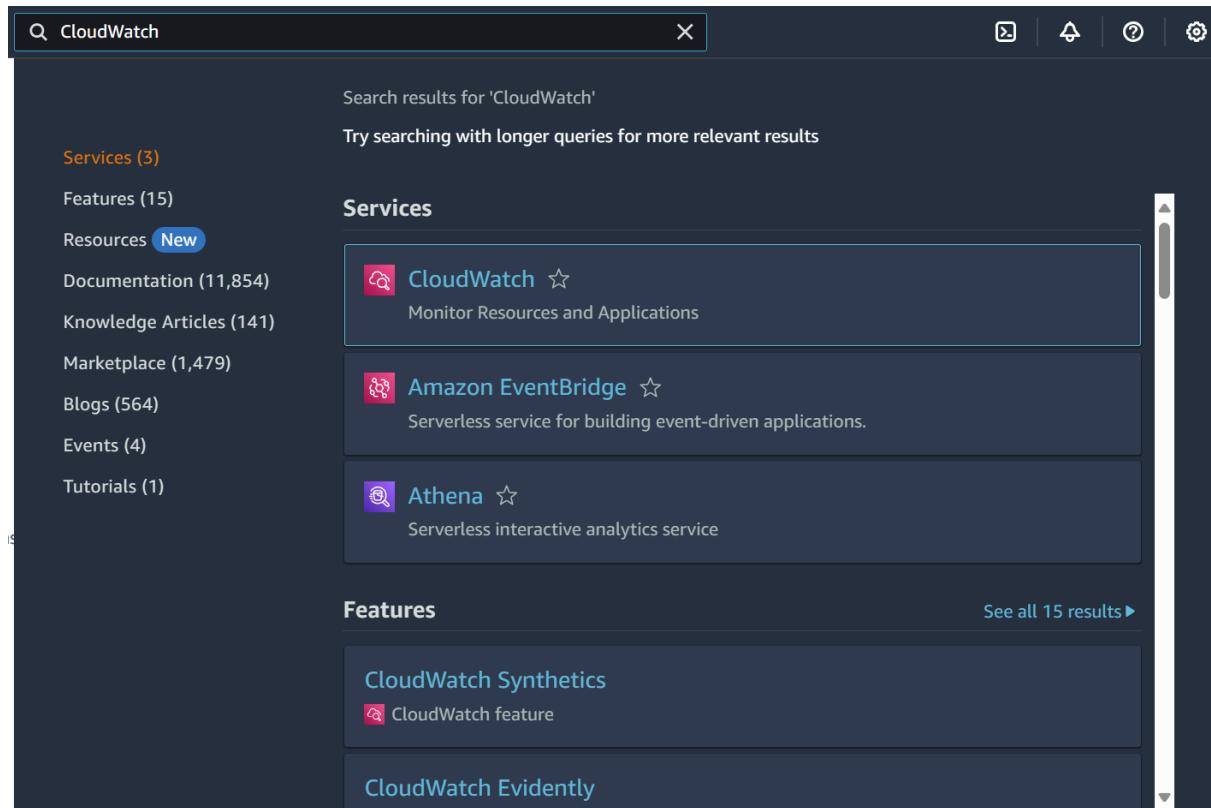
Athena ☆
Serverless interactive analytics service

Features

See all 15 results ▶

CloudWatch Synthetics
CloudWatch feature

CloudWatch Evidently



In the left sidebar, under "Alarms," click "Create Alarm."

AWS Services Search [Alt+S] Sydney

CloudWatch

Favorites and recent dashboards

Alarms 0 In alarm All alarms

Logs New Metrics New X-Ray traces Events Application monitoring Insights

CloudWatch

Overview info 1h 3h 12h 1d 1w UTC timezone Actions

Get started with CloudWatch

You don't have any alarms, metrics or default dashboard. Once you set them up they will be displayed here. View getting started page

Set alarms on any of your metrics to receive notification when your metric crosses your specified threshold. Create alarms

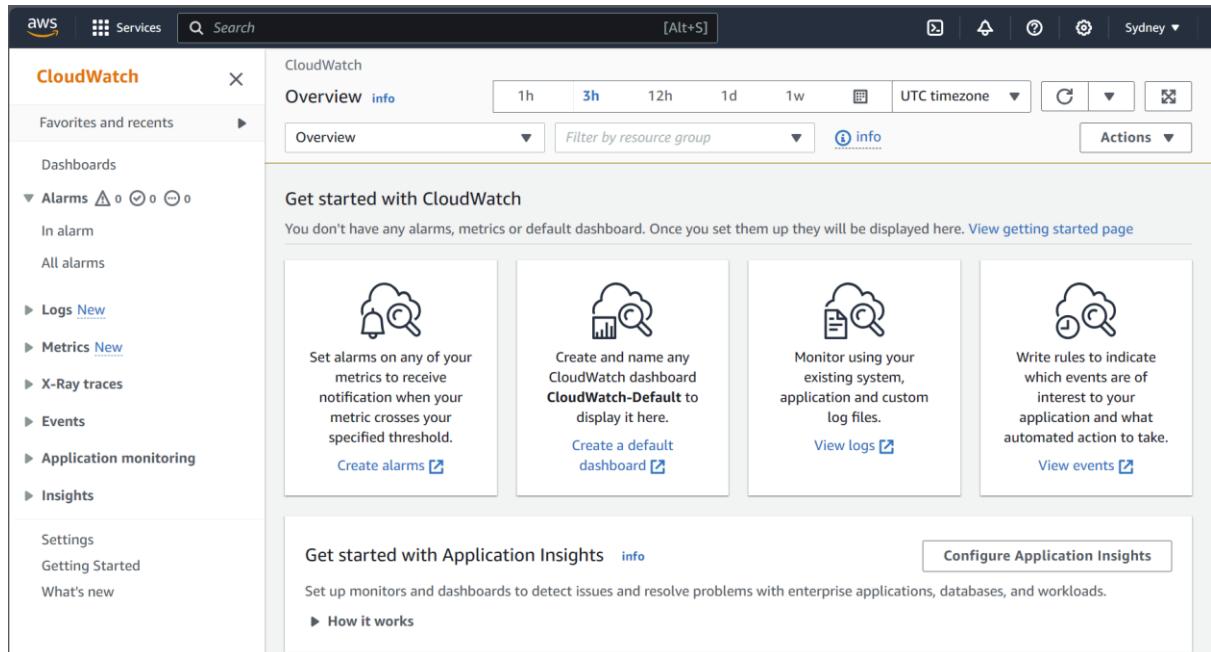
Create and name any CloudWatch dashboard CloudWatch-Default to display it here. Create a default dashboard

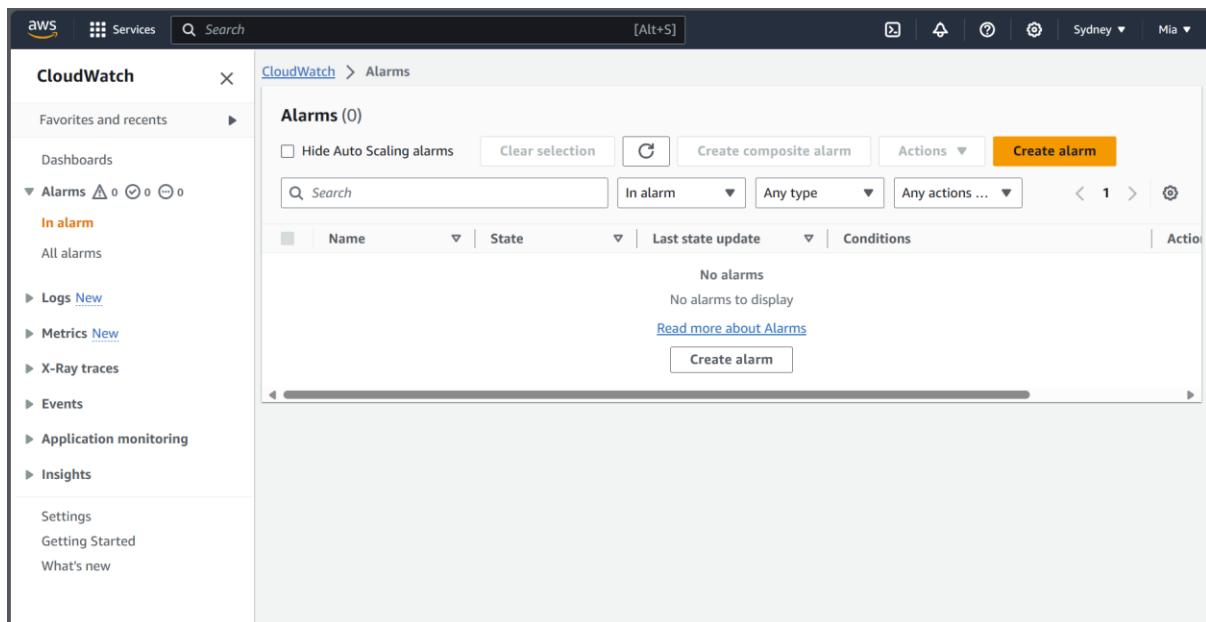
Monitor using your existing system, application and custom log files. View logs

Write rules to indicate which events are of interest to your application and what automated action to take. View events

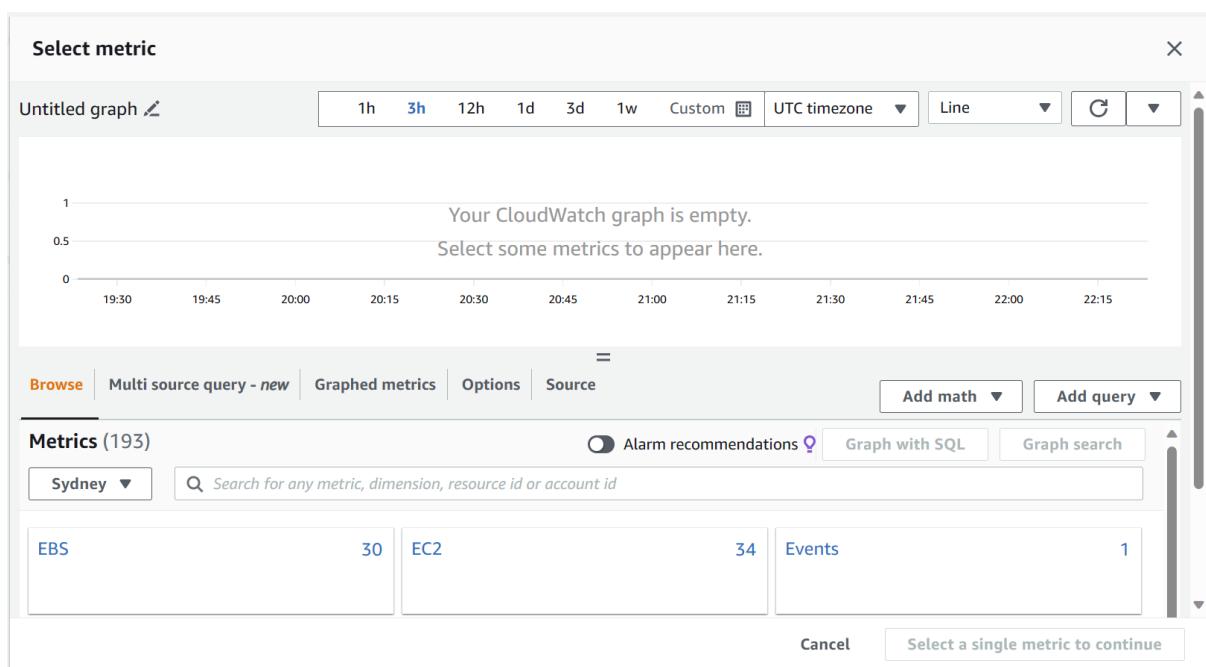
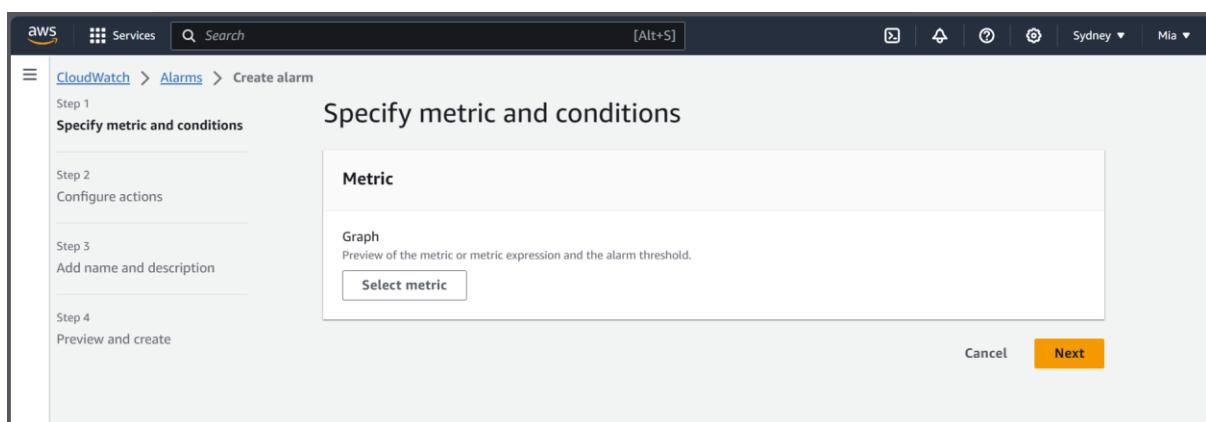
Get started with Application Insights info Configure Application Insights

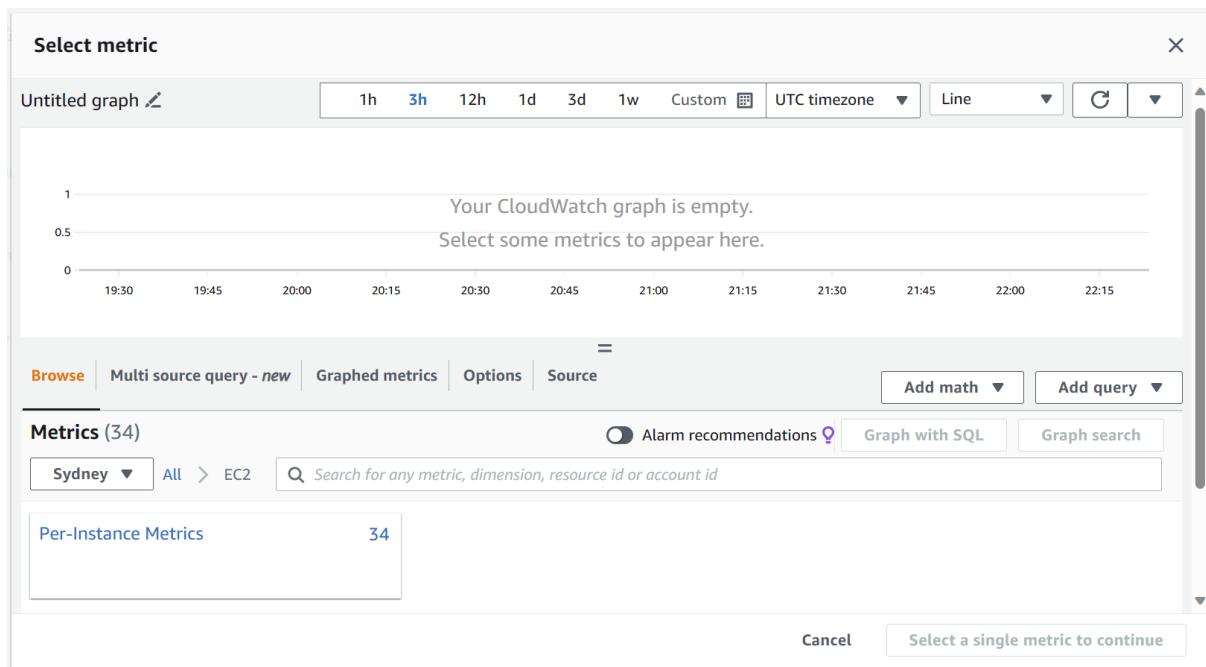
Set up monitors and dashboards to detect issues and resolve problems with enterprise applications, databases, and workloads. How it works



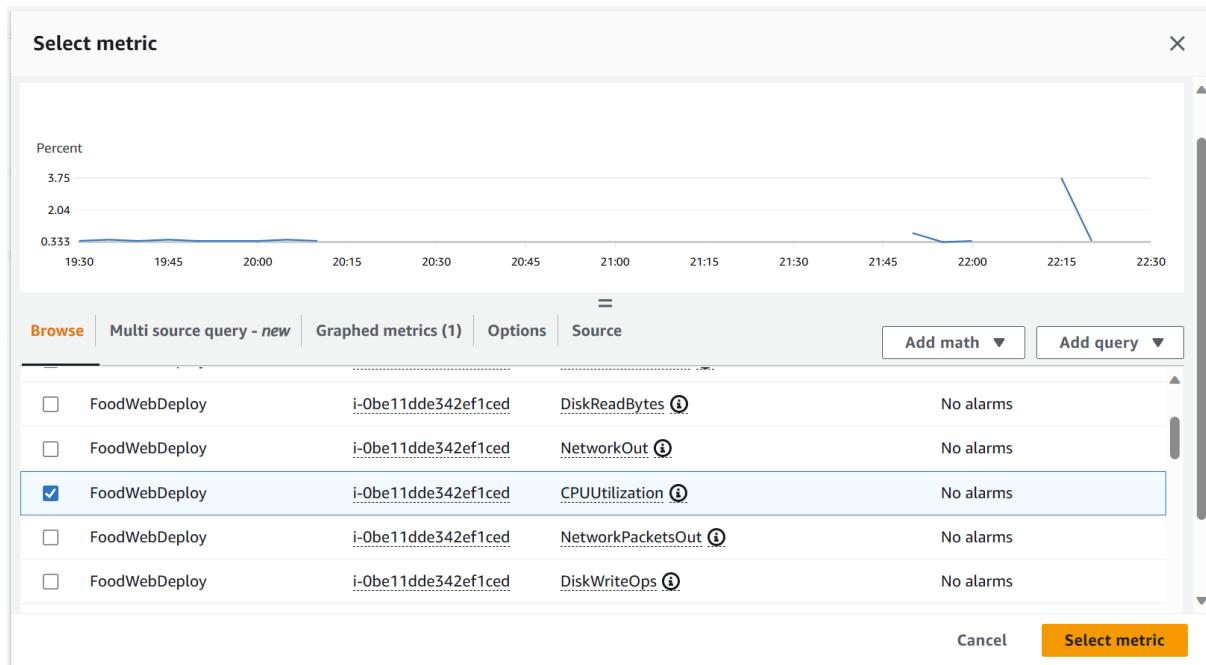


Choose "Select metric" and navigate to the "EC2" namespace.





Choose a metric to monitor (e.g., CPUUtilization) and select the EC2 instances to monitor.



Set the conditions for your alarm (e.g., threshold values).

Conditions

Threshold type

Static

Use a value as a threshold

Anomaly detection

Use a band as a threshold

Whenever CPUUtilization is...

Define the alarm condition.

Greater

> threshold

Greater/Equal

\geq threshold

Lower/Equal

\leq threshold

Lower

$<$ threshold

than...

Define the threshold value.

10

Must be a number

► Additional configuration

Cancel

Next

Configure actions for the alarm, such as sending a notification to an SNS topic or an Auto Scaling action.

Configure actions

Notification

Add notification

Auto Scaling action

Add Auto Scaling action

EC2 action

Alarm state trigger

Define the alarm state that will trigger this action.

[Remove](#)

In alarm

The metric or expression is outside of the defined threshold.

OK

The metric or expression is within the defined threshold.

Insufficient data

The alarm has just started or not enough data is available.

Take the following action...

Define what will happen to the EC2 instance with the Instance ID i-0be11dde342ef1ced when this alarm is triggered.

Recover this instance

You can only recover certain EC2 instance types. [See documentation](#)

Stop this instance

You can only stop an instance if it is backed by an EBS volume. AWS will use the existing Service Linked Role (AWSServiceRoleForCloudWatchEvents) to perform this action. [Show IAM policy document](#)

Terminate this instance

You will not be able to terminate this instance if termination protection is enabled. AWS will use the existing Service Linked Role (AWSServiceRoleForCloudWatchEvents) to perform this action. [Show IAM policy document](#)

Reboot this instance

An instance reboot is equivalent to an operating system reboot. AWS will use the existing Service Linked Role (AWSServiceRoleForCloudWatchEvents) to perform this action. [Show IAM policy document](#)

[Add EC2 action](#)

Systems Manager action [Info](#)

This action will create an Incident or OpsItem in Systems Manager when the alarm is **In alarm** state.

[Add Systems Manager action](#)

[Cancel](#)

[Previous](#)

[Next](#)

Provide a name and description for the alarm.

m

Add name and description

Name and description

Alarm name

HighCPUUtilization

Alarm description - optional [View formatting guidelines](#)

Edit Preview

```
# This is an H1
**double asterisks will produce strong character**
This is [an example](https://example.com/) inline link.
```

Up to 1024 characters (0/1024)

ⓘ Markdown formatting is only applied when viewing your alarm in the console. The description will remain in plain text in the alarm notifications.

Review your settings and click "Create alarm."

Preview and create

Step 1: Specify metric and conditions Edit

Metric

Graph
This alarm will trigger when the blue line goes above the red line for 1 datapoints within 5 minutes.

Percent

Namespaces AWS/EC2

Metric name CPUUtilization

InstanceId i-0be11dde342ef1ced

Instance name FoodWebDeploy

Statistic Average

Period 5 minutes

Conditions

Threshold type

Static

Whenever **CPUUtilization** is
Greater (>)

than...

10

► Additional configuration

Step 2: Configure actions

Edit

Actions

EC2 action

When In alarm, stop this instance (Instance ID: i-0be11dde342ef1ced)

Step 3: Add name and description

Edit

Name and description

Name

HighCPUUtilization

Description

-

Cancel

Previous

Create alarm

Here is result:

The screenshot shows the AWS CloudWatch Alarms page. At the top, a green banner indicates "Successfully created alarm HighCPUUtilization." The left sidebar lists various CloudWatch services like Logs, Metrics, and X-Ray. The main pane displays an "Alarms (1)" section with a table. The single alarm listed is "HighCPUUtilization", which is in an "Insufficient data" state. The condition for this alarm is "CPUUtilization > 10 for 1 datapoints within 5 minutes".

F. S3 Bucket

1. Create S3 Bucket

Navigate to S3 Bucket

The screenshot shows the AWS search results for "S3". The search bar at the top contains "S3". The results are categorized under "Services" and "Features". The "Services" section shows the "S3" card, which is highlighted with a blue border, indicating it is selected. Other services listed include S3 Glacier, AWS Snow Family, and Storage Gateway. The "Features" section shows the "Imports from S3" card.

Create a New Bucket

The screenshot shows the AWS S3 service page. At the top right, there's a call-to-action box with the heading "Create a bucket". Below it, a text block explains that every object in S3 is stored in a bucket and provides instructions to upload files and folders. A prominent orange "Create bucket" button is at the bottom of this box. To the left, there's a section titled "How it works" with a video thumbnail labeled "Introduction to Amazon S3" and a "Copy link" button.

Fill the bucket name

The screenshot shows the "Create bucket" configuration page. The main title is "Create bucket" with an "Info" link. Below it, a sub-section titled "General configuration" contains fields for "AWS Region" (set to "Asia Pacific (Sydney) ap-southeast-2") and "Bucket name" (set to "foodwebdeploy"). An info message states that the bucket name must be unique and follows naming rules, with a link to "rules for bucket naming". There's also a section for "Copy settings from existing bucket - optional" with a "Choose bucket" button and a note about copied settings. A placeholder text "Format: s3://bucket/prefix" is shown at the bottom.

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 enforced

Block Public Access settings for this bucket

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 this bucket and its 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 this bucket 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 existing policies that allow public access to S3 resources.

Block public and cross-account access to buckets and objects through **any** public bucket or access point policies

S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

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 tag](#)

Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type [Info](#)

- 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)
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](#).

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

i After creating the bucket, you can upload files and folders to the bucket, and configure additional bucket settings.

[Cancel](#)

[Create bucket](#)

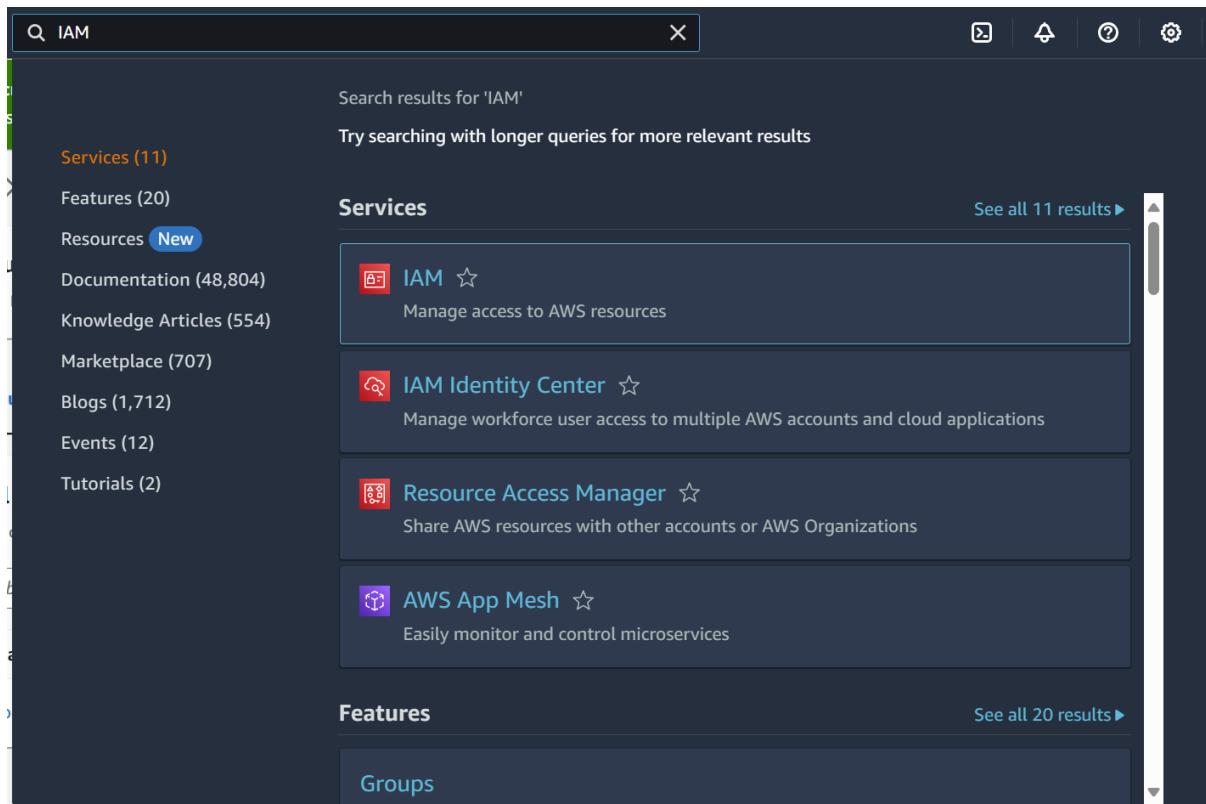
Here is result:

General purpose buckets	Directory buckets		
General purpose buckets (1) Info			
Buckets are containers for data stored in S3. Learn more 			
<input type="text" value="Find buckets by name"/>  	 1  		
Name	AWS Region	Access	Creation date
foodwebdeploy	Asia Pacific (Sydney) ap-southeast-2	Bucket and objects not public	November 30, 2023, 10:37:42 (UTC+07:00)

G. IAM Role or Credentials for S3

1. Create a IAM role for S3

Navigate to IAM in search bar



The screenshot shows the AWS search interface with the query 'IAM' entered in the search bar. The results are categorized under 'Services' and 'Features'.

- Services (11):**
 - IAM** Manage access to AWS resources
 - IAM Identity Center** Manage workforce user access to multiple AWS accounts and cloud applications
 - Resource Access Manager** Share AWS resources with other accounts or AWS Organizations
 - AWS App Mesh** Easily monitor and control microservices
- Features:**
 - Groups**

Click to button create Role

The screenshot shows the AWS IAM Roles management interface. On the left, the navigation menu includes 'Identity and Access Management (IAM)', 'Dashboard', 'Access management' (with 'Roles' selected), 'Policies', 'Identity providers', and 'Account settings'. Under 'Access reports', there are 'Access analyzer', 'External access', 'Unused access', and 'Analyzers and settings'. The main panel displays a table of roles:

Role name	Trusted entities
3Regions@@	AWS Service: ec2
AWSServiceRoleForCloudWatchEvents	AWS Service: events (Service-Linked)
AWSServiceRoleForSupport	AWS Service: support (Service-Linked)
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked)

Below the table, there is a section titled 'Roles Anywhere' with a 'Manage' button.

Choose AWS service as the trusted entity and select "EC2". This allows EC2 instances to assume the role.

Select trusted entity Info

Trusted entity type

AWS service

Allow AWS services like EC2, Lambda, or others to perform actions in this account.

AWS account

Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.

Web identity

Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.

SAML 2.0 federation

Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.

Custom trust policy

Create a custom trust policy to enable others to perform actions in this account.

Use case

Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

Service or use case

EC2

Choose a use case for the specified service.

Use case

EC2

Allows EC2 instances to call AWS services on your behalf.

EC2 Role for AWS Systems Manager

Allows EC2 instances to call AWS services like CloudWatch and Systems Manager on your behalf.

EC2 Spot Fleet Role

Allows EC2 Spot Fleet to request and terminate Spot Instances on your behalf.

EC2 - Spot Fleet Auto Scaling

Allows Auto Scaling to access and update EC2 spot fleets on your behalf.

EC2 - Spot Fleet Tagging

Allows EC2 to launch spot instances and attach tags to the launched instances on your behalf.

EC2 - Spot Instances

Allows EC2 Spot Instances to launch and manage spot instances on your behalf.

EC2 - Spot Fleet

Allows EC2 Spot Fleet to launch and manage spot fleet instances on your behalf.

EC2 - Scheduled Instances

Allows EC2 Scheduled Instances to manage instances on your behalf.

Attach Policy for S3 Access

Permissions policies (1/898) [Info](#)

Choose one or more policies to attach to your new role.

Filter by Type

<input type="checkbox"/>	Policy name	Type	Description
<input type="checkbox"/>	AmazonDMSRedsh...	AWS managed	Provides access to manage S3 settings ...
<input checked="" type="checkbox"/>	AmazonS3FullAccess	AWS managed	Provides full access to all buckets via t...
<input type="checkbox"/>	AmazonS3ObjectL...	AWS managed	Provides AWS Lambda functions permis...
<input type="checkbox"/>	AmazonS3Outpost...	AWS managed	Provides full access to Amazon S3 on ...
<input type="checkbox"/>	AmazonS3Outpost...	AWS managed	Provides read only access to Amazon S...
<input type="checkbox"/>	AmazonS3ReadOn...	AWS managed	Provides read only access to all bucket...
<input type="checkbox"/>	AWSBackupService...	AWS managed	Policy containing permissions necessar...
<input type="checkbox"/>	AWSBackupService...	AWS managed	Policy containing permissions necessar...
<input type="checkbox"/>	QuickSightAccessF...	AWS managed	Policy used by QuickSight team to acc...

Create a full meaning role name

Name, review, and create

Role details

Role name

Enter a meaningful name to identify this role.

foodwebsite

Maximum 64 characters. Use alphanumeric and '+=, @-' characters.

Description

Add a short explanation for this role.

Allows EC2 instances to call AWS services on your behalf.

Maximum 1000 characters. Use alphanumeric and '+=, @-' characters.

Step 1: Select trusted entities

Edit

Trust policy

```
1  {
2      "Version": "2012-10-17",
3      "Statement": [
4          {
5              "Effect": "Allow",
6              "Action": [
7                  "sts:AssumeRole"
8              ],
9              "Principal": {
10                  "Service": [
11                      "ec2.amazonaws.com"
12                  ]
13              }
14          }
15      ]
16 }
```

Step 2: Add permissions

Edit

Permissions policy summary

Policy name	Type	Attached as
AmazonS3FullAccess	AWS managed	Permissions policy

Step 3: Add tags

Add tags - optional [Info](#)

Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

[Add new tag](#)

You can add up to 50 more tags.

[Cancel](#) [Previous](#) [Create role](#)

Here is result:

[Permissions](#) [Trust relationships](#) [Tags](#) [Access Advisor](#) [Revoke sessions](#)

Permissions policies (1) [Info](#) [Remove](#) [Add permissions ▾](#)

You can attach up to 10 managed policies.

Filter by Type [All types ▾](#) [1](#)

<input type="checkbox"/> Policy name Edit	Type	Attached entities
<input type="checkbox"/> AmazonS3FullAccess	AWS managed	1

▶ **Permissions boundary (not set)**

▼ **Generate policy based on CloudTrail events**

You can generate a new policy based on the access activity for this role, then customize, create, and attach it to this role. AWS uses your CloudTrail events to identify the services and actions used and generate a policy. [Learn more](#)

[Generate policy](#)

2. Attach the IAM Role to Your EC2 Instance

Navigate to EC2 Dashboard

Search results for 'ec2'

Try searching with longer queries for more relevant results

Services (13)

- Features (54)
- Resources **New**
- Documentation (34,108)
- Knowledge Articles (597)
- Marketplace (3,235)
- Blogs (2,090)
- Events (30)
- Tutorials (21)

Services

- EC2** ☆
Virtual Servers in the Cloud
- EC2 Image Builder** ☆
A managed service to automate build, customize and deploy OS images
- Recycle Bin**
Protect resources from accidental deletion
- Amazon Inspector** ☆
Continual vulnerability management at scale

See all 13 results ►

Features

- Dashboard**

See all 54 results ►

Select Your EC2 Instance

Instances (1/2) **Info**

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
FoodWebDeploy	i-0be11dde342ef1ced	Running	t2.micro	2/2 checks passed	1 alarm...
WebAppAPI	i-047fc4d796dca4cc5	Stopped	t2.micro	-	No alarms

Instance: i-0be11dde342ef1ced (FoodWebDeploy)

Details Security Networking Storage Status checks Monitoring Tags

Instance summary Info

Instance ID i-0be11dde342ef1ced (FoodWebDeploy)	Public IPv4 address 3.27.150.120 [open address]	Private IPv4 addresses 172.31.28.105
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-3-27-150-120.ap-southeast-2.compute.amazonaws.com [open address]

Select the instance, then click on "Actions" > "Security" > "Modify IAM role"

EC2 > Instances > i-0be11dde342ef1ced

Instance summary for i-0be11dde342ef1ced (FoodWebDeploy) [Info](#)

		Actions ▾	
Updated less than a minute ago		Connect	
Instance ID	i-0be11dde342ef1ced (FoodWebDeploy)	Pub	Manage instance state
IPv6 address	-	Inst	Instance settings ►
Hostname type	Private IP DNS name (IPv4 only)	Security ►	Networking ►
IP name: ip-172-31-28-105.ap-southeast-2.compute.internal	ip-172-31-28-105.ap-southeast-2.compute.internal	Image and templates ►	Change security groups
Answer private resource DNS name	Instance type	Monitor and troubleshoot ►	Get Windows password
IPv4 (A)	t2.micro		southeast- open
Auto-assigned IP address	VPC ID		Modify IAM role
3.27.150.120 [Public IP]	vpc-0ad35e8f259717228		
IAM Role	Subnet ID		
			Elastic IP addresses -
			AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations.
			Learn more ↗
			Auto Scaling Group name

Attach the Role to the Instance

EC2 > Instances > i-0be11dde342ef1ced > Modify IAM role

Modify IAM role [Info](#)

Attach an IAM role to your instance.

Instance ID
i-0be11dde342ef1ced (FoodWebDeploy)

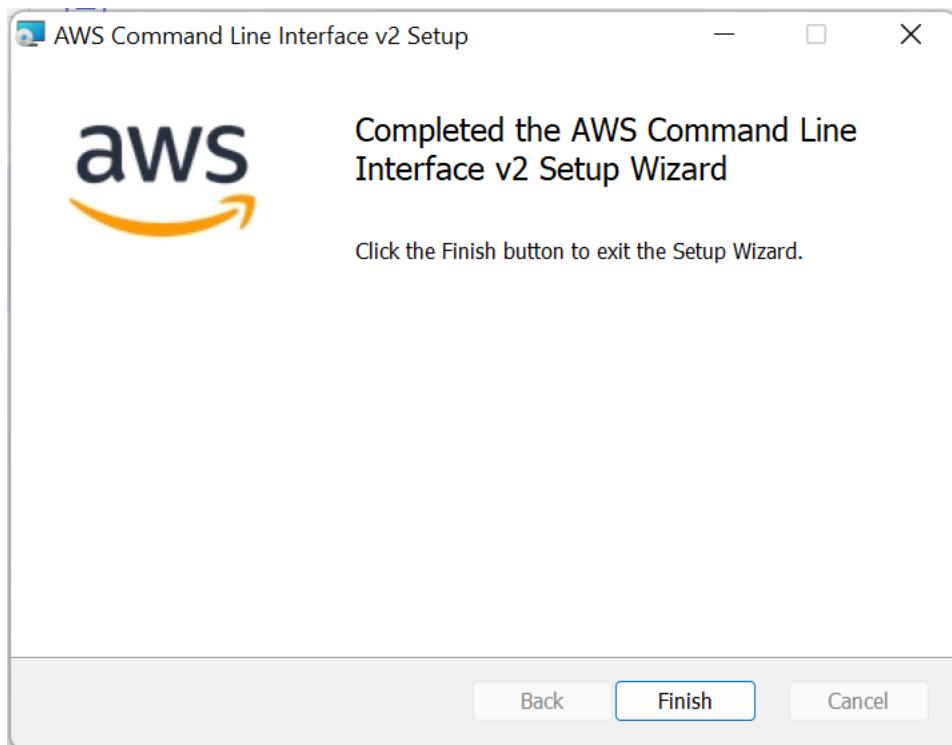
IAM role
Select an IAM role to attach to your instance or create a new role if you haven't created any. The role you select replaces any roles that are currently attached to your instance.

foodwebsite [▼](#) [Create new IAM role ↗](#)

[Cancel](#) [Update IAM role](#)

3. Set up CLI

Go to <https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html>



Here is result after installing successfully

A screenshot of a Windows Command Prompt window titled "Command Prompt". The window shows the following text:

```
Microsoft Windows [Version 10.0.22000.2538]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ungdu>cd ..

C:\Users>cd ..

C:\>aws --version
aws-cli/2.14.3 Python/3.11.6 Windows/10 exe/AMD64 prompt/off

C:\>-
```

4. Confire AWS CLI

Naviagate to IAM

Q iam X

Search results for 'iam'

Try searching with longer queries for more relevant results

Services (11)

Features (20)

Resources **New**

Documentation (48,804)

Knowledge Articles (554)

Marketplace (707)

Blogs (1,712)

Events (12)

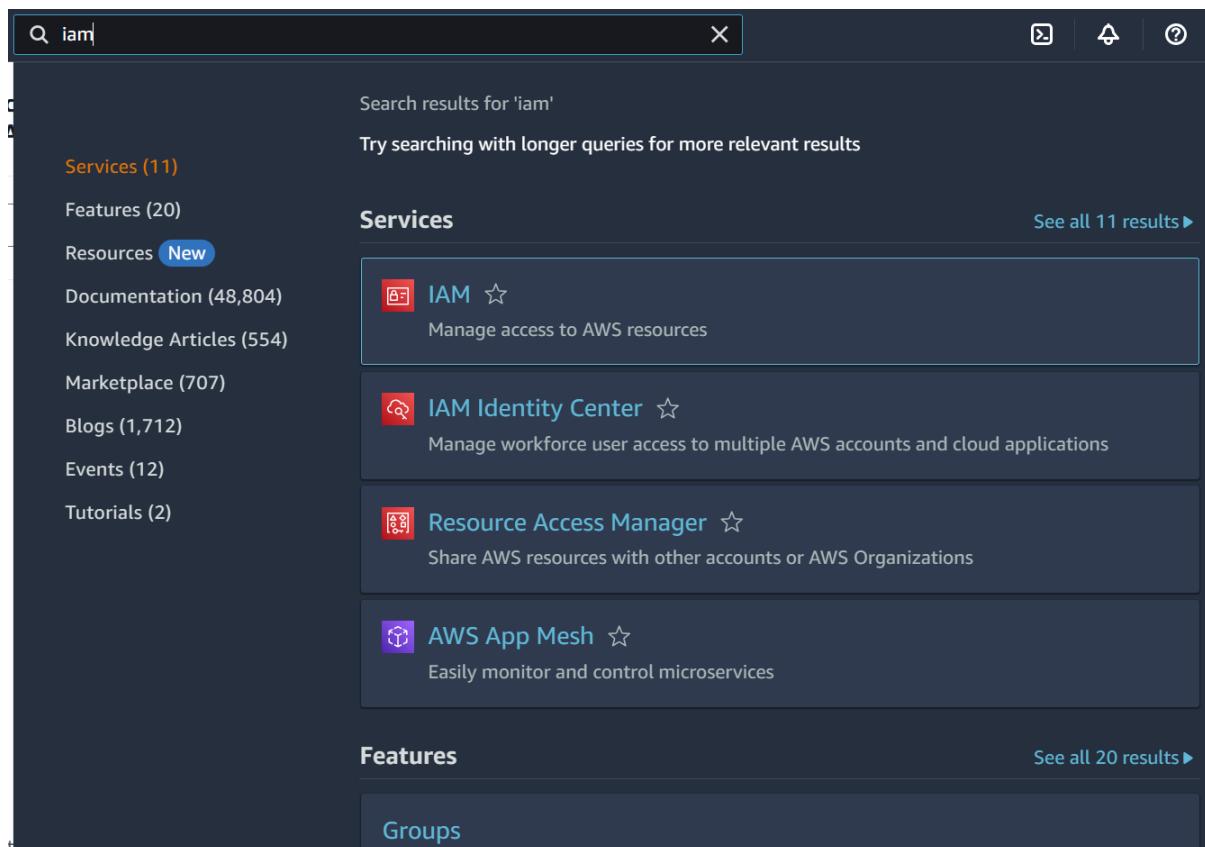
Tutorials (2)

Services See all 11 results ►

- IAM** ☆ Manage access to AWS resources
- IAM Identity Center** ☆ Manage workforce user access to multiple AWS accounts and cloud applications
- Resource Access Manager** ☆ Share AWS resources with other accounts or AWS Organizations
- AWS App Mesh** ☆ Easily monitor and control microservices

Features See all 20 results ►

Groups



aws Services Search [Alt+S]

Identity and Access Management (IAM) X

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles
- Policies
- Identity providers
- Account settings

Access reports

- Access analyzer
- External access
- Unused access
- Analyzers and settings

IAM > Dashboard

IAM Dashboard

Introducing Amazon Q

Receive guidance, get troubleshooting tips, and learn about AWS services and capabilities.

Security recommendations 1

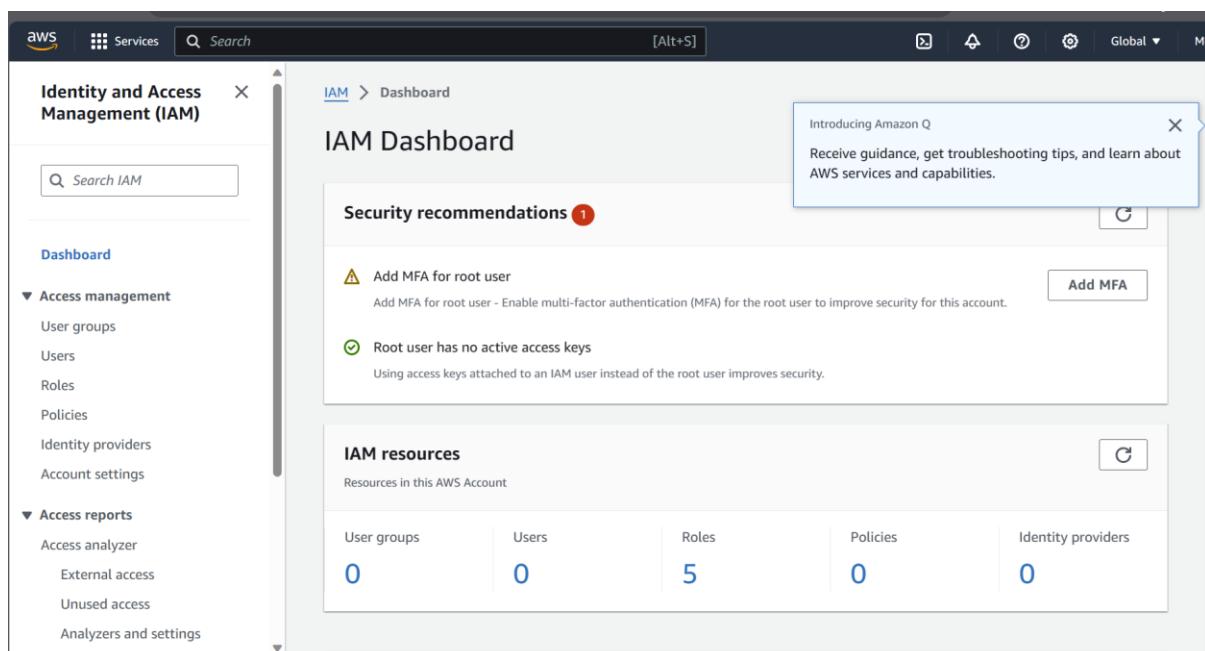
- Add MFA for root user
- Root user has no active access keys

Add MFA

IAM resources

Resources in this AWS Account

User groups	Users	Roles	Policies	Identity providers
0	0	5	0	0



Create an IAM User:

Click "Add user."

The screenshot shows the AWS Identity and Access Management (IAM) service interface. On the left, there's a navigation sidebar with a search bar and several menu items under 'Access management': 'User groups', 'Users' (which is selected), 'Roles', 'Policies', 'Identity providers', and 'Account settings'. Under 'Access reports', there are 'Access analyzer', 'External access', 'Unused access', and 'Analyzers and settings'. The main content area is titled 'Users (0) Info' and contains a message: 'An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.' Below this is a search bar and a table header with columns: 'User name', 'Path', 'Group:', 'Last activity', 'MFA', and 'Pas'. A message at the bottom of the table says 'No resources to display'.

Enter a username.

Choose "Programmatic access" as the access type.

The screenshot shows the 'User details' step of the 'Create New User' wizard. It has a title 'User details' and a section for 'User name' containing the value 'foodweb@@'. Below it is a note: 'The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ _ - (hyphen)'. There's a checked checkbox for 'Provide user access to the AWS Management Console - optional' with a note: 'If you're providing console access to a person, it's a best practice [to manage their access in IAM Identity Center](#)'. A question 'Are you providing console access to a person?' is followed by two options: 'Specify a user in Identity Center - Recommended' (radio button unselected) and 'I want to create an IAM user' (radio button selected). The note for the second option states: 'We recommend that you create IAM users only if you need to enable programmatic access through access keys, service-specific credentials for AWS CodeCommit or Amazon Keyspaces, or a backup credential for emergency account access.'

Console password

Autogenerated password
You can view the password after you create the user.

Custom password
Enter a custom password for the user.

Show password

Users must create a new password at next sign-in - Recommended
Users automatically get the [IAMUserChangePassword](#) policy to allow them to change their own password.

ⓘ If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after you create this IAM user. [Learn more](#)

[Cancel](#) [Next](#)

Set permissions for the user (e.g., attach a policy that grants S3 access).

IAM > Users > Create user

Step 1
[Specify user details](#)

Step 2
Set permissions

Step 3
Review and create

Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. [Learn more](#)

Permissions options

- Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.
- Copy permissions
Copy all group memberships, attached managed policies, and inline policies from an existing user.
- Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

ⓘ Get started with groups
Create a group and select policies to attach to the group. We recommend using groups to manage user permissions by job function, AWS service access, or custom permissions. [Learn more](#)

[Create group](#)

Permissions options

Add user to group
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

Copy permissions
Copy all group memberships, attached managed policies, and inline policies from an existing user.

Attach policies directly
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

Permissions policies (1/1160)

Choose one or more policies to attach to your new user.

Filter by Type All types 12 matches

Policy name <input type="button" value="Z"/>	Type	Attached entities
<input type="checkbox"/> <input type="button" value="+"/>  AmazonDMSRedshift...	AWS managed	0
<input checked="" type="checkbox"/> <input type="button" value="+"/>  AmazonS3FullAccess	AWS managed	1
<input type="checkbox"/> <input type="button" value="+"/>  AmazonS3ObjectLam...	AWS managed	0

Here is result

Retrieve password

You can view and download the user's password below or email users instructions for signing in to the AWS Management Console. This is the only time you can view and download this password.

Console sign-in details

Console sign-in URL
 <https://614018551910.signin.aws.amazon.com/console>

User name
 foodweb@@

Console password

Users (1) Info						
An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.						
<input type="button" value="Create user"/> <input type="button" value="Delete"/> <input type="button" value="Search"/> < 1 > ⚙️						
□	User name	▲ ▼ Path	Groups ▼	Last activity ▼	MFA ▼	P
□	foodweb@@	/ 0		-		

On the user details page, click the "Security credentials" tab.

foodweb@@ Info		
Summary		
ARN 	Console access 	Access key 1 Create access key
Created November 30, 2023, 14:20 (UTC+07:00)	Last console sign-in 	
Permissions Groups Tags Security credentials Access Advisor		
Permissions policies (1)		
Permissions are defined by policies attached to the user directly or through groups.		
<input type="button" value="Add permissions ▾"/> <input type="button" value="Remove"/> <input type="button" value="Search"/> <input type="button" value="Filter by Type"/> All types ▾ < 1 > ⚙️		

Under the "Access keys" section, click "Create access key" if you're creating a new user or "Show" to view an existing user's access key.

5. Retrieve the Access Key

H. Transfer data from EC2 to S3 in the same region

1. Connect to Your EC2 Instance

The screenshot shows a terminal window titled "ec2-user@ip-172-31-28-105:~". The session starts with a welcome message for the "ec2-user" account on Amazon Linux 2023. It includes a URL for the Amazon Linux 2023 documentation. The "Last login" information is also displayed.

```
Using username "ec2-user".
Authenticating with public key "imported-openssh-key"
#
# Amazon Linux 2023
#
# https://aws.amazon.com/linux/amazon-linux-2023
#
Last login: Mon Nov 27 15:11:32 2023 from 116.110.40.113
[ec2-user@ip-172-31-28-105 ~]$
```

2. Update the Instance (Optional but Recommended)

The screenshot shows a Windows PowerShell window titled "ec2-user@ip-172-31-28-105:~". It displays a warning about setting it as the default terminal application. The session then connects via SSH to an EC2 instance, showing a warning about the host's fingerprint. The user responds "yes" to the prompt. The session ends with the "Last login" information.

```
Windows Terminal can be set as the default terminal application in your settings. Open Settings

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ungdu> ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem ec2-user@ec2-3-27-150-120.ap-south-east-2.compute.amazonaws.com
The authenticity of host 'ec2-3-27-150-120.ap-southeast-2.compute.amazonaws.com (3.27.150.120)' can't be established.
ECDSA key fingerprint is SHA256:ZP+qIxTxjZn00w4CwntzwSFaB79pxKYJbwjymdGlvng.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-27-150-120.ap-southeast-2.compute.amazonaws.com,3.27.150.120' (ECDSA) to the list of known hosts.
#
# Amazon Linux 2023
#
# https://aws.amazon.com/linux/amazon-linux-2023
#
Last login: Thu Nov 30 03:14:57 2023 from 203.205.32.65
[ec2-user@ip-172-31-28-105 ~]$ |
```

sudo yum update -y

The screenshot shows a terminal window titled "[ec2-user@ip-172-31-28-105 ~]\$". The command "sudo yum update -y" is run, followed by output indicating metadata expiration, dependencies resolved, nothing to do, and a complete update.

```
[ec2-user@ip-172-31-28-105 ~]$ sudo yum update -y
Last metadata expiration check: 0:09:51 ago on Thu Nov 30 03:10:55 2023.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-28-105 ~]$ |
```

3. Install AWS CLI

Install AWS CLI if Not Present

```
sudo yum install aws-cli -y
```

Because I install AWS CLI before, so I will check it install successfully

Connect to Your EC2 Instance

```
ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem ec2-user@ec2-3-26-23-101.ap-southeast-2.compute.amazonaws.com
```

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ungdu> ssh -i C:/Users/ungdu/Downloads/DeployE-Commerce/FoodWebDeploy.pem ec2-user@ec2-3-26-23-101.ap-southeast-2.compute.amazonaws.com
The authenticity of host 'ec2-3-26-23-101.ap-southeast-2.compute.amazonaws.com (3.26.23.101)' can't be established.
ECDSA key fingerprint is SHA256:ZP+qIxTXjZn00w4CwntzwSFaB79pxKYJbwjymdGlvng.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-26-23-101.ap-southeast-2.compute.amazonaws.com,3.26.23.101' (ECDSA) to the list of known hosts.

  _#_
 ~\_\####_          Amazon Linux 2023
 ~~ \####\_
 ~~  \###|
 ~~   \#/ ___ https://aws.amazon.com/linux/amazon-linux-2023
 ~~   \~' '-->
 ~~~   /           /
 ~~~ .-. -/
 ~~~ /_ -/
 _/m/`_

Last login: Sun Dec  3 16:34:06 2023 from 116.110.41.54
```

Check for Existing AWS CLI Installation

```
aws --version
```

```
[ec2-user@ip-172-31-28-105 ~]$ aws --version
aws-cli/2.9.19 Python/3.9.16 Linux/6.1.61-85.141.amzn2023.x86_64 source/x86_64.amzn.2023 prompt/off
[ec2-user@ip-172-31-28-105 ~]$ |
```

Configure AWS CLI

Navigate to IAM Service

Q iam X

Search results for 'iam'

Try searching with longer queries for more relevant results

Services (11)

Features (20)

Resources **New**

Documentation (48,891)

Knowledge Articles (553)

Marketplace (707)

Blogs (1,714)

Events (12)

Tutorials (2)

See all 11 results ►

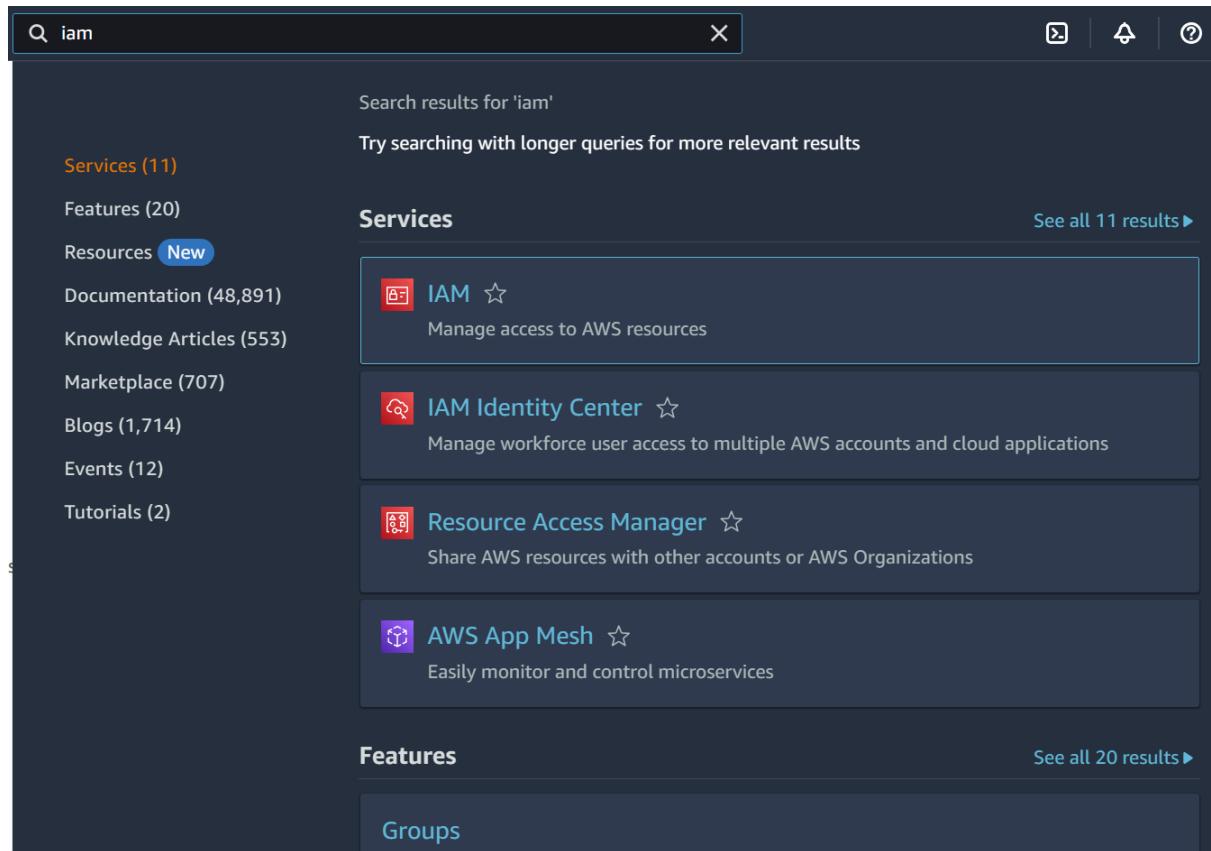
Services

- IAM** ☆ Manage access to AWS resources
- IAM Identity Center** ☆ Manage workforce user access to multiple AWS accounts and cloud applications
- Resource Access Manager** ☆ Share AWS resources with other accounts or AWS Organizations
- AWS App Mesh** ☆ Easily monitor and control microservices

See all 20 results ►

Features

Groups



Use an IAM User

aws Services Search [Alt+S]

Identity and Access Management (IAM) X

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles
- Policies
- Identity providers
- Account settings

Access reports

- Access analyzer
- External access
- Unused access
- Analyzers and settings

IAM > Dashboard

IAM Dashboard

Security recommendations 1

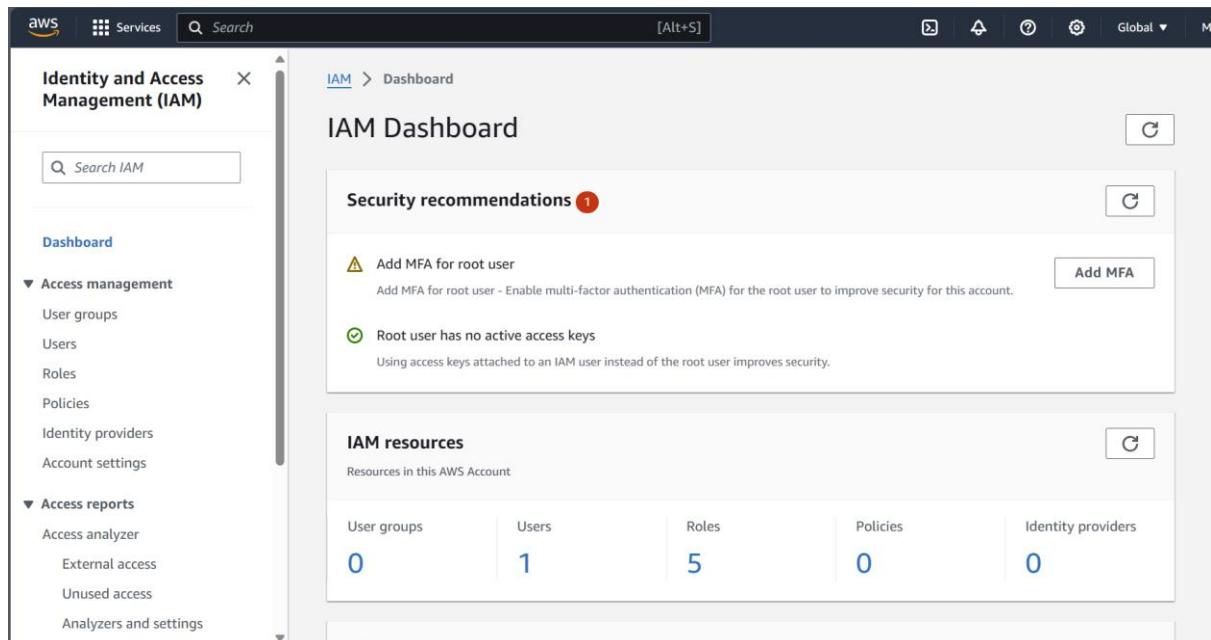
- Add MFA for root user
- Root user has no active access keys

Add MFA

IAM resources

Resources in this AWS Account

User groups	Users	Roles	Policies	Identity providers
0	1	5	0	0



The screenshot shows the AWS IAM 'Users' page. At the top, there is a breadcrumb navigation: 'IAM > Users'. Below the header, a table lists one user: 'foodweb@@'. The table has columns for 'User name', 'Path', 'Groups', 'Last activity', and 'MFA'. There are buttons for 'Delete' and 'Create user' at the top right. A search bar and pagination controls are also present.

User name	Path	Groups	Last activity	MFA
foodweb@@	/	-	-	-

Assign Permissions

Go to create access key

The screenshot shows the 'Summary' section of the AWS IAM User Details page for 'foodweb@@'. It displays the ARN (arn:aws:iam::614018551910:user/foodweb@@), which is enabled for console access without MFA. It also shows the creation date (November 30, 2023) and that no last console sign-in has occurred. A 'Create access key' link is visible.

ARN	Console access	Access key 1
arn:aws:iam::614018551910:user/foodweb@@	Enabled without MFA	Create access key

Choose Use Case

Access key best practices & alternatives Info

Avoid using long-term credentials like access keys to improve your security. Consider the following use cases and alternatives.

Use case

Command Line Interface (CLI)

You plan to use this access key to enable the AWS CLI to access your AWS account.

Local code

You plan to use this access key to enable application code in a local development environment to access your AWS account.

Application running on an AWS compute service

You plan to use this access key to enable application code running on an AWS compute service like Amazon EC2, Amazon ECS, or AWS Lambda to access your AWS account.

Third-party service

You plan to use this access key to enable access for a third-party application or service that monitors or manages your AWS resources.

Application running outside AWS

Set description tag - *optional* Info

The description for this access key will be attached to this user as a tag and shown alongside the access key.

Description tag value

Describe the purpose of this access key and where it will be used. A good description will help you rotate this access key confidently later.

access from local

Maximum 256 characters. Allowed characters are letters, numbers, spaces representable in UTF-8, and: _ . : / = + - @

[Cancel](#)

[Previous](#)

[Create access key](#)

Then you can download .csv file to computer and then click done

The screenshot shows the AWS IAM Access Key creation interface. At the top, a green header bar indicates that an access key has been created. Below this, there's a note about the不可恢复性 of the secret access key. The main area displays the Access key (AKIAY55S3SBTNCMVS5OG) and Secret access key (a series of asterisks). A 'Show' link is available for the secret key. To the right, a sidebar titled 'Access key best practices' lists several security recommendations. At the bottom, there are 'Download .csv file' and 'Done' buttons.

aws configure

aws s3 ls

```
[ec2-user@ip-172-31-28-105 ~]$ aws configure
AWS Access Key ID [*****S50G]: AKIAY55S3SBTNCMVS5OG
AWS Secret Access Key [*****F8Ih]: 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
Default region name [Asia Pacific (Sydney)]: ap-southeast-2
Default output format [json]: json
[ec2-user@ip-172-31-28-105 ~]$ aws s3 ls
2023-11-30 03:37:43 foodwebdeploy
[ec2-user@ip-172-31-28-105 ~]$ |
```

Navigate to the Target Directory

```
[ec2-user@ip-172-31-28-105 ~]$ cd /var/www/html/
[ec2-user@ip-172-31-28-105 html]$ ls
contactus.css contactus.html fonts images index.html index.js nav.css styles.css svg
[ec2-user@ip-172-31-28-105 html]$ |
```

Transfer Files

navigate to s3

Q s3 X

Search results for 's3'
Try searching with longer queries for more relevant results

Services (8)

Features (29)

Resources **New**

Documentation (24,023)

Knowledge Articles (292)

Marketplace (1,576)

Blogs (1,337)

Events (25)

Tutorials (13)

Services

See all 8 results ►

S3 ☆ Scalable Storage in the Cloud

Top features

Buckets Access points Storage Lens dashboards Batch Operations

S3 Glacier ☆ Archive Storage in the Cloud

AWS Snow Family ☆ Large Scale Data Transport

Storage Gateway ☆ Hybrid Storage Integration

Features

See all 29 results ►

Amazon S3

► Account snapshot

View Storage Lens dashboard

Storage lens provides visibility into storage usage and activity trends. [Learn more](#) ↗

General purpose buckets Directory buckets

General purpose buckets (1) [Info](#)

[C](#) [Copy ARN](#) [Empty](#) [Delete](#) [Create bucket](#)

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

Find buckets by name

< 1 > [⚙️](#)

Name	AWS Region	Access	Creation date
foodwebdeploy	Asia Pacific (Sydney) ap-southeast-2	Bucket and objects not public	November 30, 2023, 10:37:42 (UTC+07:00)

Create new folder

foodwebdeploy Info

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (0) Info

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](#)



Copy S3 URI

Copy URL

Download

Open

Delete

Actions ▾

Create folder

Upload

Find objects by prefix

< 1 >



Name	Type	Last modified	Size	Storage class
------	------	---------------	------	---------------

No objects

You don't have any objects in this bucket.

Upload

Fill the name and function

Folder

Folder name

BackupFoodWeb

/

Folder names can't contain "/". [See rules for naming](#)

Server-side encryption Info

Server-side encryption protects data at rest.

i The following encryption settings apply only to the folder object and not to sub-folder objects.

Server-side encryption

Do not specify an encryption key

The bucket settings for default encryption are used to encrypt the folder object when storing it in Amazon S3.

Specify an encryption key

The specified encryption key is used to encrypt the folder object before storing it in Amazon S3.

⚠ If your bucket policy requires objects to be encrypted with a specific encryption key, you must specify the same encryption key when you create a folder. Otherwise, folder creation will fail.

```
[ec2-user@ip-172-31-28-105 html]$ aws s3 cp .  
s3://foodwebdeploy/BackupFoodWeb/ --recursive
```

```
[ec2-user@ip-172-31-28-105 html]$ aws s3 cp . s3://foodwebdeploy/BackupFoodWeb/ --recursive  
upload: images/icon.png to s3://foodwebdeploy/BackupFoodWeb/images/icon.png  
upload: images/food.png to s3://foodwebdeploy/BackupFoodWeb/images/food.png  
upload: images/email.gif to s3://foodwebdeploy/BackupFoodWeb/images/email.gif  
upload: ./contactus.html to s3://foodwebdeploy/BackupFoodWeb/contactus.html  
upload: ./contactus.css to s3://foodwebdeploy/BackupFoodWeb/contactus.css  
upload: ./index.html to s3://foodwebdeploy/BackupFoodWeb/index.html  
upload: ./index.js to s3://foodwebdeploy/BackupFoodWeb/index.js  
upload: ./styles.css to s3://foodwebdeploy/BackupFoodWeb/styles.css  
upload: svg/clean.svg to s3://foodwebdeploy/BackupFoodWeb/svg/clean.svg  
upload: images/smallfood.png to s3://foodwebdeploy/BackupFoodWeb/images/smallfood.png  
upload: svg/mask.svg to s3://foodwebdeploy/BackupFoodWeb/svg/mask.svg  
upload: svg/sanitizer.svg to s3://foodwebdeploy/BackupFoodWeb/svg/sanitizer.svg  
upload: images/phone.gif to s3://foodwebdeploy/BackupFoodWeb/images/phone.gif  
upload: svg/thermo.svg to s3://foodwebdeploy/BackupFoodWeb/svg/thermo.svg  
upload: ./nav.css to s3://foodwebdeploy/BackupFoodWeb/nav.css  
upload: images/cook.gif to s3://foodwebdeploy/BackupFoodWeb/images/cook.gif  
upload: images/maps.gif to s3://foodwebdeploy/BackupFoodWeb/images/maps.gif  
upload: fonts/EMcomic-Bold.ttf to s3://foodwebdeploy/BackupFoodWeb/fonts/EMcomic-Bold.ttf  
upload: images/foodfavor.png to s3://foodwebdeploy/BackupFoodWeb/images/foodfavor.png  
upload: images/northern.png to s3://foodwebdeploy/BackupFoodWeb/images/northern.png  
upload: images/southern.png to s3://foodwebdeploy/BackupFoodWeb/images/southern.png  
upload: images/central.png to s3://foodwebdeploy/BackupFoodWeb/images/central.png  
[ec2-user@ip-172-31-28-105 html]$ |
```

Verify the Transfer

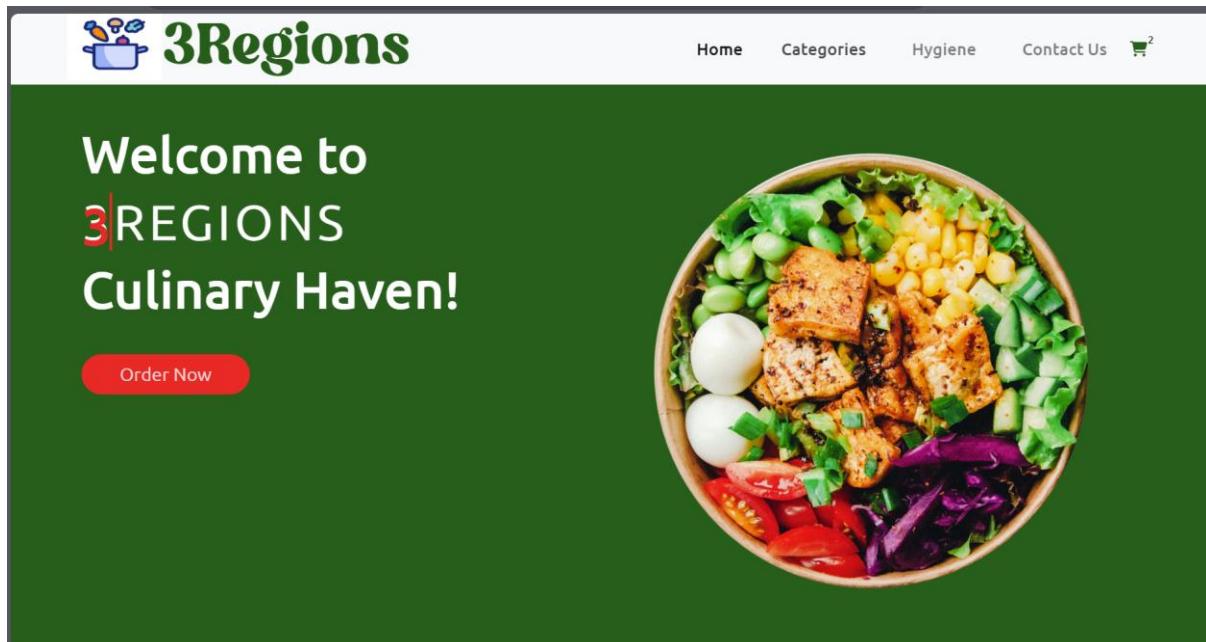
```
aws s3 ls s3://foodwebdeploy/BackupFoodWeb/ --recursive
```

```
[ec2-user@ip-172-31-28-105 html]$ aws s3 ls s3://foodwebdeploy/BackupFoodWeb/ --recursive  
2023-12-03 17:54:29          0 BackupFoodWeb/  
2023-12-03 17:55:54        8897 BackupFoodWeb/contactus.css  
2023-12-03 17:55:54        7677 BackupFoodWeb/contactus.html  
2023-12-03 17:55:54       38512 BackupFoodWeb/fonts/EMcomic-Bold.ttf  
2023-12-03 17:55:54      2420728 BackupFoodWeb/images/central.png  
2023-12-03 17:55:54      938390 BackupFoodWeb/images/cook.gif  
2023-12-03 17:55:54      68409 BackupFoodWeb/images/email.gif  
2023-12-03 17:55:54      4840 BackupFoodWeb/images/food.png  
2023-12-03 17:55:54     2065264 BackupFoodWeb/images/foodfavor.png  
2023-12-03 17:55:54      299 BackupFoodWeb/images/icon.png  
2023-12-03 17:55:54     41235 BackupFoodWeb/images/maps.gif  
2023-12-03 17:55:54    2492962 BackupFoodWeb/images/northern.png  
2023-12-03 17:55:54    162865 BackupFoodWeb/images/phone.gif  
2023-12-03 17:55:54    11373 BackupFoodWeb/images/smallfood.png  
2023-12-03 17:55:54   2290154 BackupFoodWeb/images/southern.png  
2023-12-03 17:55:54    72045 BackupFoodWeb/index.html  
2023-12-03 17:55:54    7536 BackupFoodWeb/index.js  
2023-12-03 17:55:54    2879 BackupFoodWeb/nav.css  
2023-12-03 17:55:54   19506 BackupFoodWeb/styles.css  
2023-12-03 17:55:54   14458 BackupFoodWeb/svg/clean.svg  
2023-12-03 17:55:54   3653 BackupFoodWeb/svg/mask.svg  
2023-12-03 17:55:54   1213 BackupFoodWeb/svg/sanitizer.svg  
2023-12-03 17:55:54   1639 BackupFoodWeb/svg/thermo.svg  
[ec2-user@ip-172-31-28-105 html]$ |
```

Objects (9) Info						
C Copy S3 URI Copy URL Download Open Delete Actions ▾						
Create folder Upload						
<input type="text"/> Find objects by prefix < 1 > 						
□	Name	Type	Last modified	Size	Storage class	⋮
□	contactus.css	css	December 4, 2023, 00:55:54 (UTC+07:00)	8.7 KB	Standard	⋮
□	contactus.html	html	December 4, 2023, 00:55:54 (UTC+07:00)	7.5 KB	Standard	⋮
□	fonts/	Folder	-	-	-	⋮
□	images/	Folder	-	-	-	⋮
□	index.html	html	December 4, 2023, 00:55:54 (UTC+07:00)	70.4 KB	Standard	⋮

IV. DEMO WEBSITE IN AWS

A. Home screen



B. Categories screen

The screenshot shows the 'Categories' screen of the 3Regions app. At the top, there is a navigation bar with links for Home, Categories, Hygiene, Contact Us, and a shopping cart icon with a count of 2. Below the navigation bar is a large title 'CATEGORIES' in a bold, dark green font. Underneath the title are three rectangular cards, each featuring a different type of Vietnamese cuisine:

- Northern:** Shows various Northern Vietnamese dishes including Phở Bò, Bún Chả, and Chả Cá Lã Vọng.
- Central:** Shows various Central Vietnamese dishes including Phở Gà, Xôi, and Cà Phê Trứng.
- Southern:** Shows various Southern Vietnamese dishes including Bánh Cuốn, Gỏi Cuốn, Nem Rán, and Bánh Mì.

Each card has a small orange circular arrow icon with a white upward-pointing arrow in the bottom right corner.

C. Detail categories screen

The screenshot shows the 'Northern Dishes' detail screen of the 3Regions app. At the top, there is a navigation bar with links for Home, Categories, Hygiene, Contact Us, and a shopping cart icon with a count of 2. Below the navigation bar is the title 'Northern Dishes' in a large, dark green font. The screen is divided into two main sections:

- Part 1:** Contains a list of seven dishes with quantity selection buttons (minus, zero, plus) to the right of each item.
 - Phở Bò (Beef Noodle Soup) - [0] +
 - Bún Chả (Grilled Pork with Vermicelli) - [0] +
 - Chả Cá Lã Vọng (Turmeric Fish with Dill) - [0] +
 - Bánh Cuốn (Steamed Rice Rolls) - [0] +
 - Gỏi Cuốn (Fresh Spring Rolls) - [0] +
 - Nem Rán (Fried Spring Rolls) - [0] +
 - Bánh Mì (Vietnamese Sandwich)
- Part 2:** Contains a list of six dishes with quantity selection buttons (minus, zero, plus) to the right of each item.
 - Bún Riêu (Crab and Tomato Soup) - [0] +
 - Phở Gà (Chicken Noodle Soup) - [0] +
 - Xôi (Sticky Rice) - [0] +
 - Cà Phê Trứng (Egg Coffee) - [0] +
 - Bánh Gối (Pillow Dumplings) - [0] +
 - Lẩu (Hot Pot) - [0] +

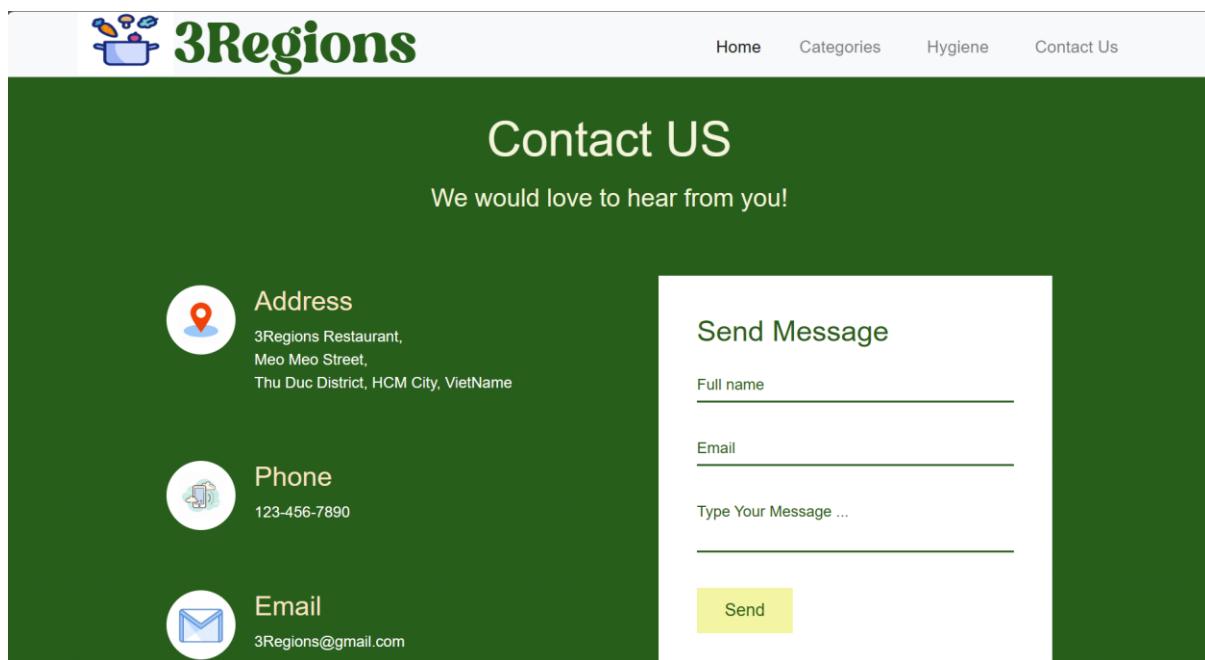
Each dish name is followed by its price in parentheses. There is also a small orange circular arrow icon with a white upward-pointing arrow in the bottom right corner.

D. Hygiene screen



The hygiene screen features a header with the 3Regions logo and navigation links for Home, Categories, Hygiene, Contact Us, and a shopping cart icon showing 2 items. The main title "HYGIENE" is displayed in large, bold letters. Below the title is a row of five icons with corresponding text: "eat SURE assured goodness", "Medically Certified Kitchen Staff", "200+ Stringent Quality Checks", "No Artificial Colours or Flavours", and "Double Sealed Packaging". A "Know More" button is located on the right. A central text block states: "While we have always followed hygiene regime at MOMOMIA, we have taken a few specific measures at these times." Below this are four circular icons with text: "Our Kitchen executives have been instructed to wear masks at all times.", "A daily log of our executives' body temperatures is being maintained.", "Every kitchen executive sanitizes his/her hands every hour.", and "Every kitchen surface is rigorously cleaned to ensure a clean and sanitized workstation." An orange arrow icon points upwards to the right.

E. Contact Us



The contact us screen features a header with the 3Regions logo and navigation links for Home, Categories, Hygiene, and Contact Us. The main title "Contact US" is displayed in large, bold letters. Below the title is a text block: "We would love to hear from you!". On the left side, there are three contact information sections: "Address" (with a location pin icon), "Phone" (with a phone icon), and "Email" (with an envelope icon). On the right side, there is a "Send Message" form with fields for "Full name", "Email", and "Type Your Message ...", and a "Send" button.

V. REFERENCE

- [1] [What is Amazon EC2? - Amazon Elastic Compute Cloud](#)
- [2] [What is Amazon S3? - Amazon Simple Storage Service](#)
- [3] [What is the AWS Command Line Interface? - AWS Command Line Interface \(amazon.com\)](#)
- [4] [Use Amazon S3 with the AWS CLI - AWS Command Line Interface](#)

[5] [Use Amazon S3 with Amazon EC2 - Amazon Elastic Compute Cloud](#)