MARK ANGELO SIAZON IV-ACSAD

Ass# 2: Create a How-To document guide based on the AWS Tutorial video for Beginners Guide.

1. What AWS Is and Its Key Benefits

Amazon Web Services (AWS) is the largest cloud platform in the world. Instead of buying expensive hardware and maintaining your own servers, AWS lets you rent IT infrastructure and services on demand.

Key Benefits:
- Cost efficiency – No need for upfront investments. Pay only for what you use.
- Scalability – If your website traffic grows from 100 to 100,000 users, AWS automatically adjusts capacity.
- Flexibility – Choose from 200+ services (compute, storage, databases, AI, IoT).
- Security – AWS complies with global security standards (ISO, GDPR, HIPAA).
- Global infrastructure – Data centers in over 30 regions worldwide for fast performance.

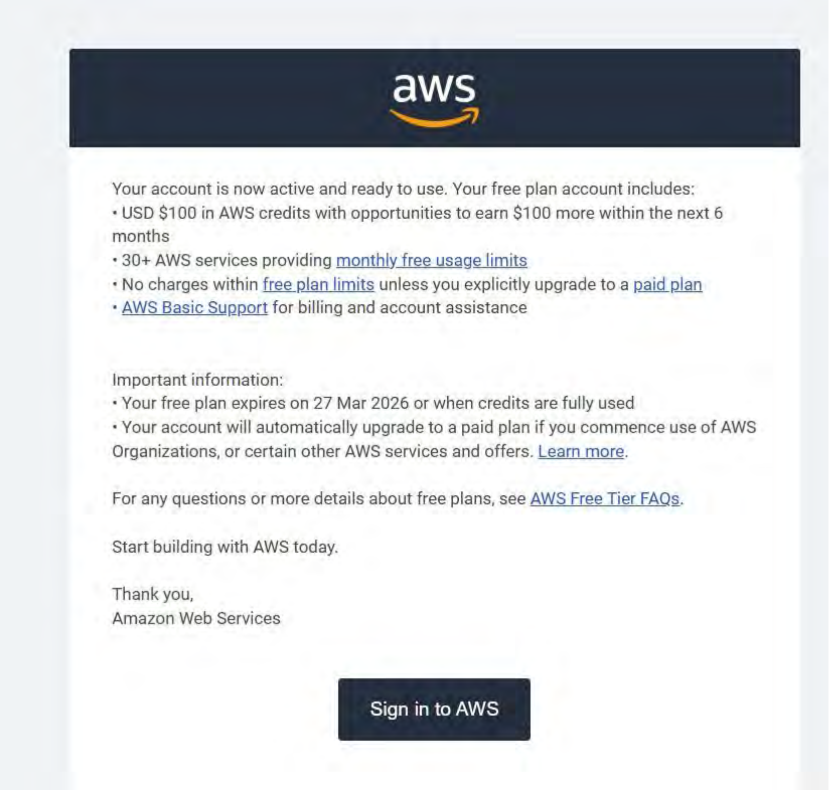
Think of AWS like electricity: instead of building your own power plant, you simply plug in and pay for what you consume.

2. Signing Up for AWS for Free

AWS provides a Free Tier account so you can explore without risk.

Steps:
1. Visit https://aws.amazon.com/free/
2. Click Create an AWS Account.
3. Fill in your personal details (name, email, password).
4. (Optional) Add a payment method for verification. AWS requires this to prevent misuse, but you won't be charged if you stay within Free Tier limits.
5. Choose a support plan – select Basic (Free).
6. Confirm and sign in to your AWS Management Console.

Note: Billing setup is optional. If you don't want to continue with full registration, you can still simulate the steps during class.


Your account is now active and ready to use. Your free plan account includes:
- USD $100 in AWS credits with opportunities to earn $100 more within the next 6 months
- 30+ AWS services providing monthly free usage limits
- No charges within free plan limits unless you explicitly upgrade to a paid plan
- AWS Basic Support for billing and account assistance

Important information:
- Your free plan expires on 27 Mar 2026 or when credits are fully used
- Your account will automatically upgrade to a paid plan if you commence use of AWS Organizations, or certain other AWS services and offers. Learn more.

For any questions or more details about free plans, see AWS Free Tier FAQs.

Start building with AWS today.

Thank you,
Amazon Web Services

3. Setting a Goal: Hosting a Website on AWS

Our hands-on project goal is to deploy a simple website on AWS.

Objective:
- Use EC2 for virtual server hosting.
- Use S3 for storing images and static files.
- Use RDS for database functionality.

This mirrors what real companies do: host websites, apps, and databases on AWS.

4. Exploring the AWS Management Console

The AWS Console is the dashboard where you control everything.

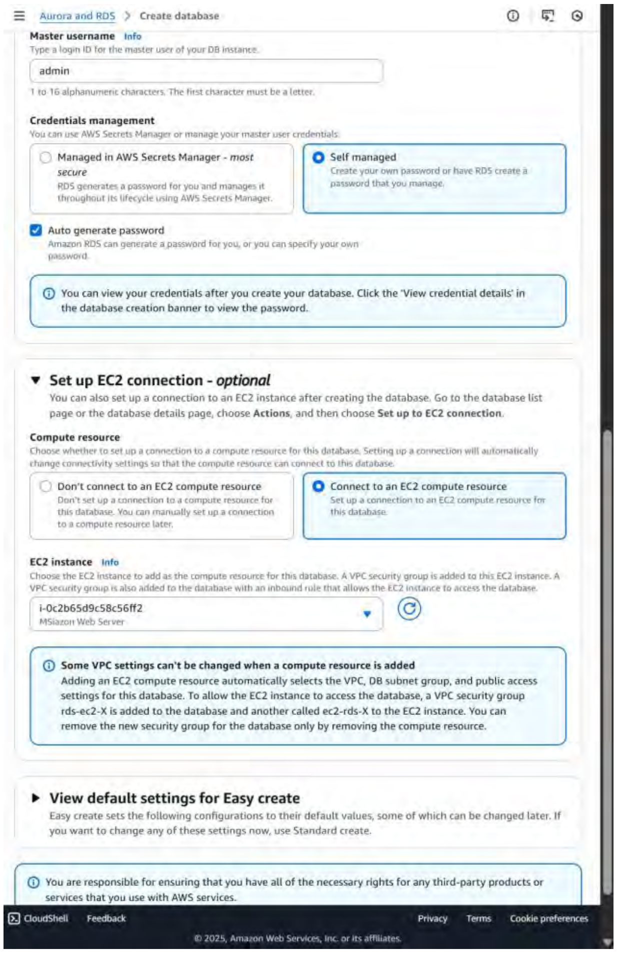
Features:
- Search bar – quickly find any service by name.
- Service categories: Compute, Storage, Databases, Networking & Security.
- Resource Groups – organize related services.

- Account Menu – manage billing, IAM users, and security.

5. EC2 – Launching a Virtual Server

Amazon EC2 lets you launch servers (instances) in the cloud.

Steps:
1. Open EC2 from the AWS Console.
2. Click Launch Instance.
3. Choose Amazon Linux 2 AMI (Free Tier eligible).
4. Select t3.micro instance
5. Configure security group – allow HTTP (80), HTTPS (443), SSH (22).
6. Launch → download your .pem key pair.
7. Your EC2 is now your personal cloud server.



Aurora and RDS > Create database

Master username Info
Type a login ID for the master user of your DB instance.
admin
1 to 16 alphanumeric characters. The first character must be a letter.

Credentials management
You can use AWS Secrets Manager or manage your master user credentials.

○ Managed in AWS Secrets Manager - *most secure*
RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

● Self managed
Create your own password or have RDS create a password that you manage.

☑ Auto generate password
Amazon RDS can generate a password for you, or you can specify your own password.

ⓘ You can view your credentials after you create your database. Click the 'View credential details' in the database creation banner to view the password.

▼ **Set up EC2 connection - *optional***
You can also set up a connection to an EC2 instance after creating the database. Go to the database list page or the database details page, choose **Actions**, and then choose **Set up to EC2 connection**.

Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

○ Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

● Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.

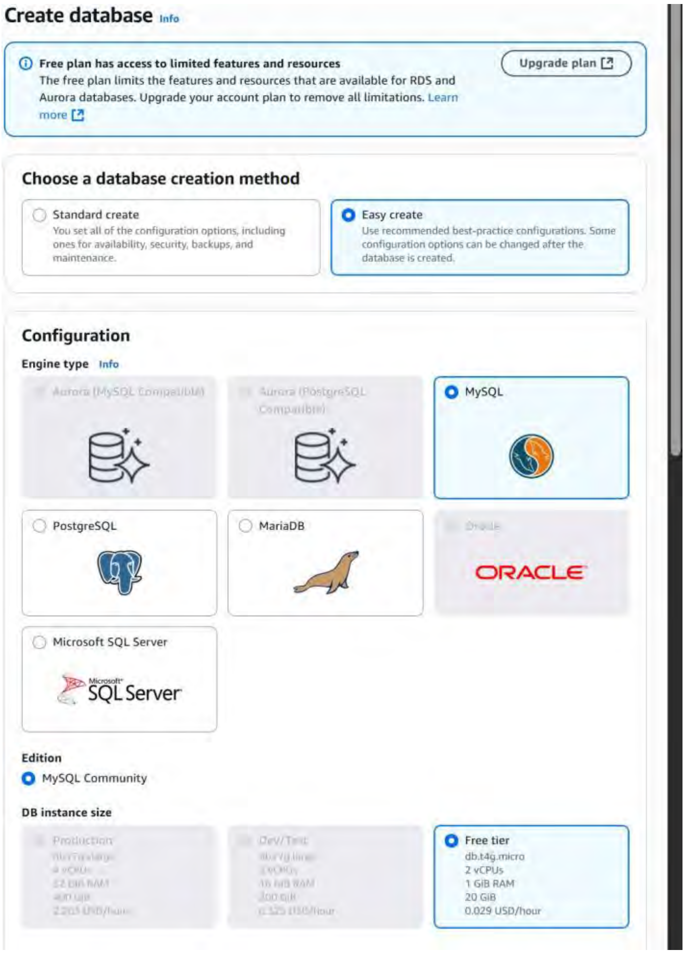
EC2 instance Info
Choose the EC2 instance to add as the compute resource for this database. A VPC security group is added to this EC2 instance. A VPC security group is also added to the database with an inbound rule that allows the EC2 instance to access the database.
i-0c2b65d9c58c56ff2
MSiazon Web Server

ⓘ **Some VPC settings can't be changed when a compute resource is added**
Adding an EC2 compute resource automatically selects the VPC, DB subnet group, and public access settings for this database. To allow the EC2 instance to access the database, a VPC security group rds-ec2-X is added to the database and another called ec2-rds-X to the EC2 instance. You can remove the new security group for the database only by removing the compute resource.

▶ **View default settings for Easy create**
Easy create sets the following configurations to their default values, some of which can be changed later. If you want to change any of these settings now, use Standard create.

ⓘ You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

© 2025, Amazon Web Services, Inc. or its affiliates.



Create database Info

ⓘ **Free plan has access to limited features and resources**
The free plan limits the features and resources that are available for RDS and Aurora databases. Upgrade your account plan to remove all limitations. Learn more

Choose a database creation method

○ Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

● Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Configuration

Engine type Info

○ Aurora (MySQL Compatible)
○ Aurora (PostgreSQL Compatible)
● MySQL
○ PostgreSQL
○ MariaDB
○ Oracle
○ Microsoft SQL Server

Edition
● MySQL Community

DB instance size

○ Production
[illegible]
4 vCPUs
32 GiB RAM
400 GiB
2.203 USD/hour

○ Dev/Test
[illegible]
2 vCPUs
16 GiB RAM
200 GiB
0.325 USD/hour

● Free tier
db.t4g.micro
2 vCPUs
1 GiB RAM
20 GiB
0.029 USD/hour

Use Case: Host apps, run backend services, or even experiments like Python scripts.

6. S3 – Configuring File Storage

Amazon S3 is AWS's "infinite hard drive."

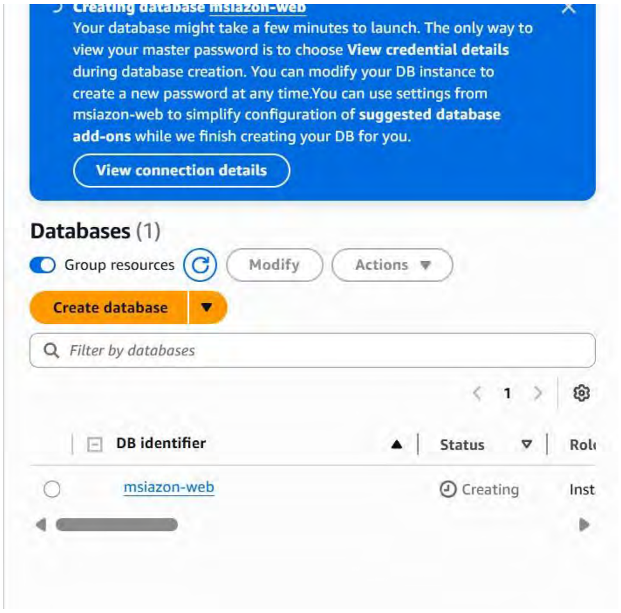
Steps:
1. Open S3 → Create a bucket (name must be unique).
2. Choose region (closer = faster).
3. Upload files (HTML, CSS, JS, images).
4. Enable Static Website Hosting in bucket properties.
5. Copy the generated URL – your files are live.

Use Case: Store website assets, backups, or host a static site.

7. RDS – Creating a Database Instance

Amazon RDS lets you run databases without manual setup.

Steps:
1. Open RDS → Create database.
2. Choose MySQL (Free Tier eligible).
3. Select instance.
4. Set master username/password.
5. Allow EC2 to connect via security group.
6. Launch database.

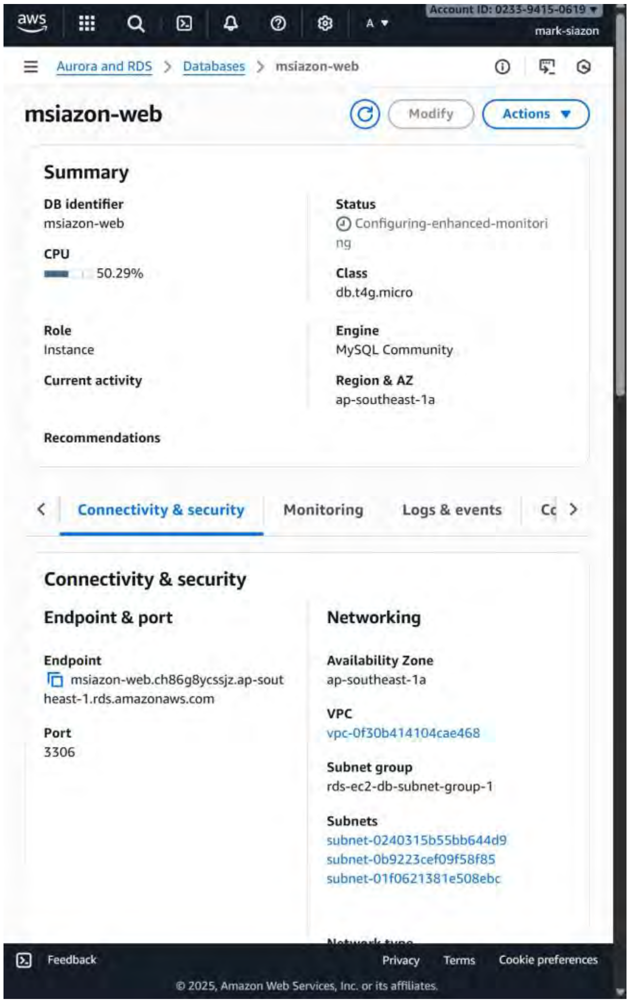


Creating database msiazon-web

Your database might take a few minutes to launch. The only way to view your master password is to choose **View credential details** during database creation. You can modify your DB instance to create a new password at any time.You can use settings from msiazon-web to simplify configuration of **suggested database add-ons** while we finish creating your DB for you.

Databases (1)

	DB identifier	Status	Rol
○	msiazon-web	Creating	Inst



msiazon-web

Summary

DB identifier
msiazon-web

CPU
50.29%

Role
Instance

Current activity

Recommendations

Status
Configuring-enhanced-monitoring

Class
db.t4g.micro

Engine
MySQL Community

Region & AZ
ap-southeast-1a

Connectivity & security

Endpoint & port

Endpoint
msiazon-web.ch86g8ycssjz.ap-southeast-1.rds.amazonaws.com

Port
3306

Networking

Availability Zone
ap-southeast-1a

VPC
vpc-0f30b414104cae468

Subnet group
rds-ec2-db-subnet-group-1

Subnets
subnet-0240315b55bb644d9
subnet-0b9223cef09f58f85
subnet-01f0621381e508ebc

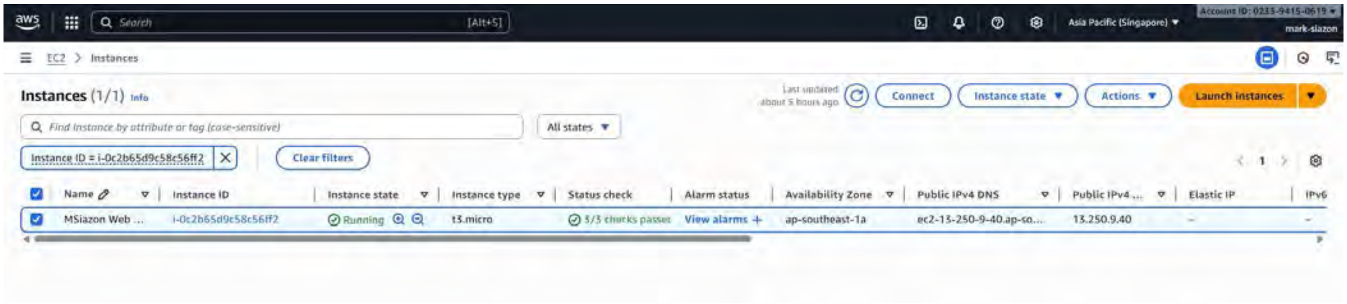
© 2025, Amazon Web Services, Inc. or its affiliates.

Use Case: Store user data, product lists, or structured app information.

8. Connecting to an EC2 Instance and Running Commands

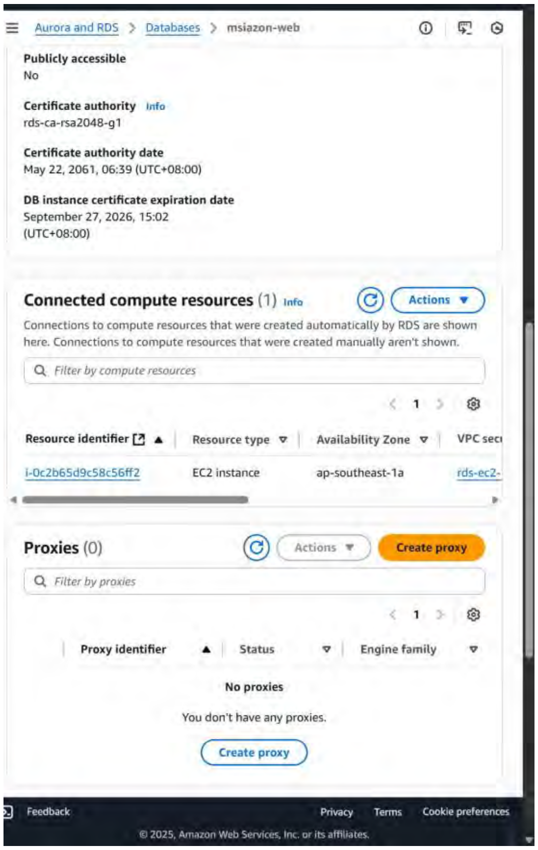
Steps:

1. Open terminal (Linux/macOS) or PuTTY (Windows).
2. Run:
   ssh -i "your-key.pem" ec2-user@<Public-IP>
3. Inside EC2, run:
   sudo yum update -y
   sudo yum install httpd -y
   sudo systemctl start httpd
   sudo systemctl enable httpd
4. Copy HTML files into /var/www/html/
5. Visit http://<EC2-Public-IP> – your website is live.


aws
Search [Alt+S]
Asia Pacific (Singapore)
Account ID: 0233-9415-0619
mark-siazon
EC2 > Instances
Info
Last updated about 5 hours ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Instance ID = i-0c2b65d9c58c56ff2
Clear filters

Instances (1/1)

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6
☑	MSiazon Web ...	i-0c2b65d9c58c56ff2	Running	t3.micro	3/3 checks passed	View alarms +	ap-southeast-1a	ec2-13-250-9-40.ap-so...	13.250.9.40	–	–


Aurora and RDS > Databases > msiazon-web
Info
Actions
Filter by compute resources
Actions
Create proxy
Filter by proxies
Create proxy
Feedback
Privacy
Terms
Cookie preferences
© 2025, Amazon Web Services, Inc. or its affiliates.

Publicly accessible
No

Certificate authority
rds-ca-rsa2048-g1

Certificate authority date
May 22, 2061, 06:39 (UTC+08:00)

DB instance certificate expiration date
September 27, 2026, 15:02
(UTC+08:00)

Connected compute resources (1)

Connections to compute resources that were created automatically by RDS are shown here. Connections to compute resources that were created manually aren't shown.

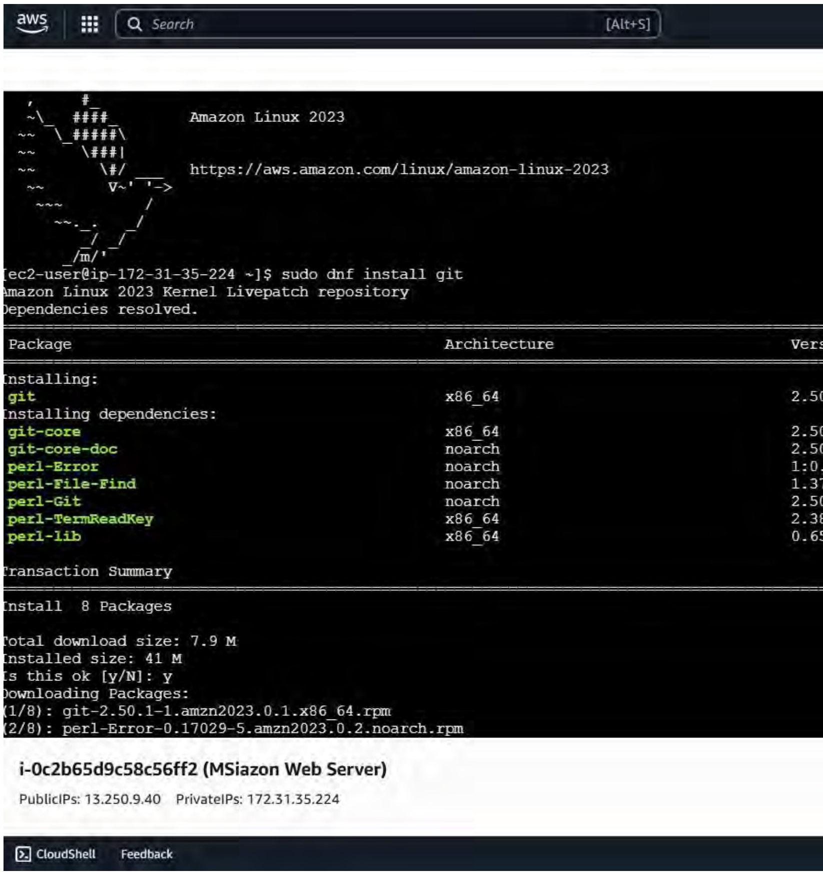
Resource identifier	Resource type	Availability Zone	VPC secu
i-0c2b65d9c58c56ff2	EC2 instance	ap-southeast-1a	rds-ec2-

Proxies (0)

Proxy identifier	Status	Engine family

No proxies

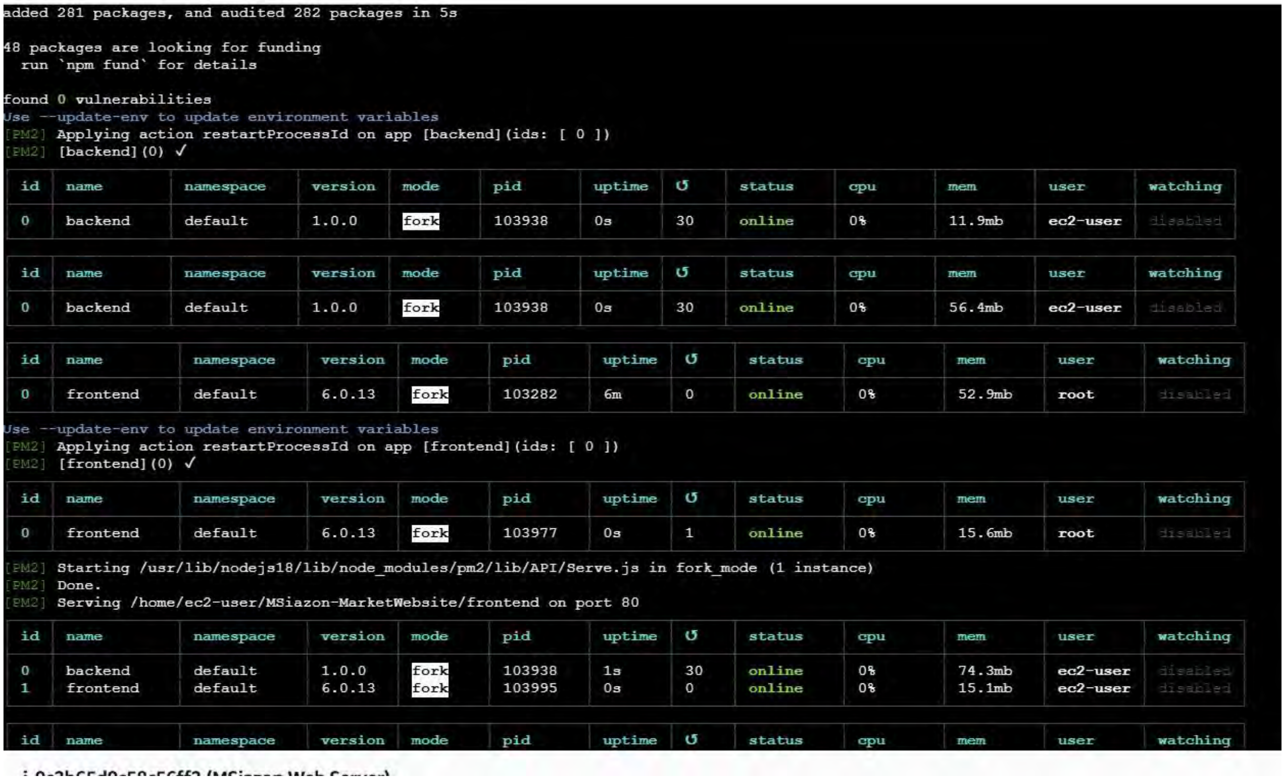
You don't have any proxies.



```
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[ec2-user@ip-172-31-35-224 ~]$ sudo dnf install git
Amazon Linux 2023 Kernel Livepatch repository
Dependencies resolved.
================================================================================
 Package                              Architecture                   Vers
================================================================================
Installing:
 git                                  x86_64                         2.50
Installing dependencies:
 git-core                             x86_64                         2.50
 git-core-doc                         noarch                         2.50
 perl-Error                           noarch                         1:0.
 perl-File-Find                       noarch                         1.37
 perl-Git                             noarch                         2.50
 perl-TermReadKey                     x86_64                         2.38
 perl-lib                             x86_64                         0.65

Transaction Summary
================================================================================
Install  8 Packages

Total download size: 7.9 M
Installed size: 41 M
Is this ok [y/N]: y
Downloading Packages:
(1/8): git-2.50.1-1.amzn2023.0.1.x86_64.rpm
(2/8): perl-Error-0.17029-5.amzn2023.0.2.noarch.rpm
```

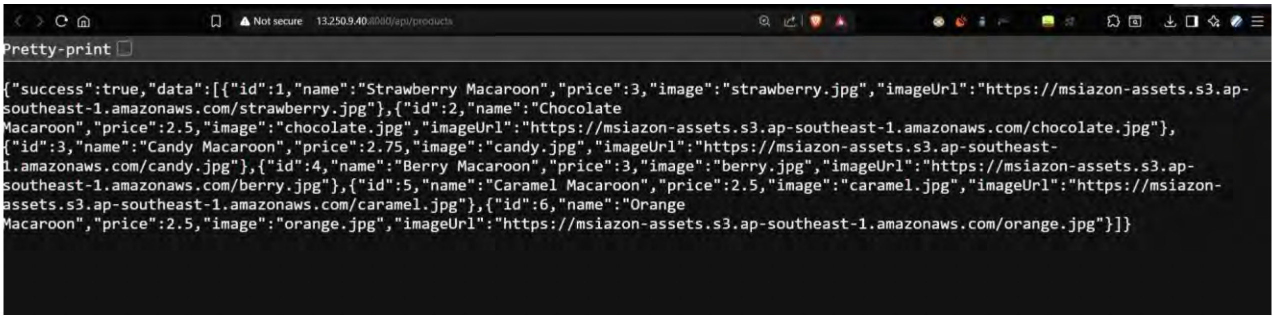
i-0c2b65d9c58c56ff2 (MSiazon Web Server)

PublicIPs: 13.250.9.40   PrivateIPs: 172.31.35.224

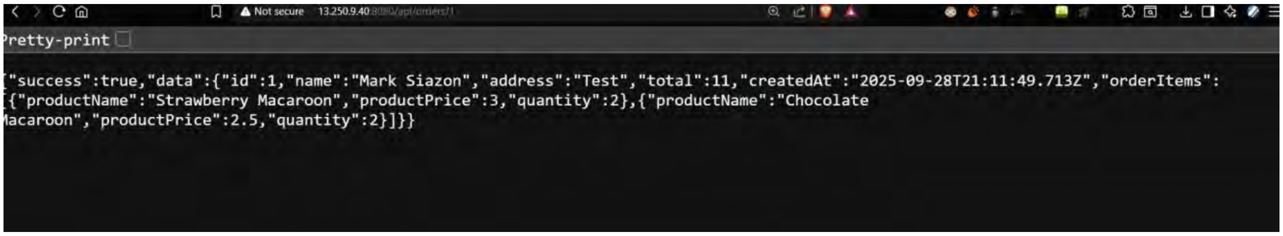


```
added 281 packages, and audited 282 packages in 5s

48 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
Use --update-env to update environment variables
[PM2] Applying action restartProcessId on app [backend](ids: [ 0 ])
[PM2] [backend](0) ✓
┌────┬────────────┬───────────┬─────────┬────────┬──────────┬────────┬──────┬───────────┬──────────┬──────────┬──────────┬──────────┐
│ id │ name       │ namespace │ version │ mode   │ pid      │ uptime │ ↺    │ status    │ cpu      │ mem      │ user     │ watching │
├────┼────────────┼───────────┼─────────┼────────┼──────────┼────────┼──────┼───────────┼──────────┼──────────┼──────────┼──────────┤
│ 0  │ backend    │ default   │ 1.0.0   │ fork   │ 103938   │ 0s     │ 30   │ online    │ 0%       │ 11.9mb   │ ec2-user │ disabled │
└────┴────────────┴───────────┴─────────┴────────┴──────────┴────────┴──────┴───────────┴──────────┴──────────┴──────────┴──────────┘
┌────┬────────────┬───────────┬─────────┬────────┬──────────┬────────┬──────┬───────────┬──────────┬──────────┬──────────┬──────────┐
│ id │ name       │ namespace │ version │ mode   │ pid      │ uptime │ ↺    │ status    │ cpu      │ mem      │ user     │ watching │
├────┼────────────┼───────────┼─────────┼────────┼──────────┼────────┼──────┼───────────┼──────────┼──────────┼──────────┼──────────┤
│ 0  │ backend    │ default   │ 1.0.0   │ fork   │ 103938   │ 0s     │ 30   │ online    │ 0%       │ 56.4mb   │ ec2-user │ disabled │
└────┴────────────┴───────────┴─────────┴────────┴──────────┴────────┴──────┴───────────┴──────────┴──────────┴──────────┴──────────┘
┌────┬────────────┬───────────┬─────────┬────────┬──────────┬────────┬──────┬───────────┬──────────┬──────────┬──────────┬──────────┐
│ id │ name       │ namespace │ version │ mode   │ pid      │ uptime │ ↺    │ status    │ cpu      │ mem      │ user     │ watching │
├────┼────────────┼───────────┼─────────┼────────┼──────────┼────────┼──────┼───────────┼──────────┼──────────┼──────────┼──────────┤
│ 0  │ frontend   │ default   │ 6.0.13  │ fork   │ 103282   │ 6m     │ 0    │ online    │ 0%       │ 52.9mb   │ root     │ disabled │
└────┴────────────┴───────────┴─────────┴────────┴──────────┴────────┴──────┴───────────┴──────────┴──────────┴──────────┴──────────┘
Use --update-env to update environment variables
[PM2] Applying action restartProcessId on app [frontend](ids: [ 0 ])
[PM2] [frontend](0) ✓
┌────┬────────────┬───────────┬─────────┬────────┬──────────┬────────┬──────┬───────────┬──────────┬──────────┬──────────┬──────────┐
│ id │ name       │ namespace │ version │ mode   │ pid      │ uptime │ ↺    │ status    │ cpu      │ mem      │ user     │ watching │
├────┼────────────┼───────────┼─────────┼────────┼──────────┼────────┼──────┼───────────┼──────────┼──────────┼──────────┼──────────┤
│ 0  │ frontend   │ default   │ 6.0.13  │ fork   │ 103977   │ 0s     │ 1    │ online    │ 0%       │ 15.6mb   │ root     │ disabled │
└────┴────────────┴───────────┴─────────┴────────┴──────────┴────────┴──────┴───────────┴──────────┴──────────┴──────────┴──────────┘
[PM2] Starting /usr/lib/nodejs18/lib/node_modules/pm2/lib/API/Serve.js in fork_mode (1 instance)
[PM2] Done.
[PM2] Serving /home/ec2-user/MSiazon-MarketWebsite/frontend on port 80
┌────┬────────────┬───────────┬─────────┬────────┬──────────┬────────┬──────┬───────────┬──────────┬──────────┬──────────┬──────────┐
│ id │ name       │ namespace │ version │ mode   │ pid      │ uptime │ ↺    │ status    │ cpu      │ mem      │ user     │ watching │
├────┼────────────┼───────────┼─────────┼────────┼──────────┼────────┼──────┼───────────┼──────────┼──────────┼──────────┼──────────┤
│ 0  │ backend    │ default   │ 1.0.0   │ fork   │ 103938   │ 1s     │ 30   │ online    │ 0%       │ 74.3mb   │ ec2-user │ disabled │
│ 1  │ frontend   │ default   │ 6.0.13  │ fork   │ 103995   │ 0s     │ 0    │ online    │ 0%       │ 15.1mb   │ ec2-user │ disabled │
└────┴────────────┴───────────┴─────────┴────────┴──────────┴────────┴──────┴───────────┴──────────┴──────────┴──────────┴──────────┘
┌────┬────────────┬───────────┬─────────┬────────┬──────────┬────────┬──────┬───────────┬──────────┬──────────┬──────────┬──────────┐
│ id │ name       │ namespace │ version │ mode   │ pid      │ uptime │ ↺    │ status    │ cpu      │ mem      │ user     │ watching │
```

i-0a2bc5d0-58-56ff2 (MSiazon-Web Server)



```
{"success":true,"data":[{"id":1,"name":"Strawberry Macaroon","price":3,"image":"strawberry.jpg","imageUrl":"https://msiazon-assets.s3.ap-
southeast-1.amazonaws.com/strawberry.jpg"},{"id":2,"name":"Chocolate
Macaroon","price":2.5,"image":"chocolate.jpg","imageUrl":"https://msiazon-assets.s3.ap-southeast-1.amazonaws.com/chocolate.jpg"},
{"id":3,"name":"Candy Macaroon","price":2.75,"image":"candy.jpg","imageUrl":"https://msiazon-assets.s3.ap-southeast-
1.amazonaws.com/candy.jpg"},{"id":4,"name":"Berry Macaroon","price":3,"image":"berry.jpg","imageUrl":"https://msiazon-assets.s3.ap-
southeast-1.amazonaws.com/berry.jpg"},{"id":5,"name":"Caramel Macaroon","price":2.5,"image":"caramel.jpg","imageUrl":"https://msiazon-
assets.s3.ap-southeast-1.amazonaws.com/caramel.jpg"},{"id":6,"name":"Orange
Macaroon","price":2.5,"image":"orange.jpg","imageUrl":"https://msiazon-assets.s3.ap-southeast-1.amazonaws.com/orange.jpg"}]}
```



```
{"success":true,"data":{"id":1,"name":"Mark Siazon","address":"Test","total":11,"createdAt":"2025-09-28T21:11:49.713Z","orderItems":
[{"productName":"Strawberry Macaroon","productPrice":3,"quantity":2},{"productName":"Chocolate
Macaroon","productPrice":2.5,"quantity":2}]}}
```

9. Tips for Cost Savings on AWS

- Stick to Free Tier services (t3.micro, 5GB S3, 750hrs RDS/month).
- Stop or terminate unused instances.
- Use AWS Budgets to set alerts if spending > $0.

- Delete unused S3 buckets or RDS instances.
- Avoid enabling premium support/services you don't need.

10. Continuing Your AWS Journey

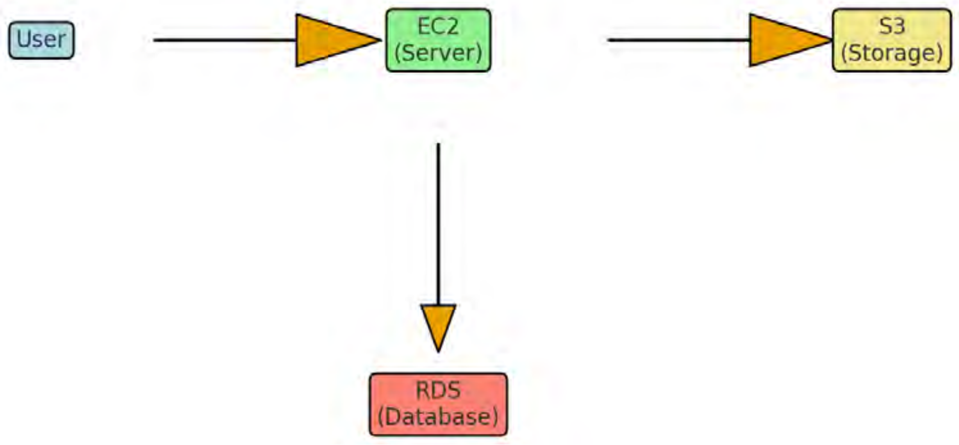
Next steps:
- AI & Machine Learning – explore SageMaker for ML.
- Serverless computing – AWS Lambda for code execution without servers.
- Certifications – start with Cloud Practitioner, then Solutions Architect or Developer.

These paths open careers in cloud, AI, and DevOps.

Reference

AWS Free Account Guide: https://aws.amazon.com/free/

Diagram: AWS Website Hosting Flow


User
EC2
(Server)
S3
(Storage)
RDS
(Database)