St. JOSEPH'S
GROUP OF INSTITUTIONS
OMR, CHENNAI - 119

Placement Empowerment Program

Cloud Computing and DevOps Centre

Set Up IAM Roles and Permissions:

Create an IAM role on your cloud platform. Assign the role to your VM to restrict/allow specific actions.

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Introduction and Overview..

IAM (Identity and Access Management) roles in cloud platforms like AWS allow virtual machines (VMs) to securely interact with cloud services without requiring manual access credentials. By assigning an IAM role to a VM, permissions can be managed efficiently, ensuring only authorized actions are allowed.

Objective

□ Create an IAM role with specific permissions.

□ Attach the IAM role to a VM instance (EC2 in AWS).

□ Ensure secure and restricted access to cloud resources.

□ Verify the role’s effect by attempting allowed and denied actions.

Importance

□ **Enhanced Security** – Eliminates the need for storing access keys.

□ **Granular Access Control** – Restricts actions to only what's necessary.

□ **Automated Credential Management** – AWS handles temporary credentials securely.

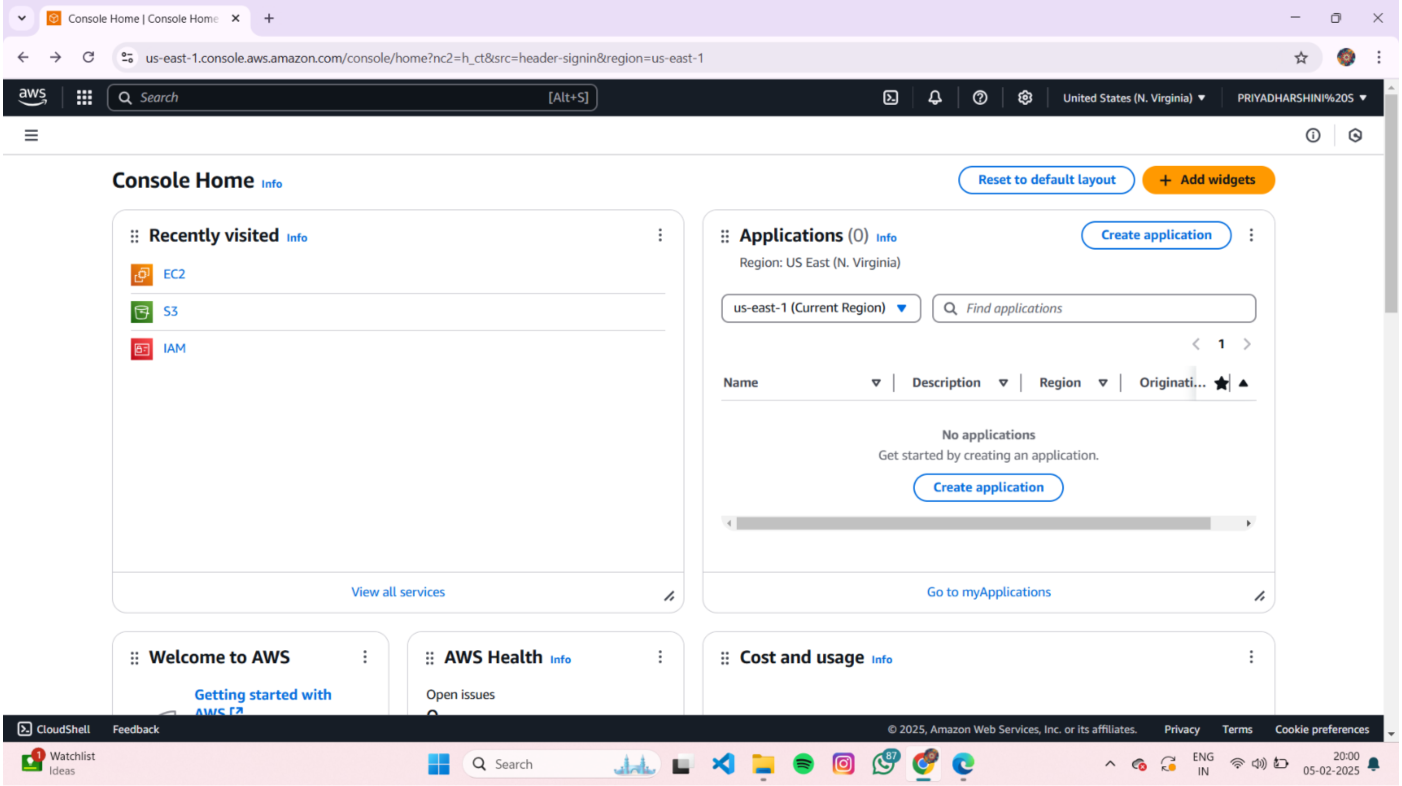
□ **Scalability** – Easily assign roles to multiple VMs without manual configuration.

Step-by-Step Overview

Step 1:

1. Go to AWS Management Console.

2. Enter your username and password to log in



Console Home | Console Home
us-east-1.console.aws.amazon.com/console/home?nc2=h_ct&src=header-signin&region=us-east-1
Search
[Alt+S]
United States (N. Virginia)
PRIYADHARSHINI%20S

Console Home Info

Recently visited Info

- EC2
- S3
- IAM

Applications (0) Info

Region: US East (N. Virginia)

Name	Description	Region	Originati...

No applications

Get started by creating an application.

Welcome to AWS

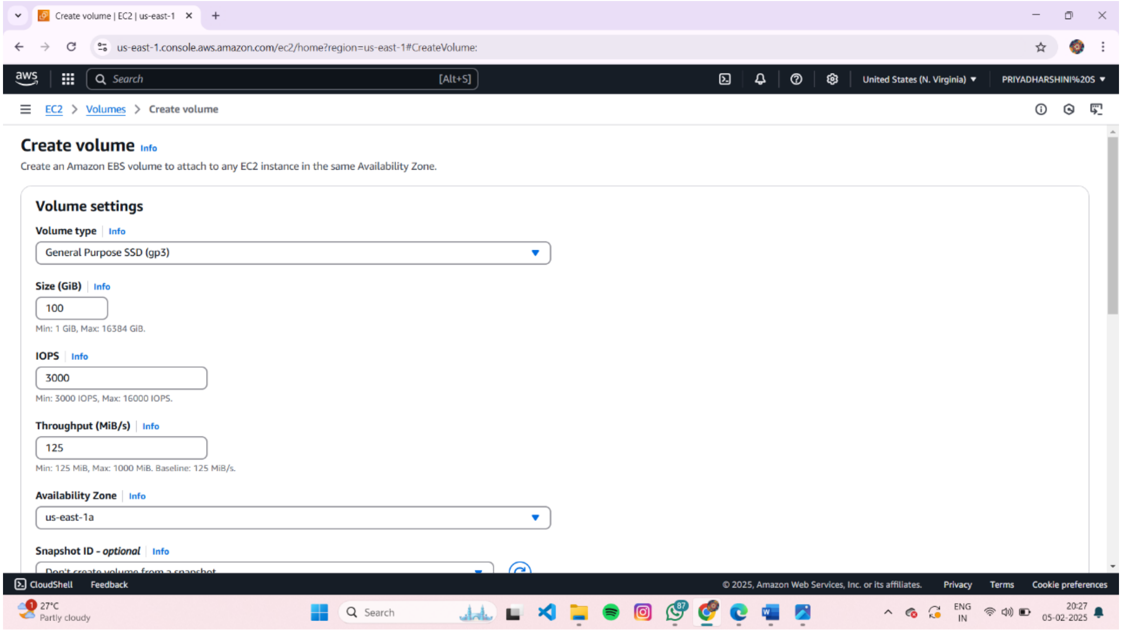
AWS Health Info

Open issues

Cost and usage Info

Step 2:

On the EC2 Dashboard, click on Launch Instances and enter a name for your instance (e.g., "My Monitoring Instance"). Leave other settings as default and Click Launch Instance.



Create volume | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateVolume:
Search
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United States (N. Virginia)
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EC2
Volumes
Create volume

Create volume Info

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

Volume settings

Volume type | Info

General Purpose SSD (gp3)

Size (GiB) | Info

100

Min: 1 GiB, Max: 16384 GiB.

IOPS | Info

3000

Min: 3000 IOPS, Max: 16000 IOPS.

Throughput (MiB/s) | Info

125

Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.

Availability Zone | Info

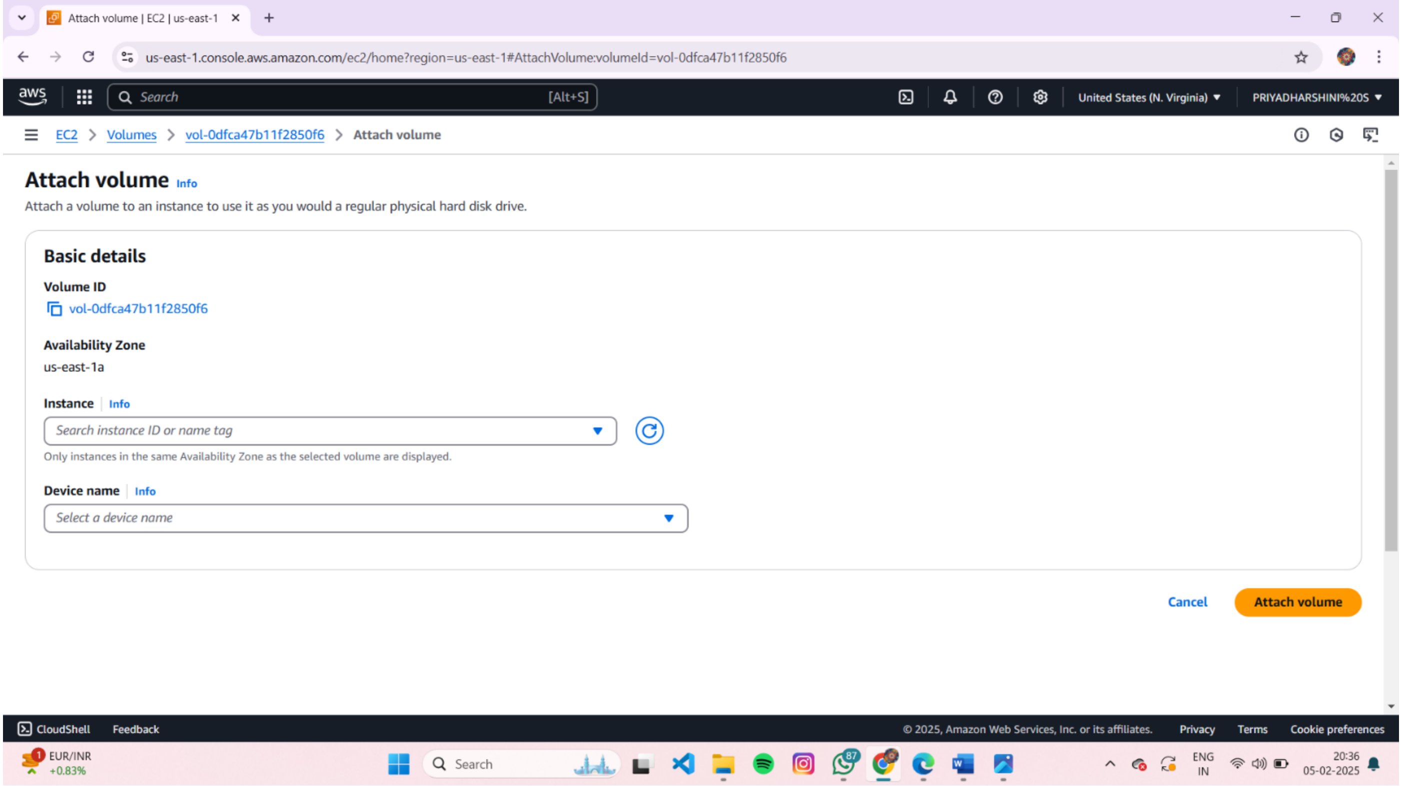
us-east-1a

Snapshot ID - *optional* | Info

Don't create volume from a snapshot

Step 3:

Go to the EC2 Dashboard in the AWS Console. In the left menu, click Volumes under Elastic Block Store (EBS). Click Create Volume.


Attach volume | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AttachVolume:volumeId=vol-0dfca47b11f2850f6
Search
[Alt+S]
United States (N. Virginia) ▼
PRIYADHARSHINI%20S ▼
EC2 > Volumes > vol-0dfca47b11f2850f6 > Attach volume
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
EUR/INR
+0.83%
Search
ENG
IN
20:36
05-02-2025

Attach volume Info

Attach a volume to an instance to use it as you would a regular physical hard disk drive.

Basic details

Volume ID

vol-0dfca47b11f2850f6

Availability Zone

us-east-1a

Instance | Info

Search instance ID or name tag ▼

Only instances in the same Availability Zone as the selected volume are displayed.

Device name | Info

Select a device name ▼

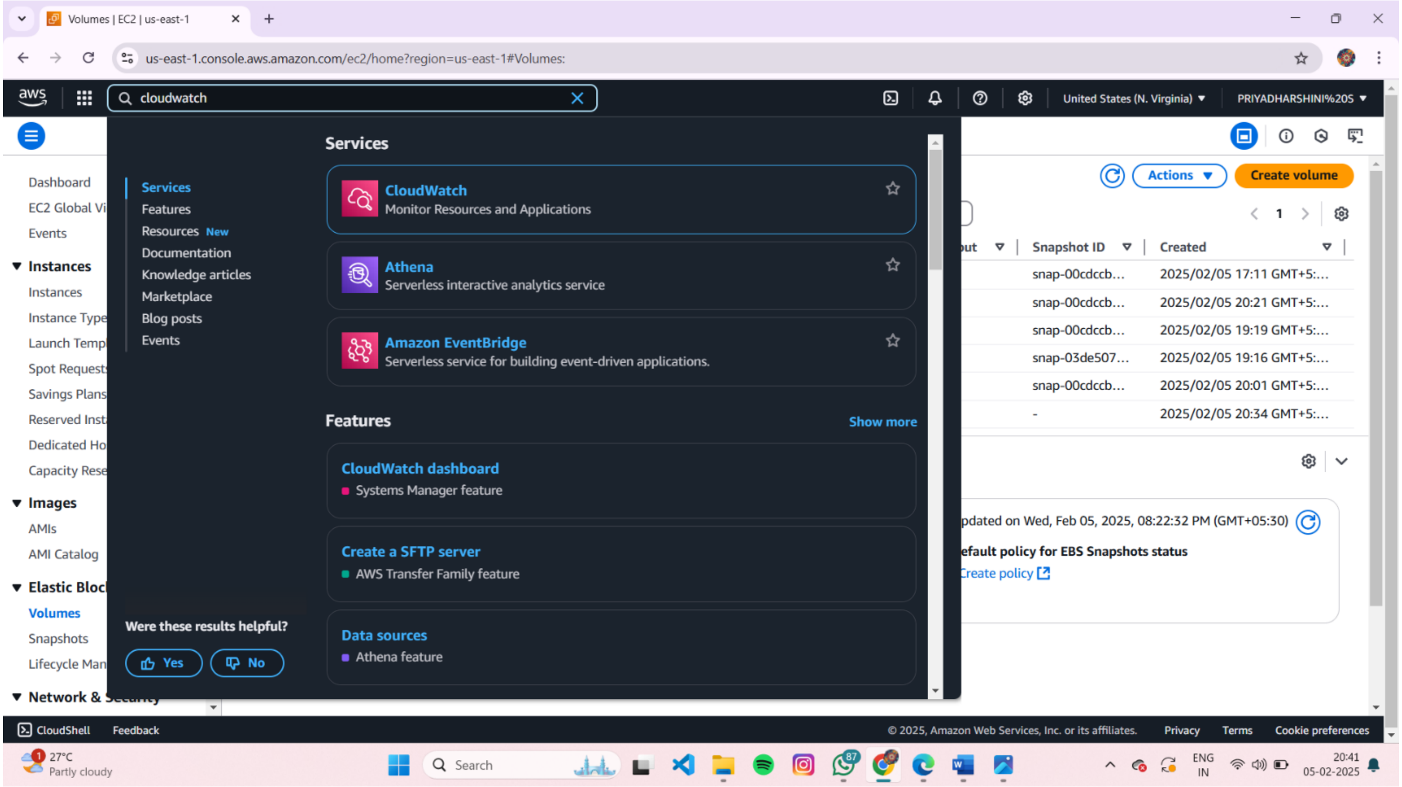
Cancel Attach volume

Step 4:

Once created, go to your Volumes list, select the newly created volume, and click Actions > Attach Volume.

Step 5:

On the AWS Console homepage, look for the search bar at the top. Type CloudWatch in the search bar and press Enter. From the search results, click on CloudWatch



Services

CloudWatch
Monitor Resources and Applications

Athena
Serverless interactive analytics service

Amazon EventBridge
Serverless service for building event-driven applications.

Features — Show more

CloudWatch dashboard
Systems Manager feature

Create a SFTP server
AWS Transfer Family feature

Data sources
Athena feature

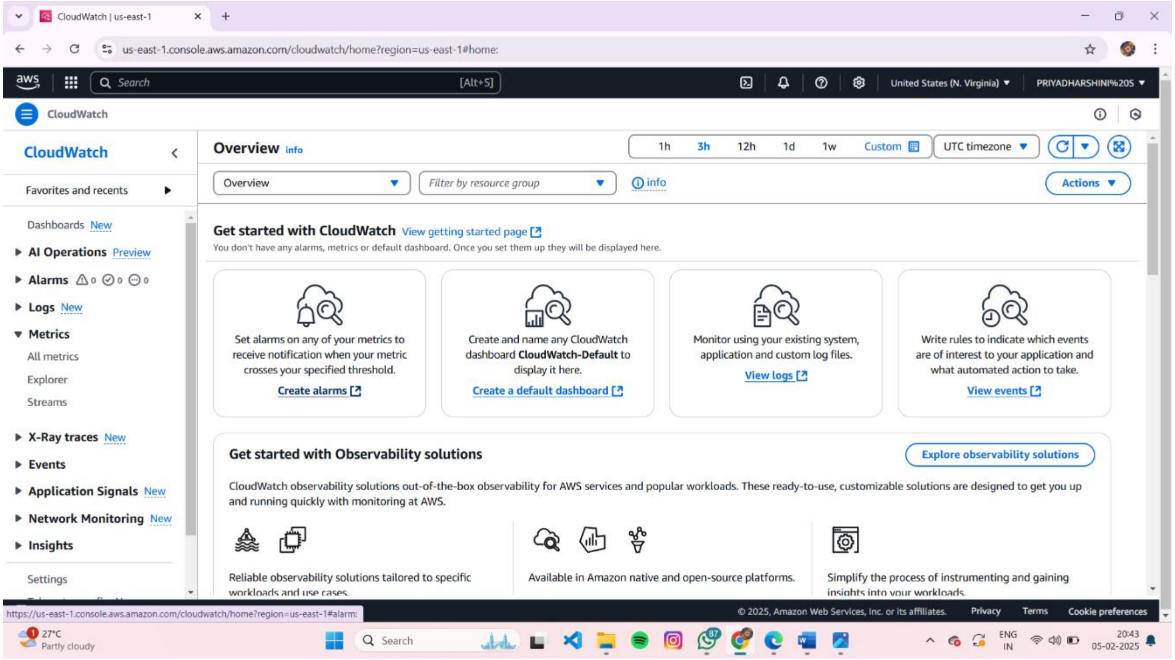
Snapshot ID	Created
snap-00cdccb...	2025/02/05 17:11 GMT+5:...
snap-00cdccb...	2025/02/05 20:21 GMT+5:...
snap-00cdccb...	2025/02/05 19:19 GMT+5:...
snap-03de507...	2025/02/05 19:16 GMT+5:...
snap-00cdccb...	2025/02/05 20:01 GMT+5:...
-	2025/02/05 20:34 GMT+5:...

pdated on Wed, Feb 05, 2025, 08:22:32 PM (GMT+05:30)

efault policy for EBS Snapshots status

Create policy

Step 6: In the CloudWatch dashboard, look at the left-hand menu. Click on Metrics. Under Browse, click on EC2



Get started with CloudWatch View getting started page

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

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

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

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

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

Get started with Observability solutions

CloudWatch observability solutions out-of-the-box observability for AWS services and popular workloads. These ready-to-use, customizable solutions are designed to get you up and running quickly with monitoring at AWS.

Reliable observability solutions tailored to specific workloads and use cases.

Available in Amazon native and open-source platforms.

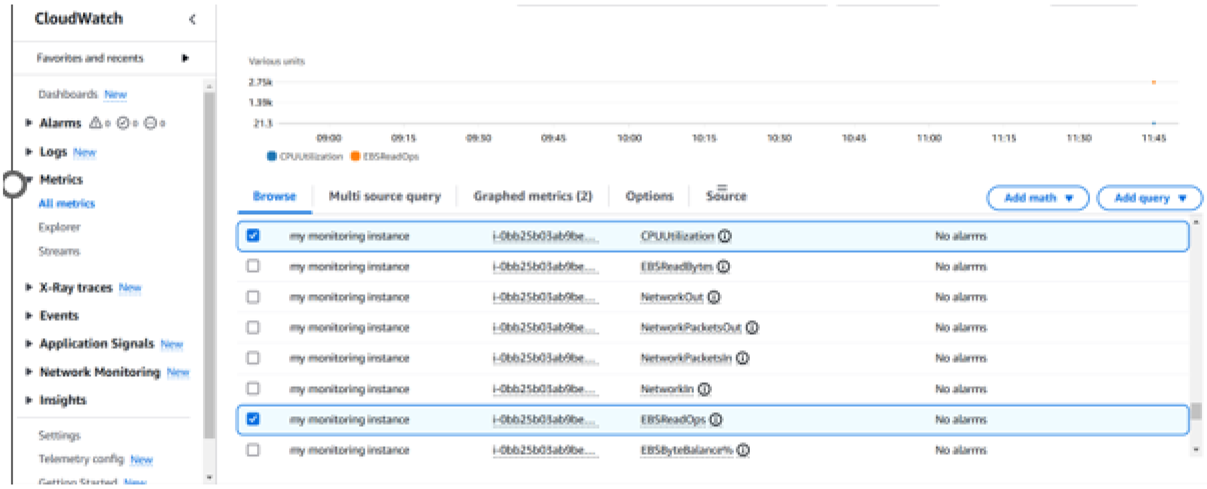
Simplify the process of instrumenting and gaining insights into your workloads.

Then click on the Per-Instance Metrics.

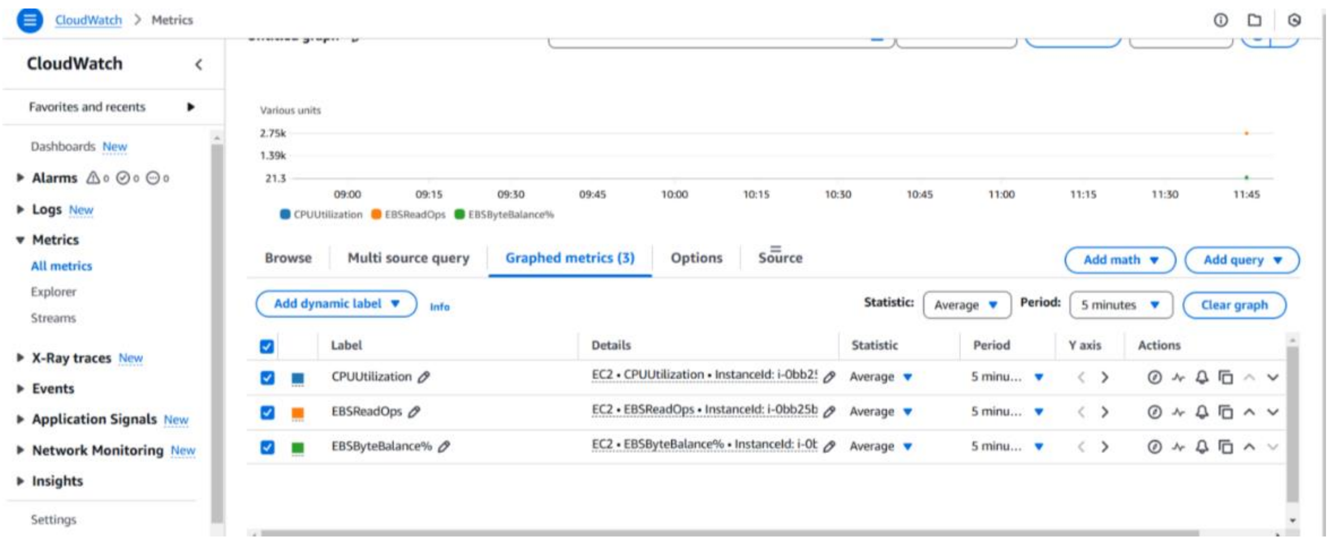
Step 7:

You should now see a list of metrics for all your EC2 instances, such as: CPUUtilization (CPU usage) DiskReadOps / DiskWriteOps (Disk I/O) Identify the specific EC2 instance you want to monitor (it will be listed by its instance ID).

Click on the metrics associated with your instance To view detail click Graphed metrics



☑	my monitoring instance	i-0bb25b03ab9be...	CPUUtilization	No alarms
□	my monitoring instance	i-0bb25b03ab9be...	EBSReadBytes	No alarms
□	my monitoring instance	i-0bb25b03ab9be...	NetworkOut	No alarms
□	my monitoring instance	i-0bb25b03ab9be...	NetworkPacketsOut	No alarms
□	my monitoring instance	i-0bb25b03ab9be...	NetworkPacketsIn	No alarms
□	my monitoring instance	i-0bb25b03ab9be...	NetworkIn	No alarms
☑	my monitoring instance	i-0bb25b03ab9be...	EBSReadOps	No alarms
□	my monitoring instance	i-0bb25b03ab9be...	EBSByteBalance%	No alarms



Statistic: Average Period: 5 minutes

☑		Label	Details	Statistic	Period	Y axis	Actions
☑	🟦	CPUUtilization	EC2 • CPUUtilization • InstanceId: i-0bb2!	Average	5 minu...	< >	
☑	🟧	EBSReadOps	EC2 • EBSReadOps • InstanceId: i-0bb25b	Average	5 minu...	< >	
☑	🟩	EBSByteBalance%	EC2 • EBSByteBalance% • InstanceId: i-0t	Average	5 minu...	< >	

Expected Outcome

1. **Secure Access** – No need to store long-term credentials.
2. **Granular Control** – Only necessary permissions are granted to the VM.
3. **Automated Credential Management** – AWS provides temporary credentials dynamically.
4. **Successful Verification** – Running AWS CLI commands confirms the role’s functionality.