CLOUD COMPUTING LAB

Submitted by : Kripa Mary Jose(2348526)

1.Describe IaaS

Infrastructure as a Service (IaaS) is a cloud computing service model that provides virtualized computing resources over the internet. With IaaS, organizations can access and manage scalable infrastructure components such as virtual machines, storage, and networking services without needing to invest in or maintain physical hardware. IaaS enables businesses to outsource their entire IT infrastructure to a cloud service provider, allowing them to configure, deploy, and manage computing resources on demand. This flexibility permits organizations to scale their infrastructure up or down based on varying demands, pay only for the resources they use, and avoid the costs and complexities associated with traditional on-premises infrastructure.

Here's a concise paraphrased version of how IaaS typically operates:

1. **On-Demand Access:** IaaS allows users to quickly access and deploy computing resources as needed.
2. **Self-Service Provisioning:** Users can independently manage system resources through self-service interfaces like web portals or APIs.
3. **Scalability:** IaaS offers horizontal scalability, enabling users to adjust resources up or down based on demand, ensuring optimal performance without downtime.
4. **Pay-Per-Use Billing:** Users are billed based on actual resource usage, providing cost efficiency by paying only for what they consume, rather than investing in excess capacity.

2. Compute and storage services available in AWS and GCP

AWS (Amazon Web Services)

The following are the Compute Services:

- **Amazon EC2 (Elastic Compute Cloud)**: Scalable virtual servers in the cloud.

- **AWS Lambda**: Serverless compute service that runs code in response to events.
- **Amazon ECS (Elastic Container Service)**: Container management service to run and scale containerized applications.
- **Amazon EKS (Elastic Kubernetes Service)**: Managed Kubernetes service.
- **AWS Fargate**: Serverless compute engine for containers.
- **AWS Batch**: Managed service for batch computing workloads.
- **AWS Elastic Beanstalk**: Platform as a Service (PaaS) to deploy and manage applications.
- **AWS Outposts**: Extend AWS infrastructure and services to on-premises data centers.
- **AWS Lightsail**: Simple virtual private servers (VPS) for smaller applications.

The following are the storage services :

- **Amazon S3 (Simple Storage Service)**: Scalable object storage.
- **Amazon EBS (Elastic Block Store)**: Block storage for use with EC2 instances.
- **Amazon EFS (Elastic File System)**: Scalable file storage for use with EC2.
- **Amazon FSx**: Managed file storage for Windows and Lustre.
    1. Amazon FSx for Windows File Server
    2. Amazon FSx for Lustre
- **AWS Storage Gateway**: Hybrid storage service to connect on-premises environments with AWS cloud storage.
- **Amazon Glacier**: Low-cost archive storage.
- **AWS Backup**: Centralized backup service to manage and automate backups across AWS services.

GCP (Google Cloud Platform)

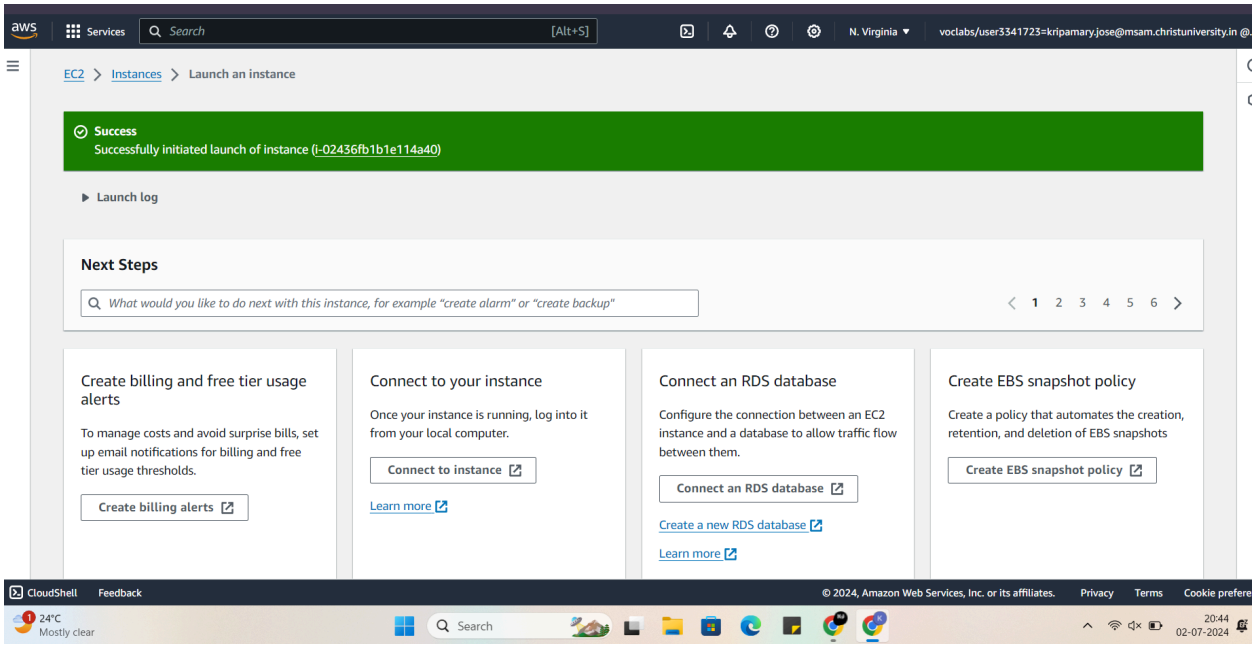
The following are the Compute Services:

- **Google Compute Engine**: Scalable virtual machines.
- **Google Kubernetes Engine (GKE)**: Managed Kubernetes service.
- **Google App Engine**: Platform as a Service (PaaS) to build and deploy applications.
- **Google Cloud Functions**: Serverless compute service for event-driven functions.
- **Google Cloud Run**: Managed compute platform for containerized applications.
- **Google Cloud VMware Engine**: Run VMware workloads natively on Google Cloud.

The following are the storage services :

- **Google Cloud Storage**: Scalable object storage.
- **Persistent Disk**: Block storage for use with Compute Engine.
- **Filestore**: Managed file storage service.
- **Cloud SQL**: Managed relational database service.
- **Cloud Spanner**: Horizontally scalable, strongly consistent relational database service.
- **Cloud Bigtable**: Scalable NoSQL database service for large analytical and operational workloads.
- **Firestore**: NoSQL document database built for automatic scaling, high performance, and ease of application development.
- **Cloud Storage Transfer Service:** Transfer data from other cloud storage providers or on-premises to Google Cloud Storage.
- **Google Cloud Backup and DR**: Managed backup and disaster recovery service.

3. Create 2 Identical AWS EC2 Instances (Instance Name: Regno_EC2_VM1, Regno_EC2_VM2) and install the necessary packages to execute a program of your choice in ‘Regno_EC2_VM1’.


Services
Search
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N. Virginia
EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-02436fb1b1e114a40)
Launch log
Next Steps
What would you like to do next with this instance, for example "create alarm" or "create backup"
Create billing and free tier usage alerts
To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.
Create billing alerts
Connect to your instance
Once your instance is running, log into it from your local computer.
Connect to instance
Learn more
Connect an RDS database
Configure the connection between an EC2 instance and a database to allow traffic flow between them.
Connect an RDS database
Create a new RDS database
Learn more
Create EBS snapshot policy
Create a policy that automates the creation, retention, and deletion of EBS snapshots
Create EBS snapshot policy
CloudShell
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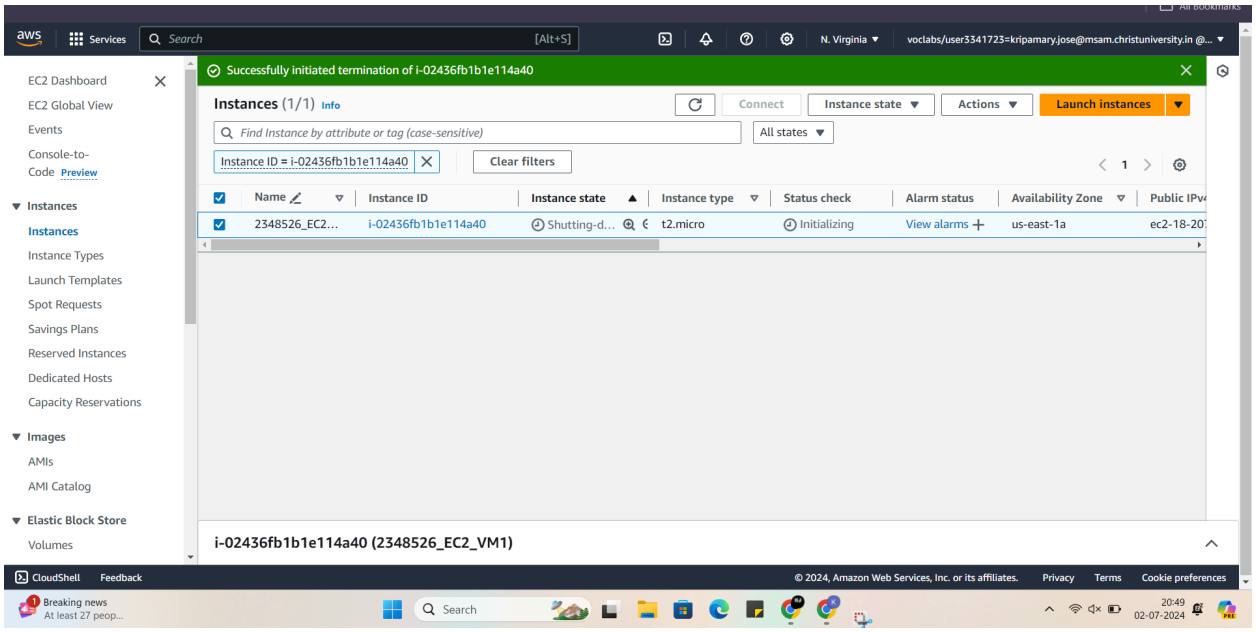
Services
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N. Virginia
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EC2 Dashboard
EC2 Global View
Events
Console-to-Code Preview
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Instance ID = i-02436fb1b1e114a40
Clear filters
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv
2348526_EC2...
i-02436fb1b1e114a40
Shutting-d...
t2.micro
Initializing
View alarms
us-east-1a
ec2-18-20
i-02436fb1b1e114a40 (2348526_EC2_VM1)
CloudShell
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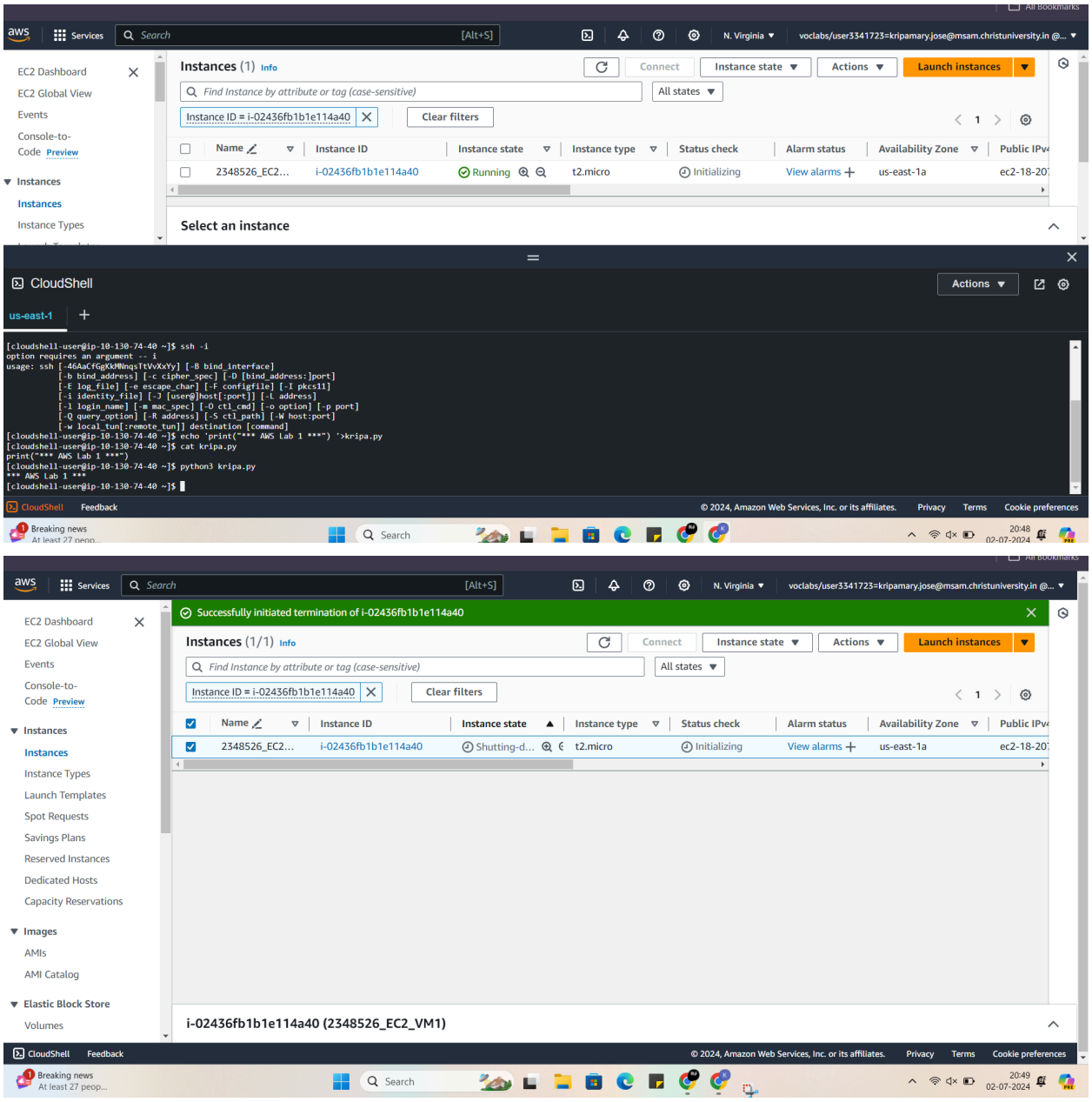
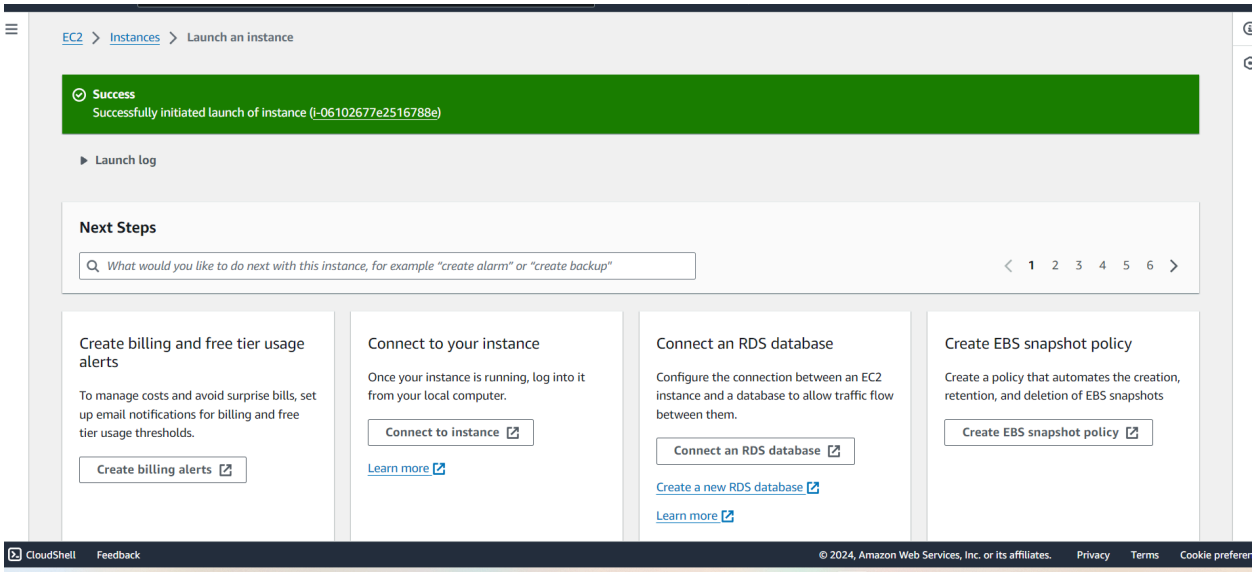


4. Configure a Webserver on ‘Regno_EC2_VM2’ Instance and host your organization's website (Static Website) and provide access only to your machine.


EC2 > Instances > Launch an instance
Success
Successfully initiated launch of instance (i-06102677e2516788e)
Launch log
Next Steps
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1 2 3 4 5 6
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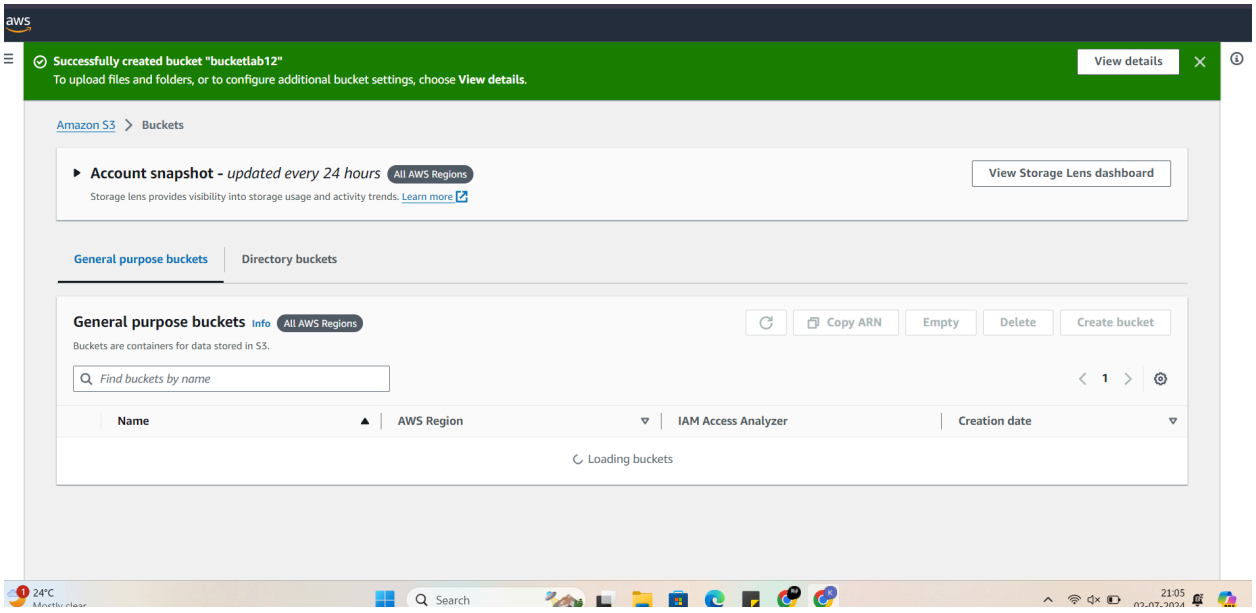
aws
Successfully created bucket "bucketlab12"
To upload files and folders, or to configure additional bucket settings, choose View details.
View details
Amazon S3 > Buckets
Account snapshot - updated every 24 hours
All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
General purpose buckets
Directory buckets
General purpose buckets Info
All AWS Regions
Buckets are containers for data stored in S3.
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
1
Name
AWS Region
IAM Access Analyzer
Creation date
Loading buckets
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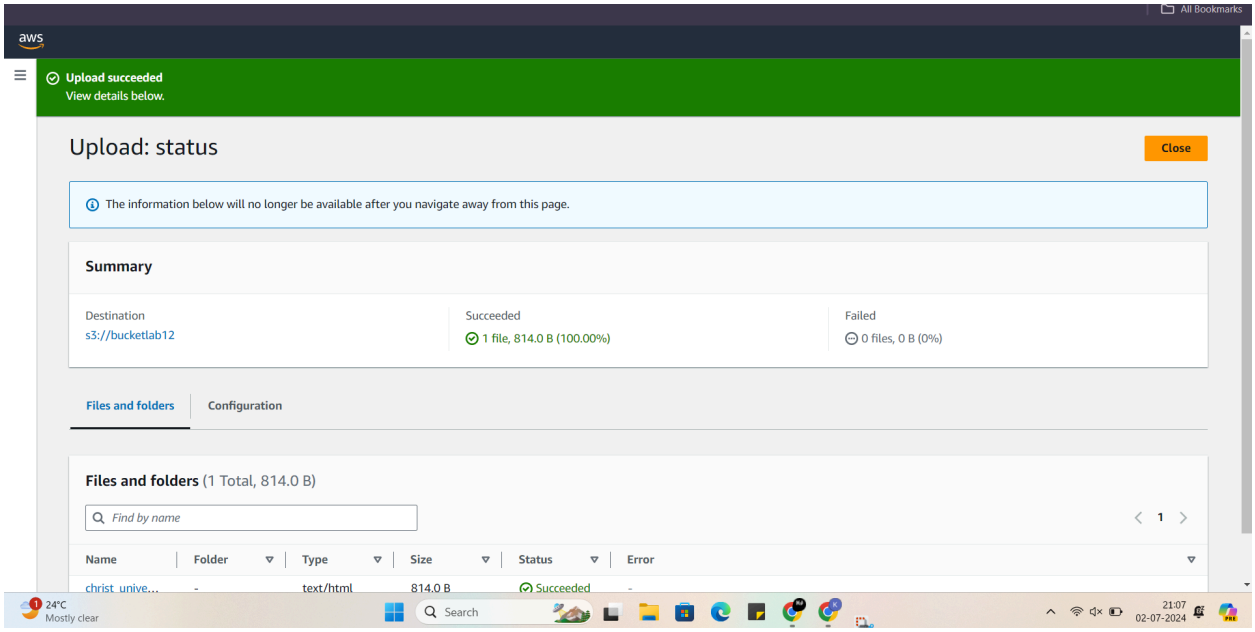
Search
21:05


Upload succeeded
View details below.
Upload: status
Close
The information below will no longer be available after you navigate away from this page.
Summary
Destination
s3://bucketlab12
Succeeded
1 file, 814.0 B (100.00%)
Failed
0 files, 0 B (0%)
Files and folders
Configuration
Files and folders (1 Total, 814.0 B)
Find by name
Name
Folder
Type
Size
Status
Error
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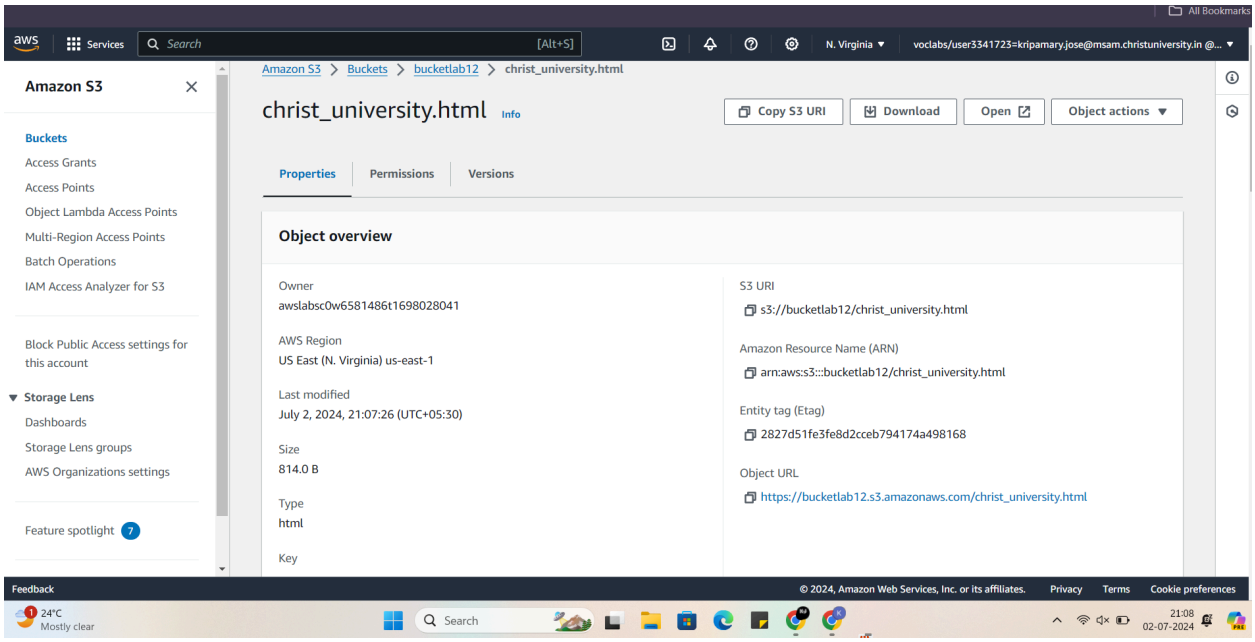
text/html
814.0 B
Succeeded


Amazon S3
Buckets
Access Grants
Access Points
Object Lambda Access Points
Multi-Region Access Points
Batch Operations
IAM Access Analyzer for S3
Block Public Access settings for this account
Storage Lens
Dashboards
Storage Lens groups
AWS Organizations settings
Feature spotlight
Amazon S3 > Buckets > bucketlab12 > christ_university.html
christ_university.html
Info
Copy S3 URI
Download
Open
Object actions
Properties
Permissions
Versions
Object overview
Owner
awslabsc0w6581486t1698028041
AWS Region
US East (N. Virginia) us-east-1
Last modified
July 2, 2024, 21:07:26 (UTC+05:30)
Size
814.0 B
Type
html
Key
S3 URI
s3://bucketlab12/christ_university.html
Amazon Resource Name (ARN)
arn:aws:s3:::bucketlab12/christ_university.html
Entity tag (Etag)
2827d51fe3fe8d2cceb794174a498168
Object URL
https://bucketlab12.s3.amazonaws.com/christ_university.html
Feedback
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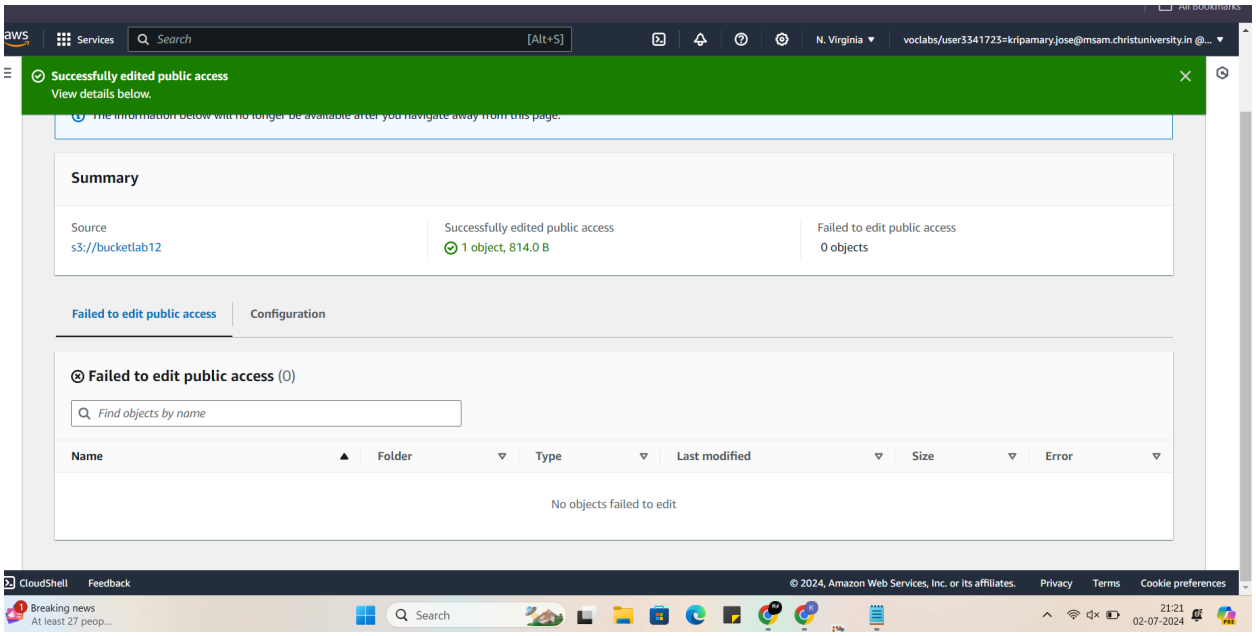

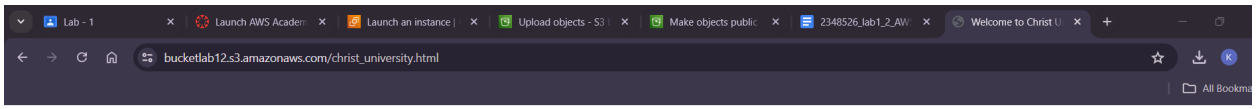

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