

## Day 1<sup>st</sup> Assignment Lab

```
sh-4.2$ sudo s
sudo: s: command not found
sh-4.2$ sudo -s
[root@ip-172-31-30-251 bin]# yum install httpd -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.54-1.amzn2 will be installed
--> Processing Dependency: httpd-tools = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem = 2.4.54-1.amzn2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: system-logos-httpd for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: httpd-filesystem for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libaprutil-1.so.0()(64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so.0()(64bit) for package: httpd-2.4.54-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.7.0-9.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.1-5.amzn2.0.2 for package: apr-util-1.6.1-5.amzn2.0.2.x86_64
--> Package generic-logos-httpd.noarch 0:18.0.0-4.amzn2 will be installed
--> Package httpd-filesystem.noarch 0:2.4.54-1.amzn2 will be installed
--> Package httpd-tools.x86_64 0:2.4.54-1.amzn2 will be installed
--> Package mailcap.noarch 0:2.1.41-2.amzn2 will be installed
--> Package mod_http2.x86_64 0:1.15.19-1.amzn2.0.1 will be installed
--> Running transaction check
--> Package apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved
```

```
Installing : httpd-tools-2.4.54-1.amzn2.x86_64
Installing : httpd-filesystem-2.4.54-1.amzn2.noarch
Installing : generic-logos-httpd-18.0.0-4.amzn2.noarch
Installing : mailcap-2.1.41-2.amzn2.noarch
Installing : mod_http2-1.15.19-1.amzn2.0.1.x86_64
Installing : httpd-2.4.54-1.amzn2.x86_64
Verifying : apr-util-1.6.1-5.amzn2.0.2.x86_64
Verifying : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64
Verifying : httpd-tools-2.4.54-1.amzn2.x86_64
Verifying : mod_http2-1.15.19-1.amzn2.0.1.x86_64
Verifying : httpd-2.4.54-1.amzn2.x86_64
Verifying : mailcap-2.1.41-2.amzn2.noarch
Verifying : generic-logos-httpd-18.0.0-4.amzn2.noarch
Verifying : httpd-filesystem-2.4.54-1.amzn2.noarch
Verifying : apr-1.7.0-9.amzn2.x86_64

Installed:
  httpd.x86_64 0:2.4.54-1.amzn2

Dependency Installed:
  apr.x86_64 0:1.7.0-9.amzn2          apr-util.x86_64 0:1.6.1-5.amzn2.0.2  apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
  generic-logos-httpd.noarch 0:18.0.0-4.amzn2  httpd-filesystem.noarch 0:2.4.54-1.amzn2  httpd-tools.x86_64 0:2.4.54-1.amzn2
  mailcap.noarch 0:2.1.41-2.amzn2  mod_http2.x86_64 0:1.15.19-1.amzn2.0.1

Complete!
[root@ip-172-31-30-251 bin]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@ip-172-31-30-251 bin]# cd /var/www/html
[root@ip-172-31-30-251 html]# nano index.html
[root@ip-172-31-30-251 html]# nano index.html
[root@ip-172-31-30-251 html]#
[root@ip-172-31-30-251 html]#
```

## Creating EC2 instance(IAAS)

The screenshot displays the AWS Management Console interface. The top navigation bar includes the AWS logo, a search bar, and the user's profile information (N. Virginia, voclabs/user2292642=chandrika @ 5263-1737-0942). The left sidebar shows the navigation menu with options like EC2 Dashboard, EC2 Global View, Events, Tags, Limits, and a dropdown for Instances. The main content area is titled "Launch an instance" and features a green success message: "Successfully initiated launch of instance (i-0a46949a3a1c04512)". Below this, there is a "Launch log" link. The "Next Steps - preview" section includes a search bar and three cards: "Create billing and free tier usage alerts", "Connect to your instance", and "Connect an RDS database".

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

aws Services Search [Alt+S] N. Virginia voclabs/user2292642=chandrika @ 5263-1737-0942

EC2 > Instances > Launch an instance

**Success**  
Successfully initiated launch of instance (i-0a46949a3a1c04512)  
▶ Launch log

**Next Steps - preview**

Search for next steps including taking action on the launched instances

The next steps search functionality only searches on a subset of possible steps. You can potentially find other matches for your search by using the search at the top of the page or by browsing the console

**Create billing and free tier usage alerts**  
To manage costs and avoid surprise

**Connect to your instance**  
Once your instance is running, log into it from your local computer.

**Connect an RDS database**  
Configure the connection between

← → ↻ Not secure | 34.230.5.23

## Welcome, Chandrika Thapa

## Creating Lambda (FAAS)

The screenshot displays the AWS Lambda console interface. At the top, a green notification bar states "Successfully updated the function MyFirstFaasApp." The main header shows the breadcrumb "Lambda > Functions > MyFirstFaasApp". The function name "MyFirstFaasApp" is prominently displayed, along with buttons for "Throttle", "Copy ARN", and "Actions".

The "Function overview" section provides details about the function:


- Description:** -
- Last modified:** 5 minutes ago
- Function ARN:** `arn:aws:lambda:us-east-1:526317370942:function:MyFirstFaasApp`
- Function URL:** <https://bhcjyh3drjxcjfhvk3zsavisg0hwwtg.lambdurl.us-east-1.on.aws/>

Below the overview, there are tabs for "Code", "Test", "Monitor", "Configuration", "Aliases", and "Versions". The "Code" tab is selected, showing the "Code source" section. A green notification bar at the top of this section also states "Successfully updated the function MyFirstFaasApp." The "Code source" section includes a search bar, a file explorer on the left showing the "MyFirstFaasApp" environment with the "index.mjs" file selected, and a code editor displaying the following JavaScript code:

```
1 export const handler = async(event) => {
2   console.log(JSON.stringify(event))
3   // TODO implement
4   const response = {
5     statusCode: 200,
6     body: JSON.stringify(['student1', 'student2', 'student3', 'student4']),
7   };
8   return response;
9 };
```

← → ↻ 📄 bhcyj3drjxcjfhvk3zsavisjq0hwwtg.lambda-url.us-east-1.on.aws 📄 ☆ 📄 📄 📄 📄

["student1","student2","student3","student4"]

 Services 🔍 Search [Alt+S] 📄 🔔 ⌚ N. Virginia voclabs/user2292642=chandrika @ 5263-1737-0942

CloudWatch ✕

Favorites and recents ▶

Dashboards

▶ Alarms ⚠️ 0 ✅ 0 🔄 0

▼ Logs

Log groups [New](#)

Logs Insights

▶ Metrics

▶ X-Ray traces

▶ Events

▶ Application monitoring

▶ Insights

Settings [New](#)

Getting Started

▶	Timestamp	Message	Log stream name
▶	2022-11-28T17:50:32.197-06:00	START RequestId: d77ea081-c91d-45aa-a22d-af7e7650be14 Version:...	<a href="#">2022/11/28/[\$LATEST...</a>
▼	2022-11-28T17:50:32.199-06:00	2022-11-28T23:50:32.199Z d77ea081-c91d-45aa-a22d-af7e7650be14 ...	<a href="#">2022/11/28/[\$LATEST...</a>
	2022-11-28T23:50:32.199Z	d77ea081-c91d-45aa-a22d-af7e7650be14 INFO	<div>Copy</div>

```
{
  "version": "2.0",
  "routeKey": "$default",
  "rawPath": "/",
  "rawQueryString": "",
  "headers": {
    "sec-fetch-mode": "navigate",
    "x-amzn-tls-version": "TLSv1.2",
    "sec-fetch-site": "cross-site",
    "accept-language": "en-US,en;q=0.0",
    "x-forwarded-proto": "https",
    "x-forwarded-port": "443",
    "x-forwarded-for": "209.152.96.166",
    "sec-fetch-user": "?1",
    "accept":
"text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/sign
ed-exchange;v=b3;q=0.9",
    "x-amzn-tls-cipher-suite": "ECDHE-RSA-AES128-GCM-SHA256",
    "sec-ch-ua": "\"Google Chrome\";v=\"107\"\", \"Chromium\";v=\"107\"\", \"Not=A?Brand\";v=\"24\"\"",
    "sec-ch-ua-mobile": "?0",
    "x-amzn-trace-id": "Root=1-63854947-23db0b3229a06e9d27d5601a",
    "sec-ch-ua-platform": "\"Windows\"",
    "host": "bhcyj3drjxcjfhvk3zsavisjq0hwwtg.lambda-url.us-east-1.on.aws",
    "upgrade-insecure-requests": "1",
    "accept-encoding": "gzip, deflate, br",
    "sec-fetch-dest": "document",
    "user-agent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/107.0.0.0 Safari/537.36"
  },
}
```

Back to top ^

## React app calling AWS FAAS

```
src > JS App.js > App > useEffect() callback
1 import logo from "../logo.svg";
2 import "../App.css";
3
4 import axios from "axios";
5 import { useEffect, useState } from "react";
6
7 export default function App() {
8   const [students, setStudents] = useState([]);
9
10  useEffect(() => {
11    async function fetchStudents() {
12      const studentsFromLambda = (
13        await axios.get(
14          "https://bhcjyh3drjxcjfhvk3zsavisjq@hwwtg.lambda-url.us-east-1.on.aws/"
15        )
16      ).data;
17      setStudents(studentsFromLambda);
18      console.log(studentsFromLambda);
19    }
20    fetchStudents();
21  }, []);
22
23  return (
24    <div>
25      Cloud Computing Course
26      <ol>
27        {students.map((student) => (
28          <li>{student}</li>
29        ))}
30      </ol>
31    </div>
32  );
33 }
34
```

localhost:3001

Cloud Computing Course

1. student1
2. student2
3. student3
4. student4

## Deploying react app in s3

The image shows two screenshots of the AWS S3 console. The top screenshot is the 'Storage' overview page for Amazon S3, featuring a large heading 'Amazon S3 Store and retrieve any amount of data from anywhere' and a 'Create a bucket' button. The bottom screenshot is the 'Create bucket' configuration page, showing fields for 'Bucket name' (filled with 'myfirstbucketforreact') and 'AWS Region' (set to 'US East (N. Virginia) us-east-1').

**Storage**

# Amazon S3

Store and retrieve any amount of data from anywhere

Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance.

### Create a bucket

Every object in S3 is stored in a bucket. To upload files and folders to S3, you'll need to create a bucket where the objects will be stored.

[Create bucket](#)

### How it works

Introduction to Amazon S3

[Copy link](#)

### Pricing

With S3, there are no minimum fees. You only pay for what you use. Prices are based on the location of your S3 bucket.

Estimate your monthly bill using the [AWS Simple Monthly Calculator](#)

[View pricing details](#)

**Create bucket** [Info](#)

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

#### General configuration

Bucket name

Bucket name must be globally unique and must not contain spaces or uppercase letters. [See rules for bucket naming](#)

AWS Region

US East (N. Virginia) us-east-1

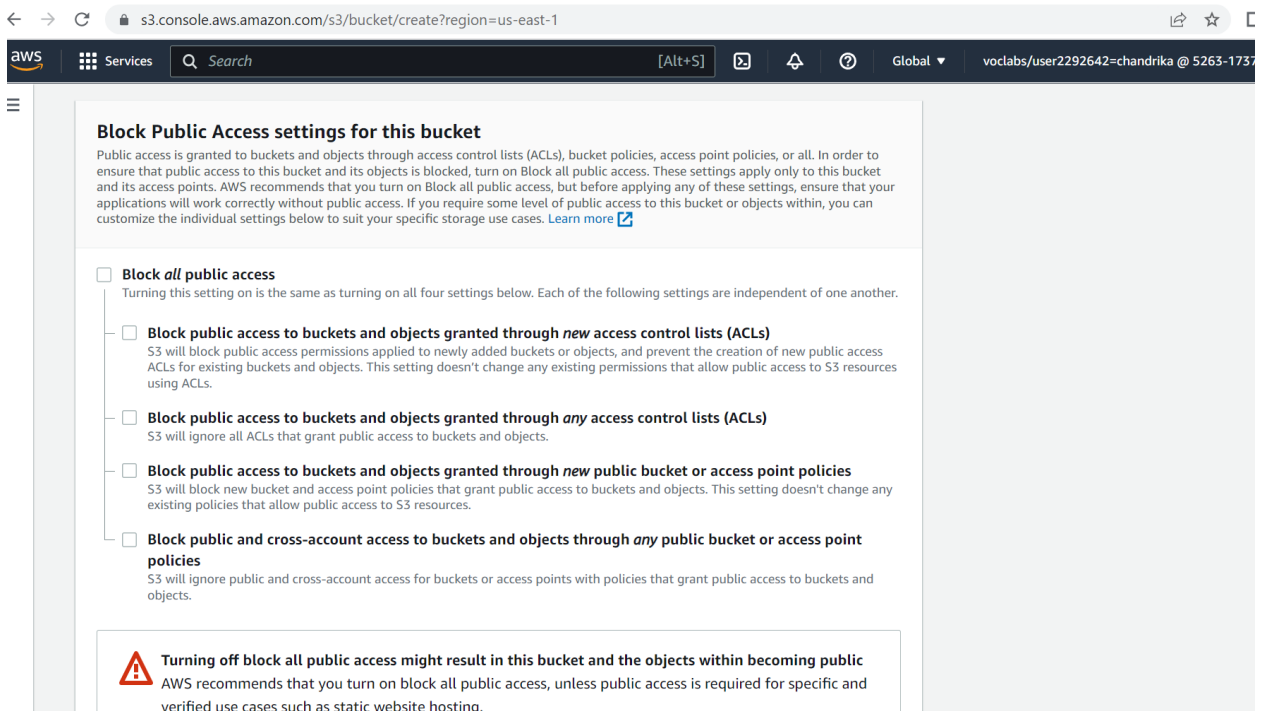
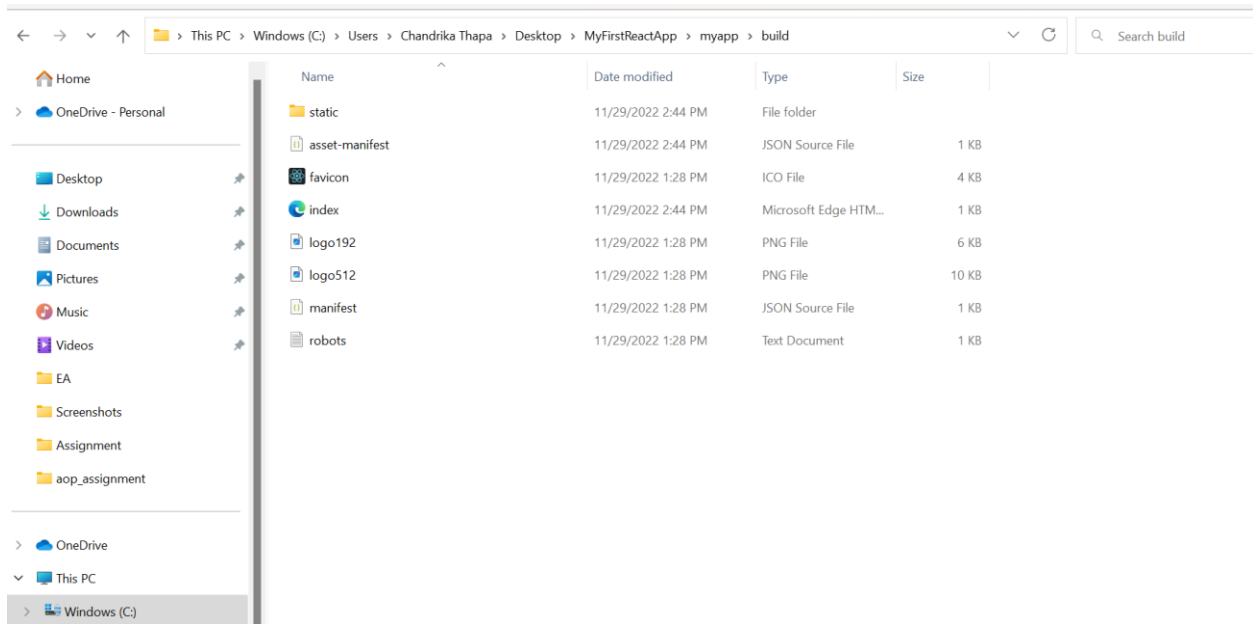
Copy settings from existing bucket - *optional*

Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

#### 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.



← → ↻ s3.console.aws.amazon.com/s3/buckets/myfirstbucketforreact?region=us-east-1&tab=permissions

aws Services Search [Alt+S] Global ▼ voclabs/user2292642=chandrika @ 5263-1737-094

### Amazon S3

- Buckets
  - Access Points
  - Object Lambda Access Points
  - Multi-Region Access Points
  - Batch Operations
  - Access analyzer for S3
- Block Public Access settings for this account
- ▼ Storage Lens
  - Dashboards
  - AWS Organizations settings
- Feature spotlight 3
- AWS Marketplace for S3

#### Bucket policy

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

[Edit](#) [Delete](#)

```
{
  "Version": "2012-10-17",
  "Id": "Policy434354543",
  "Statement": [
    {
      "Sid": "Stmnt45435443",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::myfirstbucketforreact/"
    }
  ]
}
```

[Copy](#)

aws Services Search [Alt+S] Global ▼ voc

Drag and drop files and folders you want to upload here, or choose [Add files](#), or [Add folders](#).

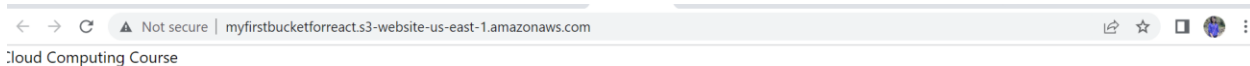
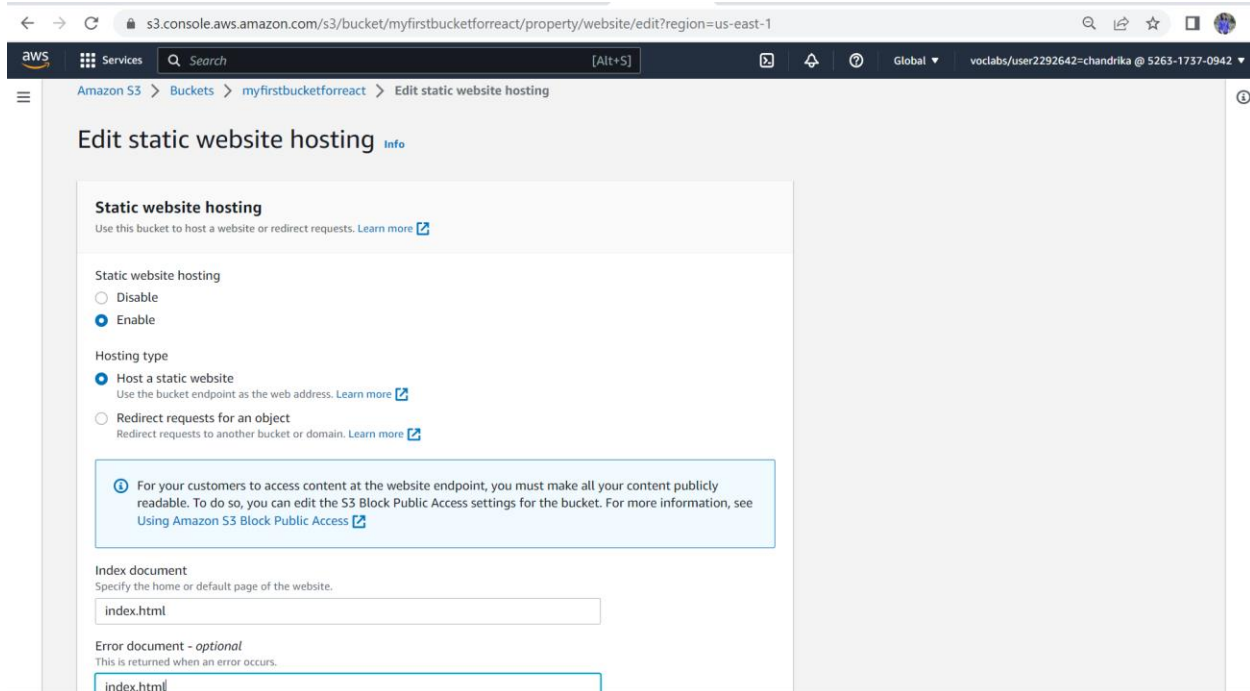
#### Files and folders (15 Total, 744.4 KB)

All files and folders in this table will be uploaded.

< 1 2 >

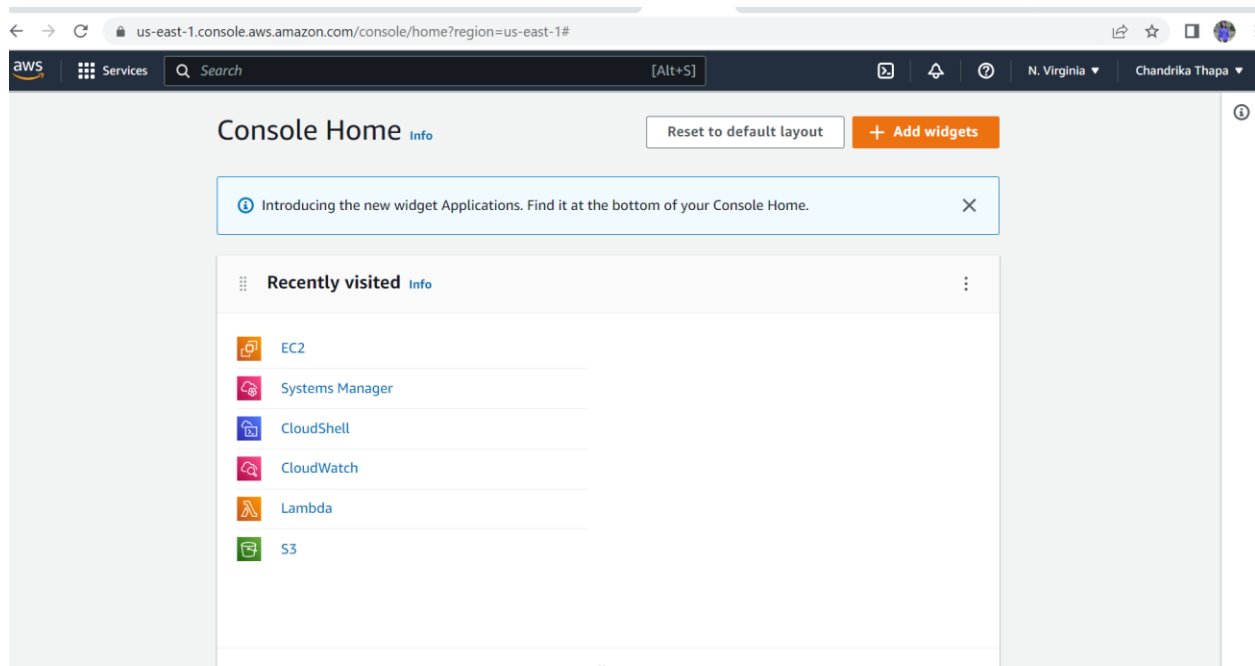
<input type="checkbox"/>	Name ▲	Folder ▼	Type ▼	Size ▼
<input type="checkbox"/>	787.d3befce1.chunk.js	static/js/	text/javascript	4.5 KB
<input type="checkbox"/>	787.d3befce1.chunk.js.map	static/js/	-	10.3 KB
<input type="checkbox"/>	asset-manifest.json	-	application/json	605.0 B
<input type="checkbox"/>	favicon.ico	-	image/x-icon	3.8 KB
<input type="checkbox"/>	index.html	-	text/html	644.0 B
<input type="checkbox"/>	logo.6ce24c58023cc2f8fd88fe9d219db6c6.svg	static/media/	image/svg+xml	2.6 KB
<input type="checkbox"/>	logo192.png	-	image/png	5.2 KB
<input type="checkbox"/>	logo512.png	-	image/png	9.4 KB
<input type="checkbox"/>	main.073c9b0a.css	static/css/	text/css	1.0 KB
<input type="checkbox"/>	main.073c9b0a.css.map	static/css/	-	1.5 KB



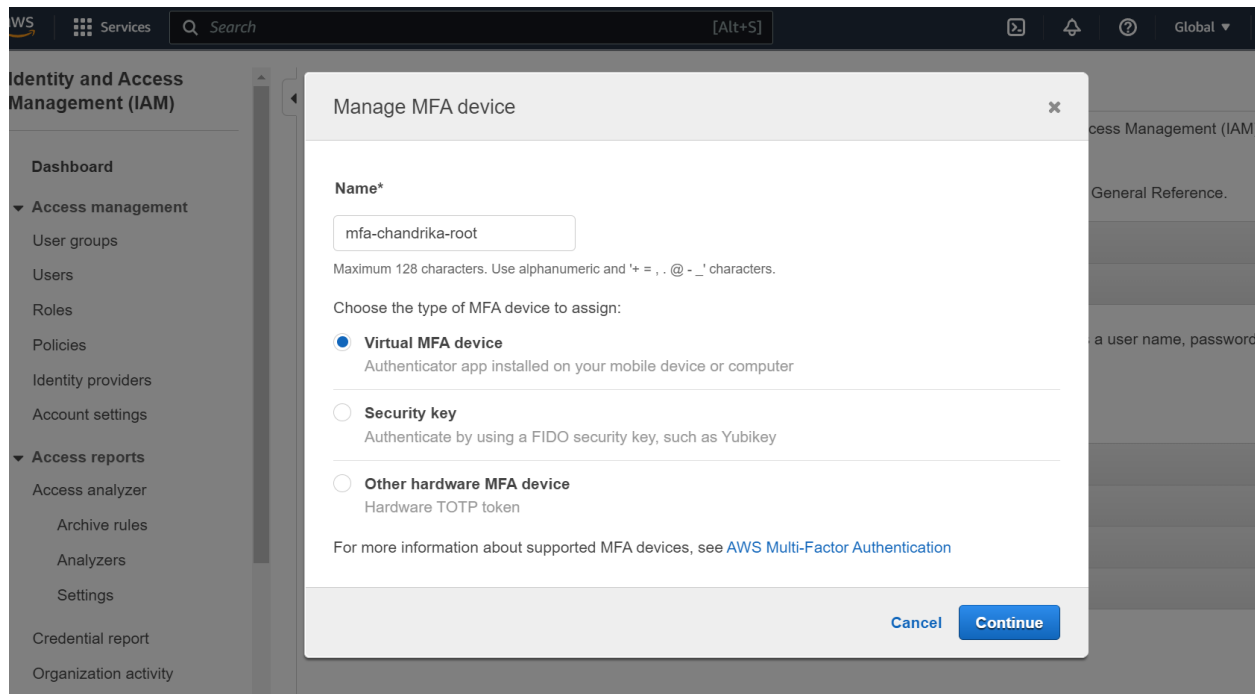


1. student1
2. student2
3. student3
4. student4


## Creating personal AWS account (root user)



## Enabling MFA in root user



Set up virtual MFA device



Alternatively, you can type the secret key. [Hide secret key](#)

B3PPAPY77PBX5KDICK4GBAUCDH64SMZ6633JTYQRZWNQAL3HETHYU673P7FOYP76

3. Type two consecutive MFA codes below

MFA code 1

794332

MFA code 2

472108

Cancel

Previous

Assign MFA

Set up virtual MFA device

✓

This virtual MFA will be required during sign-in.

You can register up to 8 MFA devices of any combination of the currently [supported MFA types](#) with your AWS account root and IAM user. With multiple MFA devices, you only need one MFA device to sign in to the AWS console or create a session through the [AWS CLI](#) with that user.

Close

Activate MFA

Device type	Serial number
Virtual TOTP	arn:aws:iam::387333547603:mfa/mfa-chandrika-root

## ▼ IAM User and Role Access to Billing Information

Use the **Activate IAM Access** setting to allow IAM users and roles access to pages of the Billing and Cost Management console. This setting alone doesn't grant IAM users and roles the necessary permissions for these console pages. In addition to activating IAM access, you must also attach the required IAM policies to those users or roles. For more information, see [Granting access to your billing information and tools](#).

If this setting is deactivated, then IAM users and roles in this account can't access the Billing and Cost Management console pages, even if they have administrator access or the required IAM policies.

The **Activate IAM Access** setting does not control access to:

- The console pages for AWS Cost Anomaly Detection, Savings Plans overview, Savings Plans inventory, Purchase Savings Plans, and Savings Plan cart
- The Cost Management view in the AWS Console Mobile Application
- The Billing and Cost Management SDK APIs (AWS Cost Explorer, AWS Budgets, and AWS Cost and Usage Report APIs)
- The Customer Carbon Footprint Tool on the Cost & Usage Reports console page

☒ **Activate IAM Access**






**Update**

Cancel

## ▼ Reserved Instance Marketplace Settings

The Reserved Instance Marketplace gives you the flexibility to sell the remaining full months on your Reserved Instances. Manage your Reserved Instance Marketplace disbursement and tax information using options below.

# Creating administrator IAM user under Administrators group

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### Identity and Access Management (IAM)

Dashboard

▼ Access management

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


▼ Access reports



- Access analyzer
- Archive rules
- Analyzers

IAM > User groups

**User groups** (Selected 1/1) [Info](#)

A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.

< 1 > 

<input checked="" type="checkbox"/>	Group name	Users	Permissions	Creation time
<input checked="" type="checkbox"/>	Administrators	 0	 Defined	1 minute ago

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Services

Search

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Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

User groups

Users

Roles

Policies

Identity providers

Account settings

Access reports

Access analyzer

Archive rules

Analyzers

Settings

IAM > User groups

User groups (1) Info

A user group is a collection of IAM users. Use groups to specify permissions for a collection of users.

Filter User groups by property or group name and press enter

Create group

Delete

<input type="checkbox"/>	Group name	Users	Permissions	Creation time
<input type="checkbox"/>	Administrators	0	Defined	10 minutes ago

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Add user

1 2 3 4 5

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name\*

Administrator

Add another user

Select AWS access type

Select how these users will primarily access AWS. If you choose only programmatic access, it does NOT prevent users from accessing the console using an assumed role. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

Select AWS credential type\*

☐ Access key - Programmatic access

Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.

☒ Password - AWS Management Console access

Enables a **password** that allows users to sign-in to the AWS Management Console.

Console password\*

☐ Autogenerated password

☒ Custom password

\* Required

Cancel

Next: Permissions

## Add user

1

2

3

4

5

### Add tags (optional)

IAM tags are key-value pairs you can add to your user. Tags can include user information, such as an email address, or can be descriptive, such as a job title. You can use the tags to organize, track, or control access for this user. [Learn more](#)

Key	Value (optional)	Remove
teams	teams	✕
Add new key		

You can add 49 more tags.

[Cancel](#)[Previous](#)[Next: Review](#)

## Add user

1

2

3

4

5



### Success

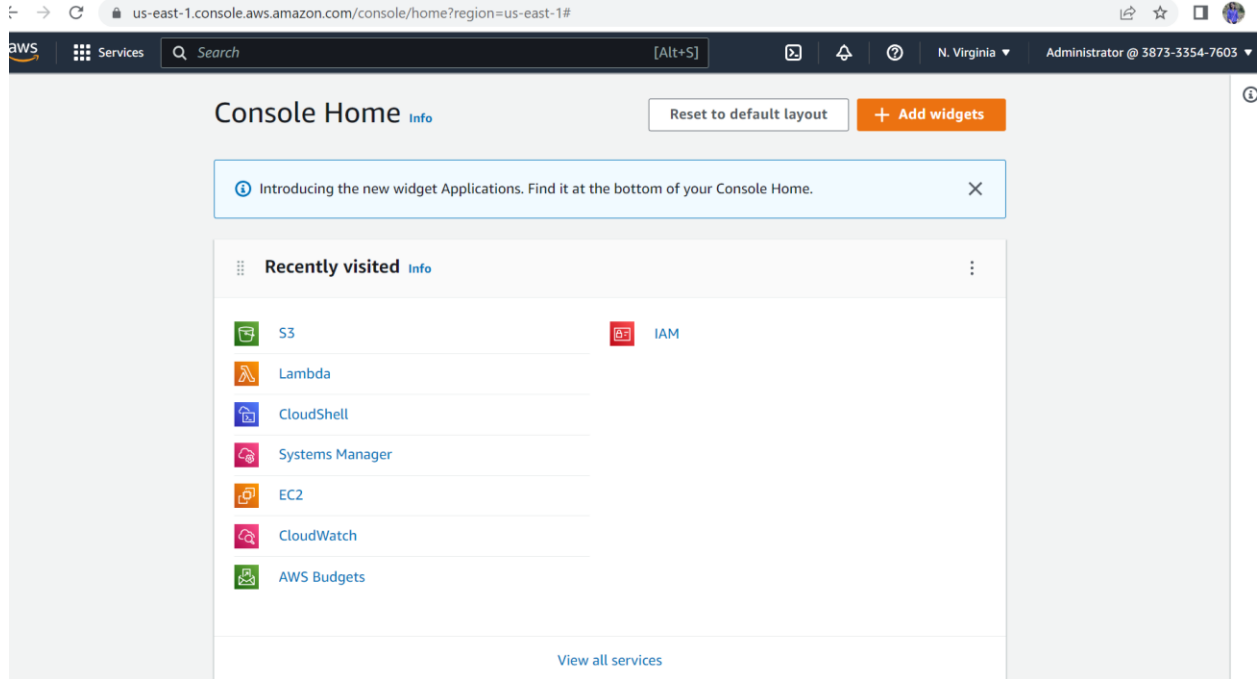
You successfully created the users shown below. You can view and download user security credentials. You can also email users instructions for signing in to the AWS Management Console. This is the last time these credentials will be available to download. However, you can create new credentials at any time.

Users with AWS Management Console access can sign-in at: <https://387333547603.signin.aws.amazon.com/console>

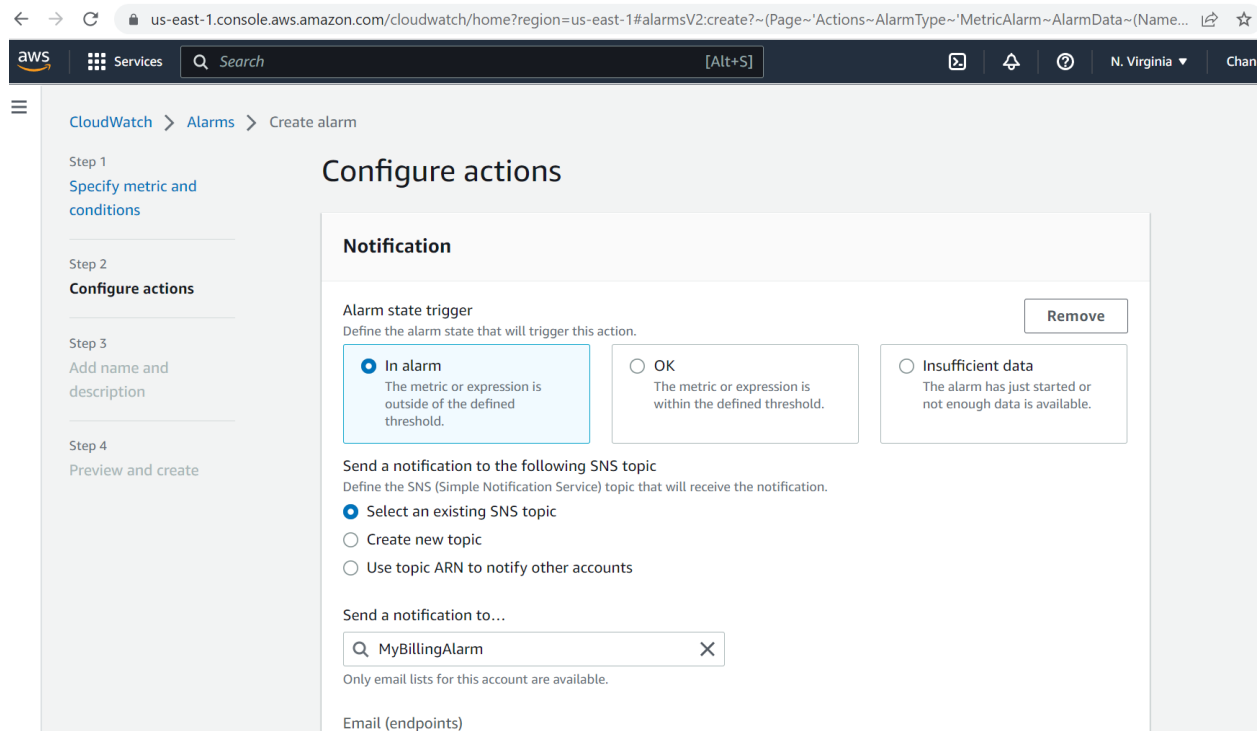
[Download .csv](#)

	User	Email login instructions
▶	✓ Administrator	<a href="#">Send email</a>

## Logging in as administrator user



## Setting billing alarm for root user



aws

Services

Search

[Alt+S]

N. Virginia

Chandrika Thapa

CloudWatch

Favorites and recents

Dashboards

Alarms

010

In alarm

All alarms

Billing

Logs

Log groupsNew

Logs Insights

Metrics

X-Ray traces

Events

Application monitoring

Insights

CloudWatch > Alarms

Alarms (1)

☐ Hide Auto Scaling alarms

Clear selection

Create composite alarm

Actions

Create alarm

Search

Any state

Any type

Any actions ...

< 1 >

<input type="checkbox"/>	Name	State	Last state update	Conditions	
<input type="checkbox"/>	MyBillingAlarm	OK	2022-11-29 23:03:41	EstimatedCharges >= 1 for 1 datapoints within 6 hours	