1. **IAM Users and Roles Lab**
   - **Objective**: To understand AWS Identity and Access Management (IAM) by creating and managing users, groups, and roles.
   - **Approach**: Students will create new IAM users, assign them to groups, and apply policies to manage permissions. The lab will also involve creating roles for AWS services and understanding the use of IAM roles for cross-service access.
   - **Goal**: Students will learn about user and permission management in AWS, the importance of roles for security and best practices for IAM.
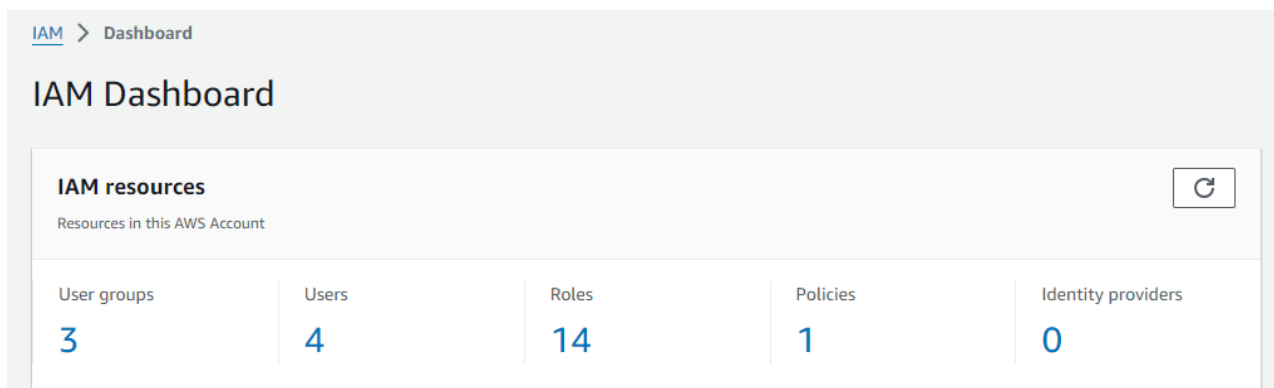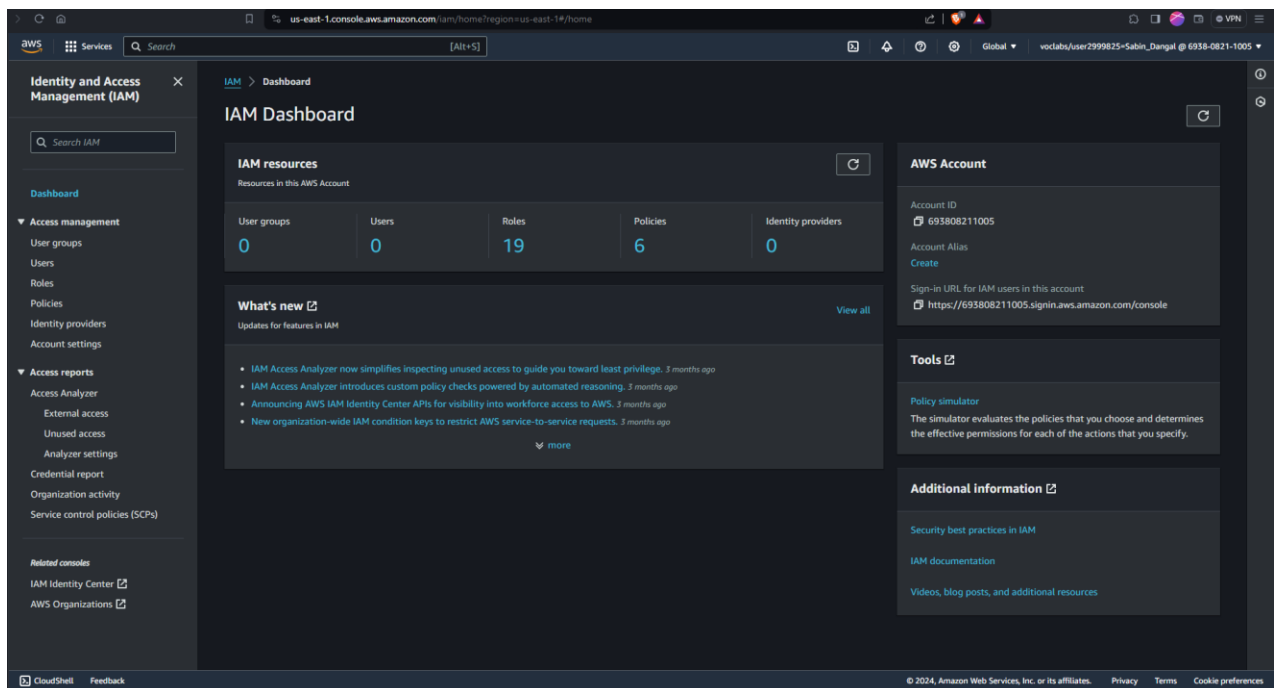
User groups (3) Info

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

Delete | Create group

	Group name ▲	Users ▽	Permissions ▽	Creation time ▽
☐	EC2-Admin	⚠ 0	⊘ Defined	59 minutes ago
☐	EC2-Support	⚠ 0	⊘ Defined	59 minutes ago
☐	S3-Support	⚠ 0	⊘ Defined	59 minutes ago

< 1 >

Users (4) Info

An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

Delete | Create user

	User name ▲	Path ▽	Group: ▽	Last activity ▽	MFA ▽	Password age ▽	Console last sign-in ▽	Access key ID ▽	Active key a
☐	awsstudent	/	⊗ Access denied	⊗ Access denied	⊗ Access denied	⊗ Access denied	-	⊗ Access denied	⊗ Access de
☐	user-1	/spl66/	0	-	-	⊘ 1 hour	-	Active - AKIAVRUVVJB…	⊘ 1 hour
☐	user-2	/spl66/	0	-	-	⊘ 1 hour	-	Active - AKIAVRUVVJB…	⊘ 1 hour
☐	user-3	/spl66/	0	-	-	⊘ 1 hour	-	Active - AKIAVRUVVJB…	⊘ 1 hour

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Roles (14) Info

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Delete | Create role

	Role name ▲	Trusted entities	Last activity ▽
☐	AWSServiceRoleForAWSCloud9	AWS Service: cloud9 (Service-Linked	-
☐	AWSServiceRoleForCloudWatchEvents	AWS Service: events (Service-Linked	-
☐	AWSServiceRoleForElastiCache	AWS Service: elasticache (Service-Lin	-
☐	AWSServiceRoleForOrganizations	AWS Service: organizations (Service-	-
☐	AWSServiceRoleForSupport	AWS Service: support (Service-Linked	-
☐	AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service	-
☐	EMR_AutoScaling_DefaultRole	AWS Service: elasticmapreduce, and	-
☐	EMR_DefaultRole	AWS Service: elasticmapreduce	-
☐	EMR_EC2_DefaultRole	AWS Service: ec2	-
☐	LabRole	AWS Service: ec2	18 minutes ago
☐	vocareum	Account: 975050322568	-
☐	vocareum-eventbridge	AWS Service: events	-
☐	voclabs	Account: 975050322568	-
☐	vocstartsoft	Account: 975050322568	-

< 1 >

EC2-Admin Info

Delete

Summary

Edit

User group name	Creation time	ARN
EC2-Admin	February 12, 2024, 22:02 (UTC+05:45)	⧉ arn:aws:iam::381492217946:group/spl66/EC2-Admin

Users (1)   Permissions   Access Advisor

Users in this group (1)

An IAM user is an entity that you create in AWS to represent the person or application that uses it to interact with AWS.

Remove   Add users

🔍 Search

‹ 1 › ⚙

	User name ⧉	▲	Groups	Last activity ▽	Creation time ▽
☐	user-1		1	None	1 hour ago

user-1 Info

Delete

Summary

ARN	Console access	Access key 1
⧉ arn:aws:iam::381492217946:user/spl66/user-1	⚠ Enabled without MFA	AKIAVRUVVJBNNUGZFBES - Active ⓘ Never used. Created today.
Created February 12, 2024, 22:02 (UTC+05:45)	**Last console sign-in** ⓘ Never	**Access key 2** Create access key

Permissions   Groups (1)   Tags (1)   Security credentials   Access Advisor

Permissions policies (1)

Permissions are defined by policies attached to the user directly or through groups.

Remove   Add permissions ▼

🔍 Search

Filter by Type

All types ▼

‹ 1 › ⚙

	Policy name ⧉	▲	Type	▽	Attached via ⧉
☐ ⊞	EC2-Admin-Policy		Customer inline		Group EC2-Admin

▶ **Permissions boundary** (not set)
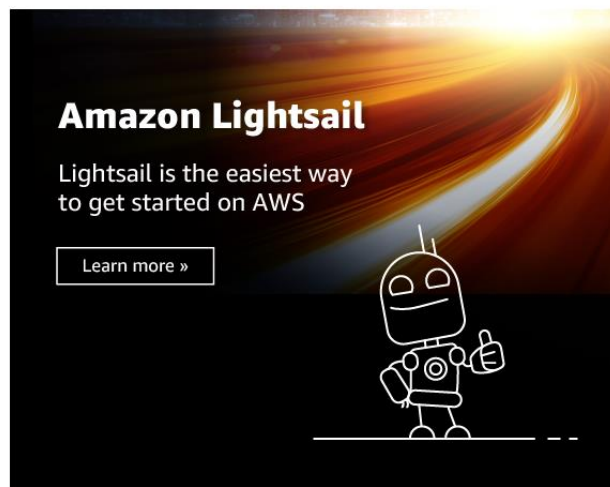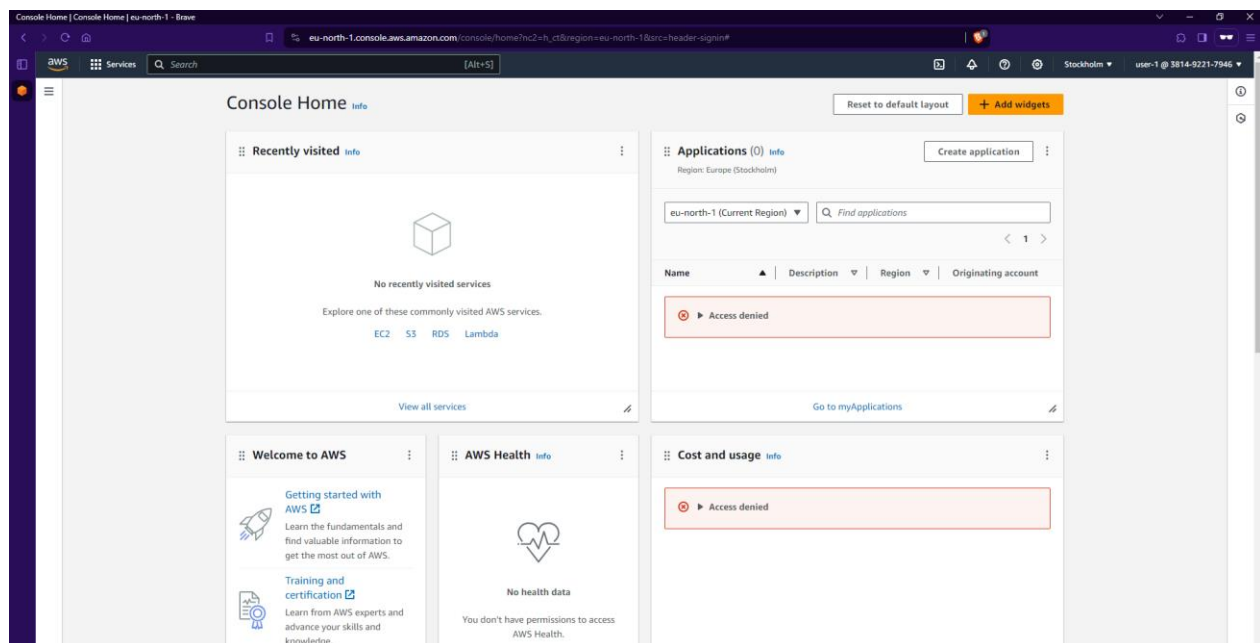
2. **EC2 Basics Lab**
   - **Objective**: To understand the process of setting up and managing an Amazon EC2 instance.
   - **Approach**: Students will start by launching a new EC2 instance, selecting an appropriate instance type and configuring the instance details. They will then

create and configure a new Security Group, and allocate an Elastic IP address to the instance. The lab will also include connecting to the instance via SSH.

- **Goal**: By the end of this lab, students should be able to launch and manage an EC2 instance, understand instance types, security groups, and IP addressing in AWS.

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
  New

▼ Images
  AMIs
  AMI Catalog

▼ Elastic Block Store
  Volumes
  Snapshots
  Lifecycle Manager

Instances (1) Info | ⟳ | Connect | Instance state ▼ | Actions ▼ | **Launch instances** ▼

Q Find Instance by attribute or tag (case-sensitive) | Any state ▼ | ‹ 1 › ⚙

	Name ✎	Instance ID	Instance state ▼	Instance type ▼	Status check	Alarm status	Availability Zone ▼	Public IPv4 DNS ▼	Public IPv4 ... ▼	Elastic IP
☐	MyWebServer	i-0d90eaea164d304c1	⊘ Running ⊕ ⊖	t2.micro	⊘ 2/2 checks passed	View alarms +	us-east-1b	ec2-44-200-206-24.co...	44.200.206.24	–

Select an instance | ⚙ ✕

EC2 > Instances > Launch an instance

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

▼ Name and tags Info

Key Info	Value Info	Resource types Info	
🔍 Name ✕	🔍 WebServerInstan ✕	Select resource ty... ▼	**Remove**

Add new tag

You can add up to 49 more tags.

▼ 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

Recents   **Quick Start**

Amazon Linux	macOS	Ubuntu	Windows	Red Hat	SUSE L	Browse more AMIs
aws	Mac	ubuntu	Microsoft	Red Hat		Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI   Free tier eligible
ami-0e731c8a588258d0d (64-bit (x86), uefi-preferred) / ami-0bbebc09f0a12d4d9 (64-bit (Arm), uefi)
Virtualization: hvm   ENA enabled: true   Root device type: ebs   ▼

Description
Amazon Linux 2023 AMI 2023.3.20240205.2 x86_64 HVM kernel-6.1

Architecture	Boot mode	AMI ID	
64-bit (x86) ▼	uefi-preferred	ami-0e731c8a588258d0d	✓ Verified provider

▼ Summary

Number of instances Info

1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.3.2...read more
ami-0e731c8a588258d0d

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

ⓘ **Free tier:** In your first year includes ✕
750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel   **Launch instance**

Review commands

▼ **Instance type** Info | Get advice

Instance type

t2.micro   Free tier eligible   ◯ All generations
Family: t2   1 vCPU   1 GiB Memory   Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour   Compare instance types
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour   ▼
On-Demand Linux base pricing: 0.0116 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. Ensure that you have access to the selected key pair
before you launch the instance.

Key pair name - *required*

vockey   ▼   ↻ Create new key pair

▼ **Network settings** Info

VPC - *required* | Info

vpc-071ae984eaa589e75   (default) ▼
172.31.0.0/16

Subnet | Info

No preference ▼   ↻ Create new subnet 🔗

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

Security group name - *required*

launch-wizard-2

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&;{}!$*

Description - *required* | Info

launch-wizard-2 created 2024-02-12T17:42:00.168Z

Inbound Security Group Rules

No security group rules are currently included in this template. Add a new rule to include it in the launch template.

Add security group rule

▼ Configure storage Info

Advanced

1x [8] GiB [gp3 ▼] Root volume (Not encrypted)

ⓘ Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage ✕

Add new volume

🕑 **Click refresh to view backup information**
The tags that you assign determine whether the instance will be backed up by any
Data Lifecycle Manager policies. ↻

0 x File systems Edit

▼ Advanced details Info

Domain join directory | Info

[Select ▼]   ↻ Create new directory ↗

IAM instance profile | Info

[Select ▼]   ↻ Create new IAM profile ↗

Hostname type | Info

[IP name ▼]

DNS Hostname | Info

☑ Enable IP name IPv4 (A record) DNS requests

☑ Enable resource-based IPv4 (A record) DNS requests

☐ Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery | Info

[Select ▼]

Shutdown behavior | Info

[Stop ▼]

Stop - Hibernate behavior | Info

[Select ▼]

Termination protection | Info

[Enable ▼]

User data - *optional* | Info

Upload a file with your user data or enter it in the field.

⤴ **Choose file**

```
#!/bin/bash
dnf install -y httpd
systemctl enable httpd
systemctl start httpd
echo '<html><h1>Hello From Your Web Server!</h1></html>' >
/var/www/html/index.html
```

EC2 Dashboard ✕
EC2 Global View
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Preview
▼ Instances
Instances

EC2 > Instances > Launch an instance

⊘ **Success**
Successfully initiated launch of instance (i-06982e821bca6fb18)

▶ Launch log

EC2 Dashboard ✕
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Instance Types
Launch Templates
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Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
New

Instances (2) Info   Connect | Instance state ▼ | Actions ▼ | **Launch instances** ▼

Find Instance by attribute or tag (case-sensitive)   Any state ▼   < 1 >

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
☐	MyWebServer	i-0d90eaea164d304c1	⊘ Running	t2.micro	⊘ 2/2 checks passed	View alarms +	us-east-1b	ec2-44-200-206-24.co...	44.200.206.24	–
☐	InstanceWebS...	i-06982e821bca6fb18	⊘ Running	t2.micro	⊘ Initializing	View alarms +	us-east-1a	ec2-34-239-136-152.co...	34.239.136.152	–

Select an instance

Allocate Elastic IP address Info

Elastic IP address settings Info

Network border group Info

🔍 us-east-1   ✕

Public IPv4 address pool

● Amazon's pool of IPv4 addresses

○ Public IPv4 address that you bring to your AWS account with BYOIP. (option disabled because no pools found) Learn more ↗

○ Customer-owned pool of IPv4 addresses created from your on-premises network for use with an Outpost. (option disabled because no customer owned pools found) Learn more ↗

Global static IP addresses

AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. Learn more ↗

Create accelerator ↗

Tags - *optional*

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add up to 50 more tag

Cancel   **Allocate**

⊘ Elastic IP address allocated successfully.
Elastic IP address 44.222.52.92   Associate this Elastic IP address   ✕

Elastic IP addresses (1/1)   ⟳   Actions ▾   **Allocate Elastic IP address**

🔍 Find resources by attribute or tag

Public IPv4 address : 44.222.52.92 ✕   **Clear filters**   ‹ 1 › ⚙

	Name	Allocated IPv4 addr...	Type	Allocation ID	Reverse DNS record	Associated instance ID	Private IP address	Association ID
☑	elasticipforec2	44.222.52.92	Public IP	eipalloc-079b5e40421bd1dbd	–	–	–	–

Instance summary for i-06982e821bca6fb18 (InstanceWebServer) Info
Updated less than a minute ago

Instance ID	Public IPv4 address	Private IPv4 addresses
i-06982e821bca6fb18 (InstanceWebServer)	34.239.136.152 |open address	172.31.33.197
IPv6 address	Instance state	Public IPv4 DNS
–	⊘ Running	ec2-34-239-136-152.compute-1.amazonaws.com |open address
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-172-31-33-197.ec2.internal	ip-172-31-33-197.ec2.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
34.239.136.152 [Public IP]	vpc-071ae984eaa589e75	ⓘ Opt-in to AWS Compute Optimizer for recommendations. | Learn more
IAM Role	Subnet ID	Auto Scaling Group name
–	subnet-022cc006beae739ba	–
IMDSv2		
Required		

Details | Status and alarms New | Monitoring | Security | Networking | Storage | Tags

▼ Instance details Info

Platform	AMI ID	Monitoring
Amazon Linux (Inferred)	ami-0e731c8a588258d0d	disabled
Platform details	AMI name	Termination protection
Linux/UNIX	al2023-ami-2023.3.20240205.2-kernel-6.1-x86_64	Enabled
Stop protection	Launch time	AMI location
Disabled	Mon Feb 12 2024 23:36:28 GMT+0545 (Nepal Time) (15 minutes)	amazon/al2023-ami-2023.3.20240205.2-kernel-6.1-x86_64
Instance auto-recovery	Lifecycle	Stop-hibernate behavior
Default	normal	Disabled
AMI Launch index	Key pair assigned at launch	State transition reason
0	vockey	–
Credit specification	Kernel ID	State transition message
standard	–	–