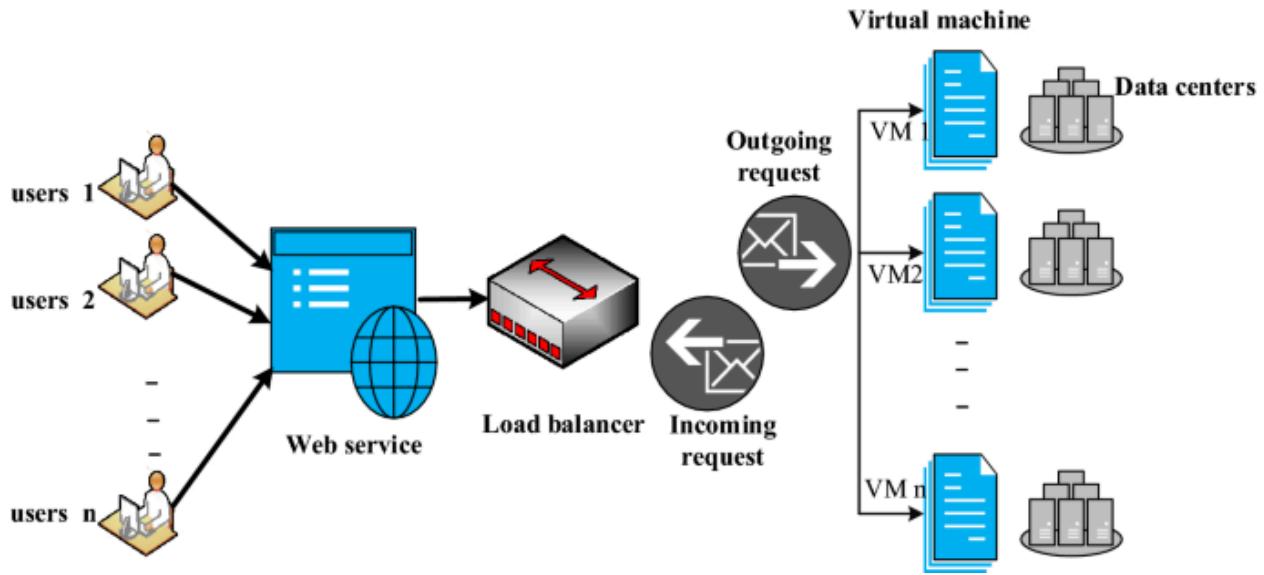


1. Describe Load Balancing and its significance in Cloud Environment



What is Load Balancing?

Load balancing is the process of distributing incoming network traffic across multiple servers or resources to ensure no single server becomes overwhelmed, thus maximizing speed, reliability, and capacity utilization. In a cloud environment, load balancing ensures that workloads are spread evenly across computing resources, optimizing resource use, maximizing throughput, and minimizing response time.

Types of Load Balancing

1. **Hardware Load Balancers:** Physical devices used to distribute network traffic.
2. **Software Load Balancers:** Software-based solutions that can be installed on standard hardware or virtual machines.
3. **DNS Load Balancing:** Uses DNS to distribute traffic among multiple servers by rotating the DNS responses.
4. **Cloud-based Load Balancers:** Provided by cloud service providers as a managed service, offering scalability and ease of use.

How Load Balancing Works

1. Client Request: A client sends a request to access a web application or service.
2. Load Balancer: The request is directed to the load balancer, which determines the best available server to handle the request based on various algorithms (e.g., round-robin, least connections, etc.).
3. Forwarding: The load balancer forwards the request to the selected server.
4. Response: The server processes the request and sends the response back to the client via the load balancer.

Significance of Load Balancing in Cloud Environment

1. Scalability: Load balancers enable cloud environments to scale up or down efficiently by distributing traffic across multiple servers. This is essential for handling varying loads and ensuring consistent performance.
2. High Availability and Reliability: By distributing traffic, load balancers prevent any single server from becoming a point of failure. If one server goes down, traffic is automatically rerouted to healthy servers, ensuring continuous service availability.
3. Optimal Resource Utilization: Load balancing ensures that all servers are used efficiently, preventing some servers from being underutilized while others are overloaded. This leads to better resource management and cost savings.
4. Improved Performance: By distributing traffic and avoiding server overloads, load balancers reduce latency and response times, leading to faster and more reliable user experiences.
5. Security: Load balancers can enhance security by masking the internal servers from direct exposure to the internet. They can also provide protection against DDoS attacks by distributing traffic and preventing any single server from becoming a bottleneck.

6. Flexibility: Cloud-based load balancers offer flexibility in managing traffic across different regions and data centers, providing better user experiences for geographically dispersed users.
7. Ease of Maintenance: With load balancing, maintenance can be performed on individual servers without affecting the availability of the application, as traffic can be routed away from servers undergoing maintenance.

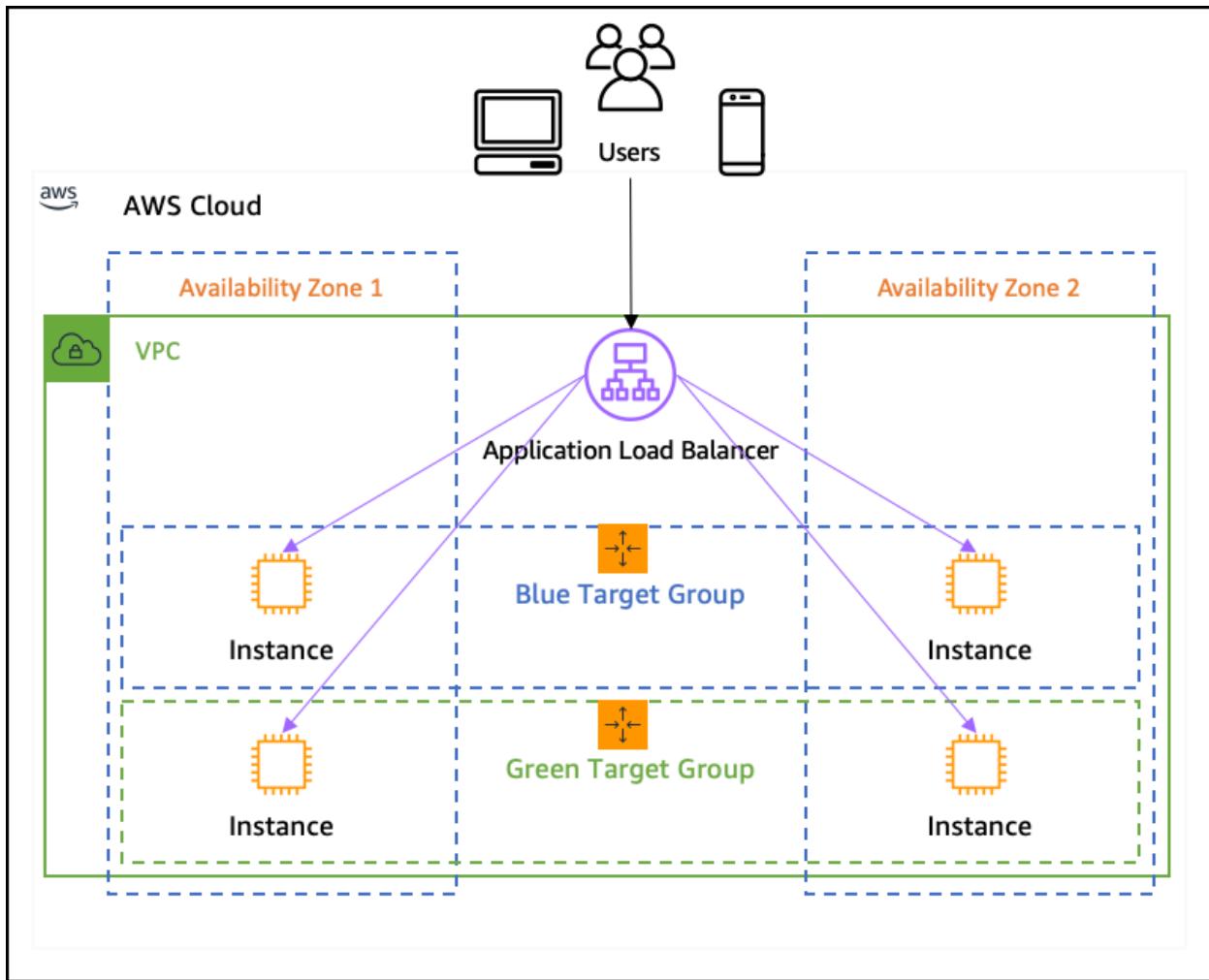
Common Load Balancing Algorithms

1. Round Robin: Distributes requests sequentially among servers.
2. Least Connections: Directs traffic to the server with the fewest active connections.
3. Least Response Time: Sends requests to the server with the quickest response time.
4. IP Hash: Distributes requests based on a hash of the client's IP address.
5. Weighted Round Robin: Distributes traffic based on assigned weights, with more traffic going to servers with higher weights.

In summary, load balancing is crucial in cloud environments to ensure applications remain scalable, reliable, and performant, while also optimizing resource usage and enhancing security.

2. List the Load Balancing Service available in AWS, Azure and GCP.

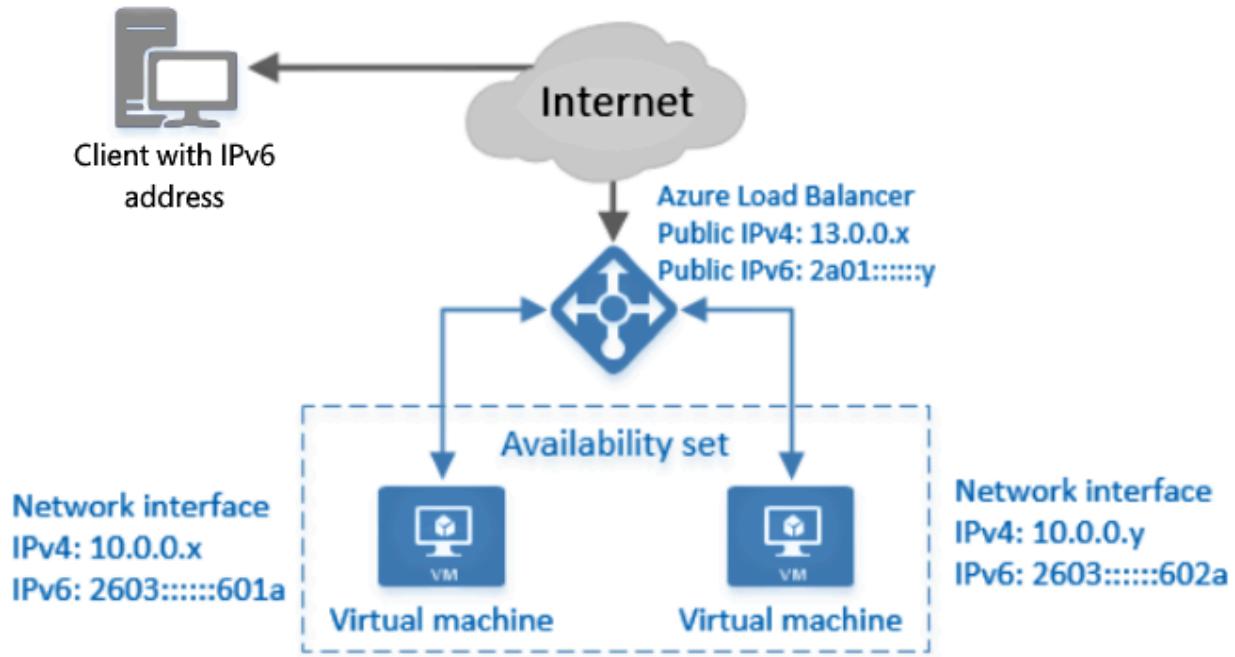
>>AWS (Amazon Web Services)



1. Elastic Load Balancing (ELB)

- Application Load Balancer (ALB): Best suited for HTTP and HTTPS traffic and provides advanced routing capabilities.
- Network Load Balancer (NLB): Best suited for TCP, UDP, and TLS traffic where extreme performance is required.
- Classic Load Balancer (CLB): Supports both HTTP/HTTPS and TCP protocols; it is the older version and is gradually being phased out in favor of ALB and NLB.
- Gateway Load Balancer: Handles traffic to and from virtual appliances, enabling scalable and resilient virtual appliance deployments.

>>Azure



1. Azure Load Balancer

- Public Load Balancer: Distributes incoming network traffic across multiple Azure virtual machines.
- Internal Load Balancer: Distributes traffic to resources inside a virtual network.

2. Azure Application Gateway

- Provides application-level routing and load balancing, with features like SSL termination, WAF (Web Application Firewall), and URL-based routing.

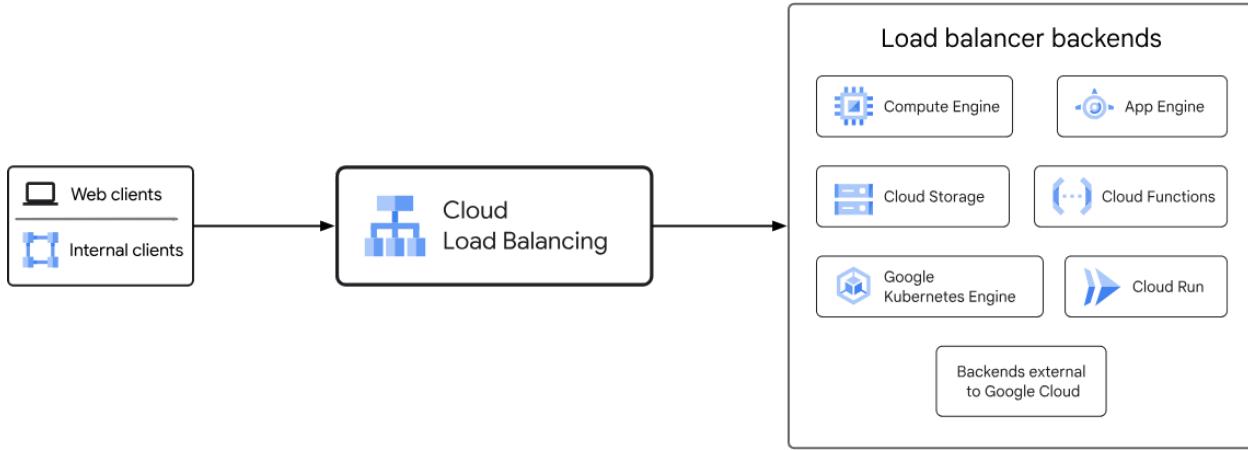
3. Azure Traffic Manager

- A DNS-based traffic load balancer that enables you to distribute traffic optimally to services across global Azure regions.

4. Azure Front Door

- Provides global load balancing and site acceleration service, offering dynamic site acceleration, SSL offload, and application layer processing.

>>GCP (Google Cloud Platform)



1. Google Cloud Load Balancing

- Global HTTP(S) Load Balancer: Best suited for HTTP and HTTPS traffic, and it supports advanced routing capabilities.
- Global SSL Proxy Load Balancer: Handles SSL/TLS traffic by terminating the SSL/TLS sessions.
- Global TCP Proxy Load Balancer: Best suited for TCP traffic.
- Regional Internal HTTP(S) Load Balancer: Distributes HTTP and HTTPS traffic within a region.
- Regional Internal TCP/UDP Load Balancer: Distributes TCP and UDP traffic within a region.
- Regional Network Load Balancer (NLB): Provides ultra-low latency load balancing for TCP/UDP traffic.

These load balancing services provide different capabilities and features to meet various application needs across AWS, Azure, and GCP.

3. Create an AWS EC2 / GCP VM Instances (Instance

**Name: Regno_EC2_VM1,
Regno_EC2_VM2) and install a webserver of your choice
in each of the instances to
host web site of your organization globally.**

Reference : Lab 3 from AWS Academy course

Launch an instance | EC2 | us x +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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aws Services Q N. Vir v vocabs/user3311189=christina.thattil@msam.chri ▾

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

Name
2348511_L2_EC2_VM1

Add additional 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

aws Mac ubuntu Microsoft

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

This screenshot shows the 'Launch an instance' wizard in the AWS Management Console. In the 'Name and tags' section, the instance name is set to '2348511_L2_EC2_VM1'. The 'Application and OS Images' section displays a catalog of available Amazon Machine Images (AMIs), including 'Amazon Linux', 'macOS', 'Ubuntu', 'Windows', and 'Red Hat'. A search bar is available to find specific AMIs. A link to 'Browse more AMIs' is also present.

Launch an instance | EC2 | us < +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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Amazon Machine Image (AMI)

Amazon Linux 2023 AMI Free tier eligible

ami-06c68f701d8090592 (64-bit (x86), uefi-preferred) / ami-07832e309d3f756c8 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Architecture	Boot mode	AMI ID
64-bit (x86)	uefi-preferred	ami-06c68f701d8090592

Verified provider

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

[Compare instance types](#)

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.

Launch an instance | EC2 | us < +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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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*

L2 [Create new key pair](#)

Network settings [Info](#)

VPC - *required* [Info](#)

vpc-07e2ac73a6cbfe87d (default) 172.31.0.0/16 [Create new VPC](#)

Subnet [Info](#)

subnet-0381a2b567c61c5f6 [Create new subnet](#)

VPC: vpc-07e2ac73a6cbfe87d Owner: 738204508764 Availability Zone: us-east-1e IP addresses available: 4091 CIDR: 172.31.48.0/20

Auto-assign public IP [Info](#)

Enable [Create new subnet](#)

Additional charges apply when outside of [free tier allowance](#)

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*

L2 security group

Launch an instance | EC2 | us < +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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Security group name - required
L2 security group

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
Security group for my assignment

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 80, 0.0.0.0/0) Remove

Type | Info
HTTP

Protocol | Info
TCP

Port range | Info
80

Source type | Info
Anywhere

Source | Info
Add CIDR, prefix list or security group
0.0.0.0/0 X

Description - optional | Info
e.g. SSH for admin desktop

⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only. X

Add security group rule

► Advanced network configuration

Launch an instance | EC2 | us < +

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Configure storage [Info](#) Advanced

1x GiB 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](#) [Edit](#)

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

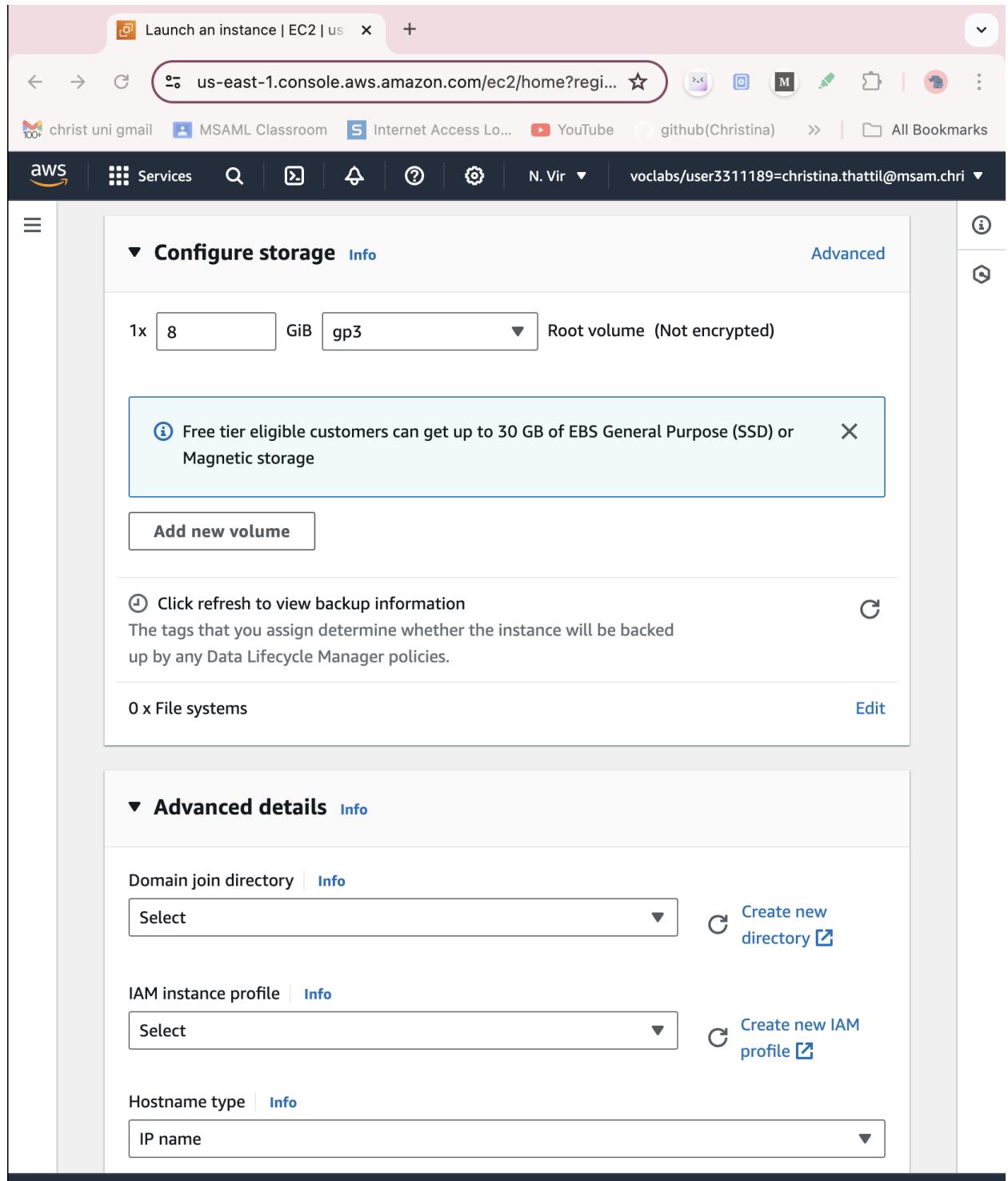
0 x File systems [Edit](#)

Advanced details [Info](#)

Domain join directory [Info](#) [Create new directory](#)

IAM instance profile [Info](#) [Create new IAM profile](#)

Hostname type [Info](#)



Launch an instance | EC2 | us < +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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Metadata response hop limit | Info
2

Allow tags in metadata | Info
Select ▾

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 Christina ;)</h1></html>' > /var/www/html/index.html
```

User data has already been base64 encoded

▼ Summary

Number of instances | Info

Launch an instance | EC2 | us < +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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User data has already been base64 encoded

▼ Summary

Number of instances [Info](#)
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.5.2...[read more](#)
ami-06c68f701d8090592

Virtual server type (instance type)
t2.micro

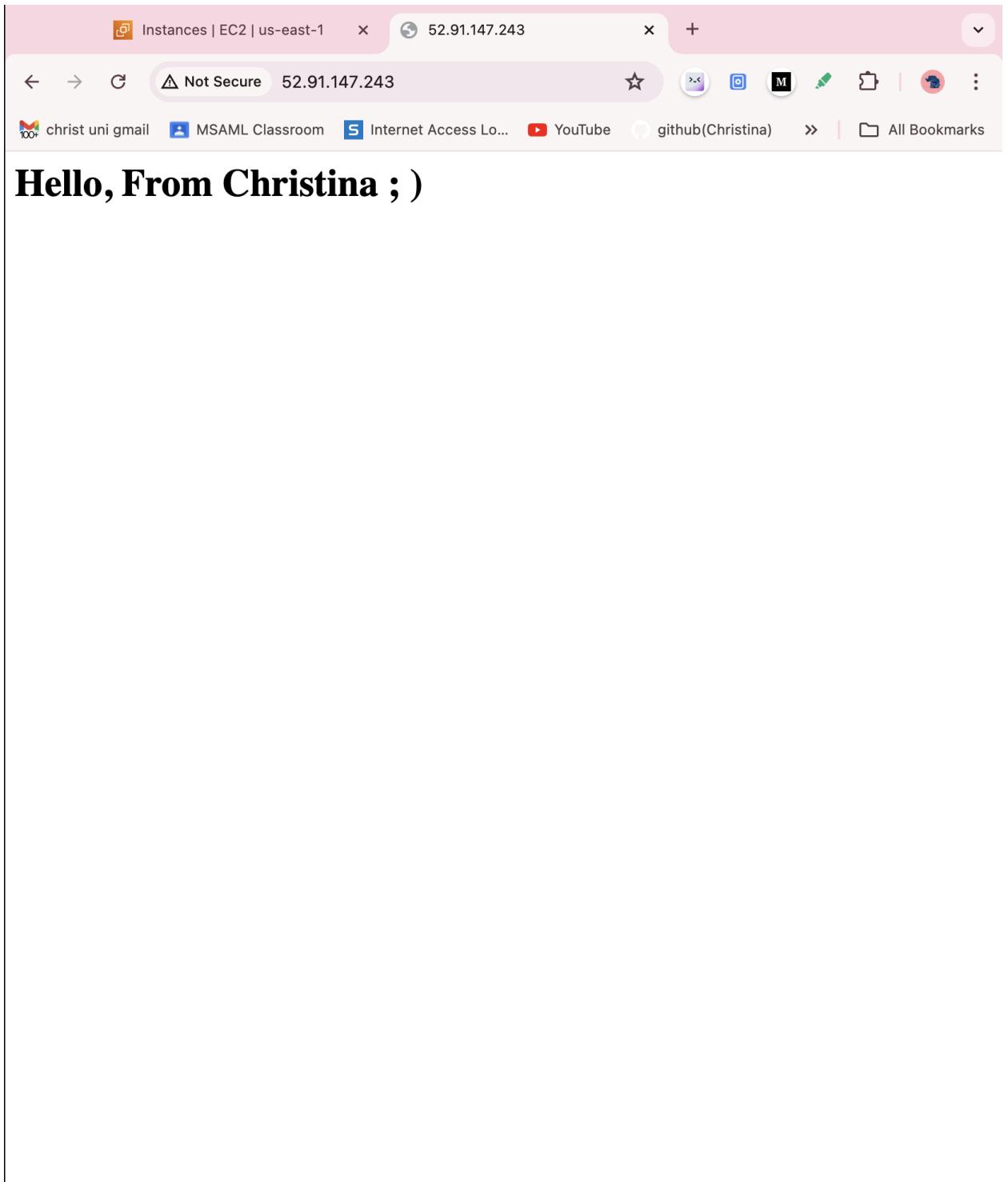
Firewall (security group)
New security group

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, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet. X

Cancel **Launch instance**

Review commands



Launch an instance | EC2 | us x 52.91.147.243 x +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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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

Name
2348511_L2_EC2_VM2

Add additional tags

▼ Application and OS Images (Amazon Machine Image) Info

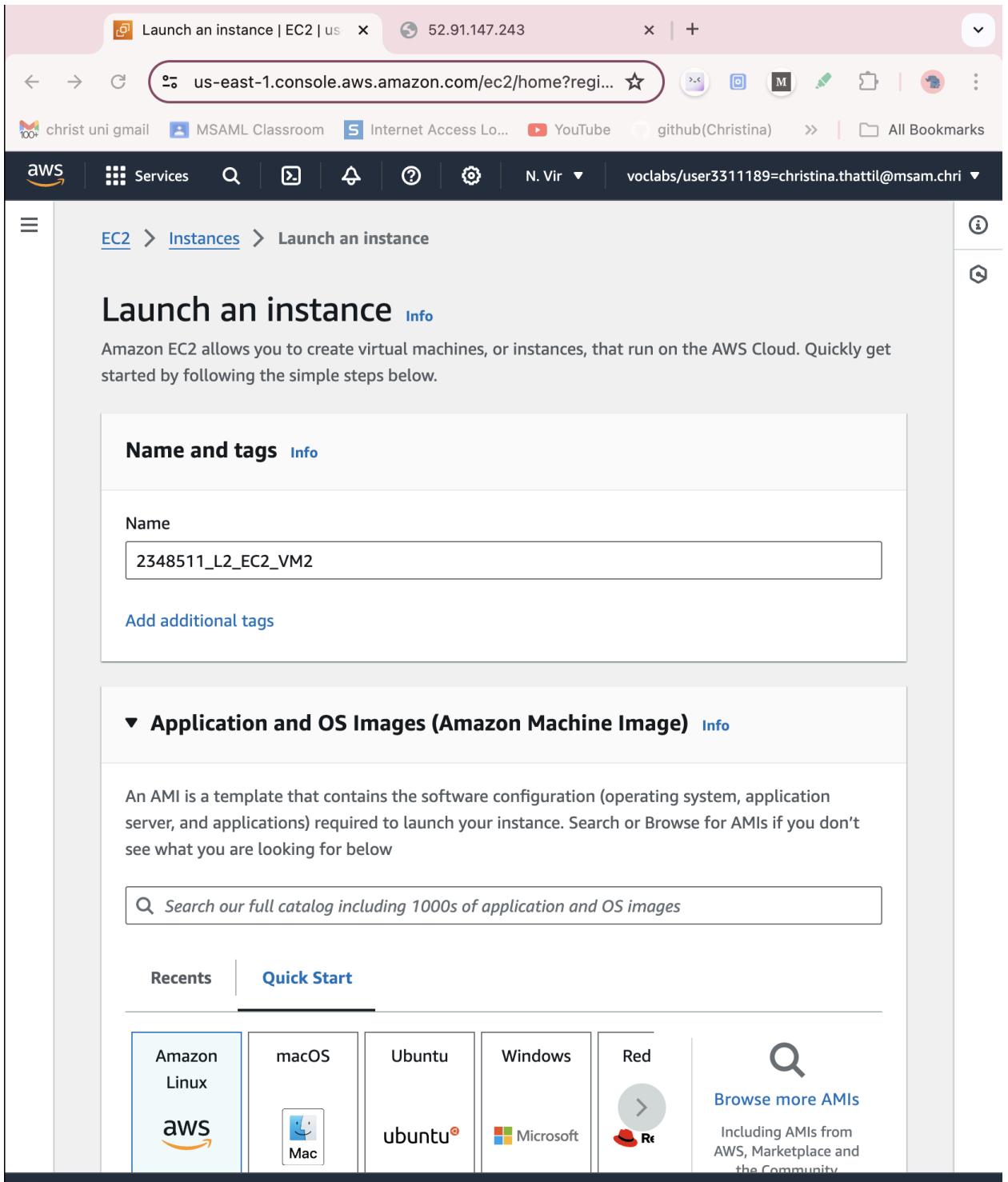
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Recents Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat Enterprise Linux

Browse more AMIs Including AMIs from AWS, Marketplace and the Community



Launch an instance | EC2 | us x 52.91.147.243 x +

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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aws Services Q N. Vir v vocabs/user3311189=christina.thattil@msam.chri

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI Free tier eligible

ami-06c68f701d8090592 (64-bit (x86), uefi-preferred) / ami-07832e309d3f756c8 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Architecture	Boot mode	AMI ID
64-bit (x86)	uefi-preferred	ami-06c68f701d8090592

Verified provider

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

[Compare instance types](#)

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*

Launch an instance | EC2 | us x 52.91.147.243 x +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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aws Services Q □ ? N. Vir v vclabs/user3311189=christina.thattil@msam.chri ▾

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*

L2 Create new key pair

Network settings Info Edit

Network Info

vpc-07e2ac73a6cbfe87d

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Additional charges apply when outside of free tier allowance

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

We'll create a new security group called 'launch-wizard-14' with the following rules:

Allow SSH traffic from Anywhere
Helps you connect to your instance 0.0.0.0/0

Allow HTTPS traffic from the internet To set up an endpoint, for example when creating a web server

Allow HTTP traffic from the internet

Launch an instance | EC2 | us x 52.91.147.243 x +

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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aws Services N. Vir v oclabs/user3311189=christina.thattil@msam.chri

Configure storage Info Advanced

1x GiB 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

The screenshot shows the AWS EC2 'Launch an instance' wizard. In the 'Configure storage' section, it specifies 1x 8 GiB gp3 Root volume (Not encrypted). A note indicates free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. Below this, there's an 'Add new volume' button. A note says to click refresh to view backup information and that tags determine whether the instance will be backed up by Data Lifecycle Manager policies. Under 'Advanced details', there are fields for 'Domain join directory' (with a dropdown menu 'Select' and a 'Create new directory' button) and 'IAM instance profile'.

Launch an instance | EC2 | us < x 52.91.147.243 x +

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```
#!/bin/bash
dnf install -y httpd
systemctl enable httpd
systemctl start httpd
echo '<html><h1>Blaa Bleee Bluuu</h1></html>' > /var/www/html/index.html
```

User data has already been base64 encoded

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

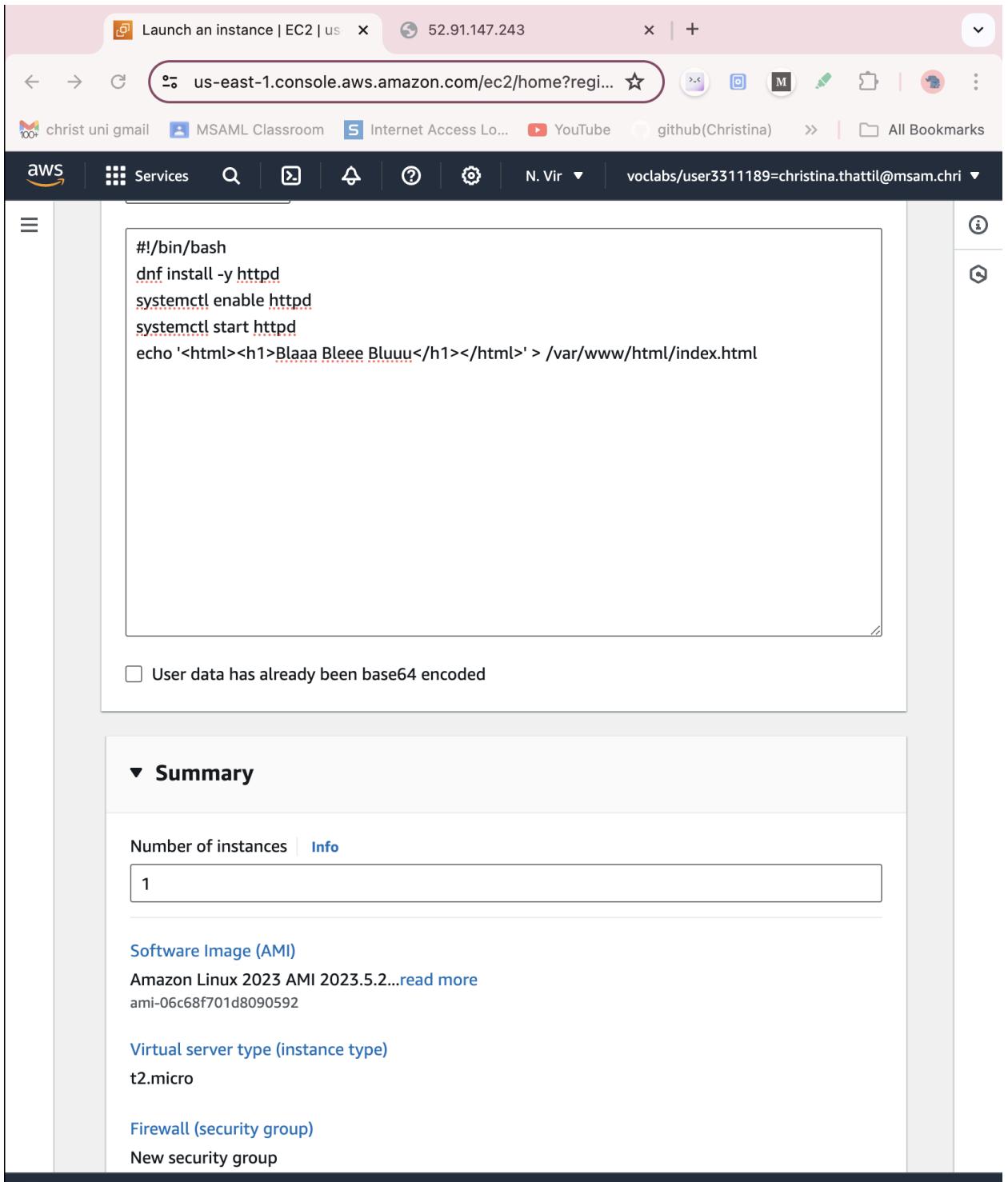
Amazon Linux 2023 AMI 2023.5.2...[read more](#)
ami-06c68f701d8090592

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group



Launch an instance | EC2 | us x 52.91.147.243 x +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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User data has already been base64 encoded

▼ Summary

Number of instances | Info 1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.5.2...read more
ami-06c68f701d8090592

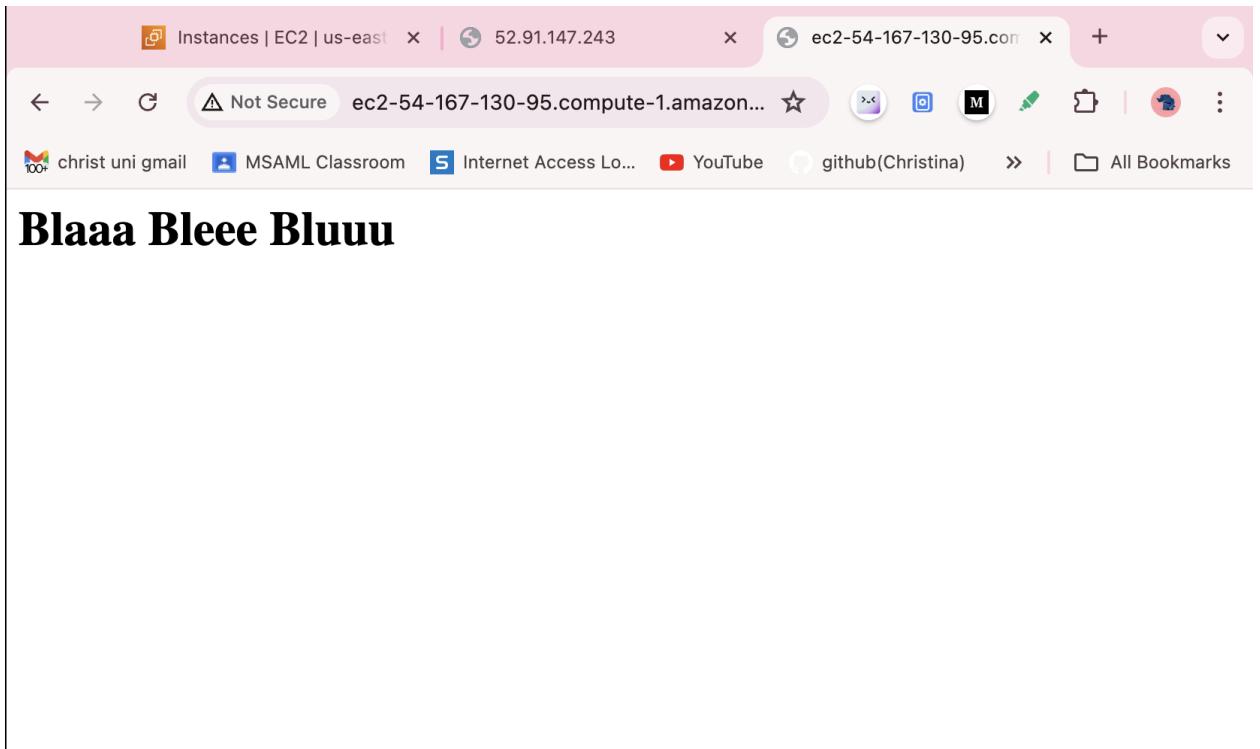
Virtual server type (instance type)
t2.micro

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, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet. X

Cancel Launch instance



4. Create a Application Load Balancer to ensure the fare allocation of tasks among the web servers deployed on the Virtual machine instances.

Instances | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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Currently creating AMI ami-0e016772c2e71c0 from instance i-079086ddfd24ad7f1. Check that the AMI status is 'Available' before deleting the instance or carrying out other actions related to this AMI.

Instances (1/7) Info

	Name	Instance ID	Actions	Launch instances
<input type="checkbox"/>	2348511_L1...	i-0530da4978d2a1fc3	Connect	< 1 >
<input type="checkbox"/>	2348511_L2...	i-0d9c1ef3e67466975	View details	Instance type ▾ Status
<input type="checkbox"/>	2348511_L2...	i-06ffdbfd165e1f51e	Manage instance state	2.micro 2
<input type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Instance settings	2.micro 2
<input type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Networking	2.micro 2
<input type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Security	2.micro -
<input type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Image and templates	2.micro 2
<input type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Monitor and troubleshoot	2.micro -
<input type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Terminated t2.micro -	
<input checked="" type="checkbox"/>	2348511_L2...	i-079086ddfd24ad7f1	Running t2.micro 2	

i-079086ddfd24ad7f1 (2348511_L2_EC2_VM1)

Details Status and alarms Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID i-079086ddfd24ad7f1 (2348511_L2_EC2_VM1)	Public IPv4 address 52.91.147.243 open address	Private IPv4 addresses 172.31.60.79
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-52-91-147-243.compute-1.amazonaws.com

Create Image | EC2 | us-east-1

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

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EC2 > Instances > i-079086ddfd24ad7f1 > Create image

Create image Info

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID
i-079086ddfd24ad7f1 (2348511_L2_EC2_VM1)

Image name
L2_VM1

Maximum 127 characters. Can't be modified after creation.

Image description - *optional*
For the assignment

Maximum 255 characters

No reboot
 Enable

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encryption type
				EBS			<input checked="" type="checkbox"/> Enabled	None
							<input type="checkbox"/> Enabled	None
							<input type="checkbox"/> Enabled	None
							<input type="checkbox"/> Enabled	None

Target groups | EC2 | us-east +/-

us-east-1.console.aws.amazon.com/ec2/home?regi... star new tab refresh copy print more

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aws Services search refresh bell help gear dropdown N. Vir voclabs/user3311189=christina.thattil@msam.chri

Dedicated Hosts Capacity Reservations

▼ Images AMIs AMI Catalog

▼ Elastic Block Store Volumes Snapshots Lifecycle Manager

▼ Network & Security Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces

▼ Load Balancing Load Balancers **Target Groups** Trust Stores New

▼ Auto Scaling Auto Scaling Groups

Settings

EC2 > Target groups

Target groups Info

refresh Actions Create target group

filter *Filter target groups*

prev 1 next gear

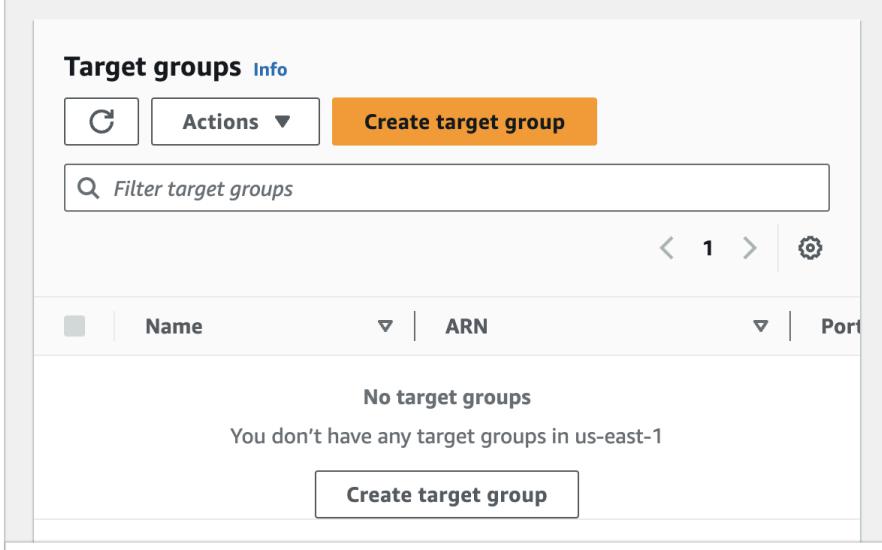
Name	ARN	Port
No target groups		

You don't have any target groups in us-east-1

Create target group

0 target groups selected X

Select a target group above.



Step 1 Create target group | E X +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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EC2 > Target groups > Create target group

Step 1 of 2

Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Settings in this section can't be changed after the target group is created.

Choose a target type

Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of [Amazon EC2 Auto Scaling](#) to manage and scale your EC2 capacity.

IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Offers flexibility with microservice based architectures, simplifying inter-application communication.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Step 1 Create target group | E X +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆ ↗️ 📺 📸 M 🖊️ 📁 🖼️ ⋮

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Target group name L2_VM1

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Protocol : Port

Choose a protocol for your target group that corresponds to the Load Balancer type that will route traffic to it. Some protocols now include anomaly detection for the targets and you can set mitigation options once your target group is created. This choice cannot be changed after creation

HTTP 80
1-65535

IP address type

Only targets with the indicated IP address type can be registered to this target group.

IPv4
Each instance has a default network interface (eth0) that is assigned the primary private IPv4 address. The instance's primary private IPv4 address is the one that will be applied to the target.

IPv6
Each instance you register must have an assigned primary IPv6 address. This is configured on the instance's default network interface (eth0). [Learn more](#)

VPC

Select the VPC with the instances that you want to include in the target group. Only VPCs that support the IP address type selected above are available in this list.

-
vpc-07e2ac73a6cbfe87d
IPv4 VPC CIDR: 172.31.0.0/16

Protocol version

HTTP1
Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

HTTP2
Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

gRPC
Send requests to targets using gRPC. Supported when the request protocol is gRPC.

Load balancers | EC2 | us-east-1 X +

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aws Services Q D M E A N. Vir voclabs/user3311189=christina.thattil@msam.chri

Dedicated Hosts Capacity Reservations

Images AMIs AMI Catalog

Elastic Block Store Volumes Snapshots Lifecycle Manager

Network & Security Security Groups Elastic IPs Placement Groups Key Pairs Network Interfaces

Load Balancing Load Balancers Target Groups Trust Stores New

Auto Scaling Auto Scaling Groups Settings

EC2 > Load balancers

Load balancers

Create load balancer

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

No load balancers

You don't have any load balancers in us-east-1

0 load balancers selected

Select a load balancer above.

A screenshot of the AWS Management Console. The user is navigating through the EC2 service, specifically the Load Balancers section. On the left, there's a sidebar with various navigation links like Dedicated Hosts, Capacity Reservations, Images, and Auto Scaling. The main content area shows a heading 'Load balancers' with a 'Create load balancer' button. Below this, a message states 'Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.' There's a search bar labeled 'Filter load balancers' and a table header with columns for Name and DNS name. A message at the bottom of the table says 'No load balancers' and 'You don't have any load balancers in us-east-1'. A modal window is open in the foreground with the title '0 load balancers selected' and the instruction 'Select a load balancer above.'

Compare and select load balancer type

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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EC2 > Load balancers > Compare and select load balancer type

Compare and select load balancer type

A complete feature-by-feature comparison along with detailed highlights is also available. [Learn more](#)

Load balancer types

Application Load Balancer [Info](#)

The diagram illustrates the Application Load Balancer (ALB) architecture. A user's browser connects to an ALB via HTTP. The ALB then routes traffic to three targets: Lambda, API Gateway, and an EC2 instance.

Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

[Create](#)

Network Load Balancer [Info](#)

The diagram illustrates the Network Load Balancer (NLB) architecture. A user's browser connects to a VPC via a Network Load Balancer.

Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment,

Create application load balancer

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EC2 > Load balancers > Create Application Load Balancer

Create Application Load Balancer Info

The Application Load Balancer distributes incoming HTTP and HTTPS traffic across multiple targets such as Amazon EC2 instances, microservices, and containers, based on request attributes. When the load balancer receives a connection request, it evaluates the listener rules in priority order to determine which rule to apply, and if applicable, it selects a target from the target group for the rule action.

▶ How Application Load Balancers work

Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.
 A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Scheme Info
Scheme can't be changed after the load balancer is created.

Internet-facing
An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)

Internal
An internal load balancer routes requests from clients to targets using private IP addresses. Compatible with the **IPv4** and **Dualstack** IP address types.

Load balancer IP address type Info
Select the type of IP addresses that your subnets use. Public IPv4 addresses have an additional cost.

IPv4
Includes only IPv4 addresses.

Dualstack
Includes IPv4 and IPv6 addresses.

Create application load balancer

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aws Services Search Help Profile Region: N. Vir More

Load balancer Select the type:

IPv4 Includes one IP address per target.

Dualstack Includes IPv4 and IPv6 addresses.

Dualstack Includes a public IP address for each target balancers or a private IP address for each target.

Network interface The load balancer must have at least one network interface.

VPC Info Select the virtual private cloud (VPC). The VPC and its gateway are enabled for the load balancer. You can change the VPC for your load balancer later.

-
vpc-07e2ac73
IPv4 VPC CIDR

Mappings Info Select at least two Availability Zones for selection.

us-east-1 us-east-1 us-east-1 us-east-1 us-east-1

Regions

Region	Endpoint
US East (N. Virginia)	us-east-1
US East (Ohio)	us-east-2
US West (N. California)	us-west-1
US West (Oregon)	us-west-2
Asia Pacific (Mumbai)	ap-south-1
Asia Pacific (Osaka)	ap-northeast-3
Asia Pacific (Seoul)	ap-northeast-2
Asia Pacific (Singapore)	ap-southeast-1
Asia Pacific (Sydney)	ap-southeast-2
Asia Pacific (Tokyo)	ap-northeast-1
Canada (Central)	ca-central-1
Europe (Frankfurt)	eu-central-1
Europe (Ireland)	eu-west-1
Europe (London)	eu-west-2
Europe (Paris)	eu-west-3
Europe (Stockholm)	eu-north-1
South America (São Paulo)	sa-east-1

There are 12 Regions that are not enabled for this account.

Create application load balancer

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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aws Services

Subnet

subnet-048f55351bf439dd5

IPv4 address
Assigned by AWS

us-east-1b (use1-az1)

us-east-1c (use1-az2)

us-east-1d (use1-az4)

Subnet

subnet-090adbb6c5d407b21

IPv4 address
Assigned by AWS

us-east-1e (use1-az3)

us-east-1f (use1-az5)

Security groups Info

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can [create a new security group](#).

Security groups

Select up to 5 security groups

L2 security group
sg-0445d995b226aa31d VPC: vpc-07e2ac73a6cbfe87d

C

Create application load balancer

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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Services

Listeners and routing Info

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener HTTP:80 Remove

Protocol	Port	Default action	Info
HTTP	: 80 1-65535	Forward to L2-VM1	HTTP Target type: Instance, IPv4

C [Create target group](#)

Listener tags - optional
Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

[Add listener tag](#)
You can add up to 50 more tags.

[Add listener](#)

► Load balancer tags - optional
Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, or Key = webserver, and Value = production.

Load balancer details | EC2 | +

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aws Services Search Filter Refresh Help N. Vir voclabs/user3311189=christina.thattil@msam.chri...

Successfully created load balancer: L2-LoadBalancer

It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks.

EC2 > Load balancers > L2-LoadBalancer

L2-LoadBalancer

Actions ▾

▼ Details

Load balancer type	Status
Application	Provisioning
Scheme	Hosted zone
Internet-facing	Z35SXDOTRQ7X7K
VPC	Load balancer IP address type
vpc-07e2ac73a6cbfe87d	IPv4
Availability Zones	Date created
subnet-048f55351bf439dd5 us-east-1a (use1-az6)	July 10, 2024, 18:59 (UTC+05:30)
subnet-090adbb6c5d407b21 us-east-1d (use1-az4)	
Load balancer ARN	DNS name Info
arn:aws:elasticloadbalancing:us-east-1:738204508764:loadbalancer/app/L2-LoadBalancer/01d3d91191c6b632	L2-LoadBalancer-622300194.us-east-1.elb.amazonaws.com (A Record)

< Listeners and rules Network mapping Resource map - new Security >

CREATING LAUNCH TEMPLATE

Launch templates | EC2 | us-east-1 | +

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EC2 Dashboard X

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
- Snapshots
- Lifecycle Manager

▼ Network & Security

- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs

Benefits and features

Streamline provisioning
Minimize steps to provision instances. With EC2 Auto Scaling, updates to a launch template can be automatically passed to an Auto Scaling group. [Learn more](#)

Governance
Ensure best practices are used across your organization. [Learn more](#)

Simplify permissions
Create shorter, easier to manage IAM policies. [Learn more](#)

New launch template

Create launch template

Documentation

[Documentation](#)

[API reference](#)

Create launch template | EC2

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Launch template name and description

Launch template name - *required*

L2-VM1

Must be unique to this account. Max 128 chars. No spaces or special characters like '&', '*', '@'.

Template version description

A prod webserver for MyApp

Max 255 chars

Auto Scaling guidance | [Info](#)
Select this if you intend to use this template with EC2 Auto Scaling
 Provide guidance to help me set up a template that I can use with EC2 Auto Scaling

► [Template tags](#)
► [Source template](#)

Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

▼ Application and OS Images (Amazon Machine Image) - *required* [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 | [My AMIs](#) | [Quick Start](#)

Create launch template | EC2

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Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

Application and OS Images (Amazon Machine Image) - required [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 My AMIs Quick Start

Owned by me

Shared with me

Browse more AMIs 

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

L2_VM1
ami-0e8f6772cf2e7fcf0
2024-07-10T13:16:35.000Z Virtualization: hvm ENA enabled: true Root device type: ebs

Description
For the assignment

Architecture x86_64 AMI ID ami-0e8f6772cf2e7fcf0

Create launch template | EC2 +

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Instance type [Info](#) | [Get advice](#)

Advanced

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations

Compare instance types

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

L2 [Create new key pair](#)

Network settings [Info](#)

Subnet [Info](#)

Don't include in launch template [Create new subnet](#)

When you specify a subnet, a network interface is automatically added to your template.

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

The screenshot shows the AWS EC2 'Create launch template' interface. At the top, there's a navigation bar with tabs like 'Create launch template | EC2' and a '+' button. Below the navigation bar is a toolbar with icons for file operations and a search bar. The main content area is divided into sections:

- Network Configuration:** A section titled 'When you specify a subnet, a network interface is automatically added to your template.' It includes a 'Firewall (security groups)' section with a link to 'Info'. It shows a radio button for 'Select existing security group' (selected) and another for 'Create security group'. A dropdown menu labeled 'Select security groups' contains an item 'L2 security group sg-0445d995b226aa31d X'. To the right is a 'Compare security group rules' link.
- Storage (volumes):** A section with a '▼ Storage (volumes) Info' header. It shows an 'EBS Volumes' table with one entry: 'Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp3))'. A note says 'AMI Volumes are not included in the template unless modified'. A callout box informs free-tier customers about 30 GB of EBS General Purpose (SSD) or Magnetic storage. An 'Add new volume' button is also present.
- Resource tags:** A section with a '▼ Resource tags Info' header.

- Scroll down to the **Advanced details** area and expand it.
- Scroll down to the **Detailed CloudWatch monitoring** setting. Select *Enable*.
Note: This will allow Auto Scaling to react quickly to changing utilization.

Create launch template | EC2

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IAM instance profile | Info

Don't include in launch template

Create new IAM profile

Hostname type | Info

Don't include in launch template

DNS Hostname | Info

Enable resource-based IPv4 (A record) DNS requests

Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery | Info

Don't include in launch template

Shutdown behavior | Info

Don't include in launch template

Not applicable for EC2 Auto Scaling

Stop - Hibernate behavior | Info

Don't include in launch template

Not applicable for Amazon EC2 Auto Scaling.

Termination protection | Info

Don't include in launch template

Stop protection | Info

Don't include in launch template

AWS Console Home

Detailed CloudWatch monitoring | Info

Enable

Additional charges apply

The screenshot shows the AWS EC2 'Create launch template' interface. At the top, there's a navigation bar with tabs like 'Create launch template | EC2', a search bar, and various browser icons. Below the navigation is a header with the AWS logo, 'Services' dropdown, and user information. The main content area shows a breadcrumb path: 'EC2 > Launch templates > Create launch template'. A green success message box displays: 'Success' and 'Successfully created L2-VM1(lt-04a9dfc5b6f7b3601)'. Below this, there's a 'Actions log' section and a 'Next Steps' sidebar. The 'Next Steps' sidebar lists several options: 'Launch an instance', 'Create an Auto Scaling group from your template', 'Create Auto Scaling group', 'Create Spot Fleet', and 'Create Spot Fleet'. Each option has a brief description and a blue link to the corresponding AWS documentation.

In the Success dialog, choose the **LabConfig** launch template.

EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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EC2 > Launch templates > L2-VM1

L2-VM1 (lt-04a9dfc5b6f7b3601)

Actions ▲ Delete template

- Launch instance from template
- Modify template (Create new version)
- Delete template version
- Set default version
- Manage tags
- Create Spot Fleet
- Create Auto Scaling group

Launch template name
 L2-VM1

Owner
 arn:aws:sts::738204508764:assumed-role/voclabs/user3311189=christina.thattil@msam.christuniversity.in

Details Versions Template tags

Launch template version details

Actions ▼ Delete template version

Version 1 (Default)	Description -
Date created <input checked="" type="checkbox"/> 2024-07-10T13:46:24.000Z	Created by <input checked="" type="checkbox"/> arn:aws:sts::738204508764:assumed-role/voclabs/user3311189=christina.thattil@msam.christuniversity.in

< Instance details Storage Resource tags Network interfaces >

Create Auto Scaling group | E X +

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EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1 of 7

Choose launch template Info

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group.

Name

Auto Scaling group name
Enter a name to identify the group.
 Must be unique to this account in the current Region and no more than 255 characters.

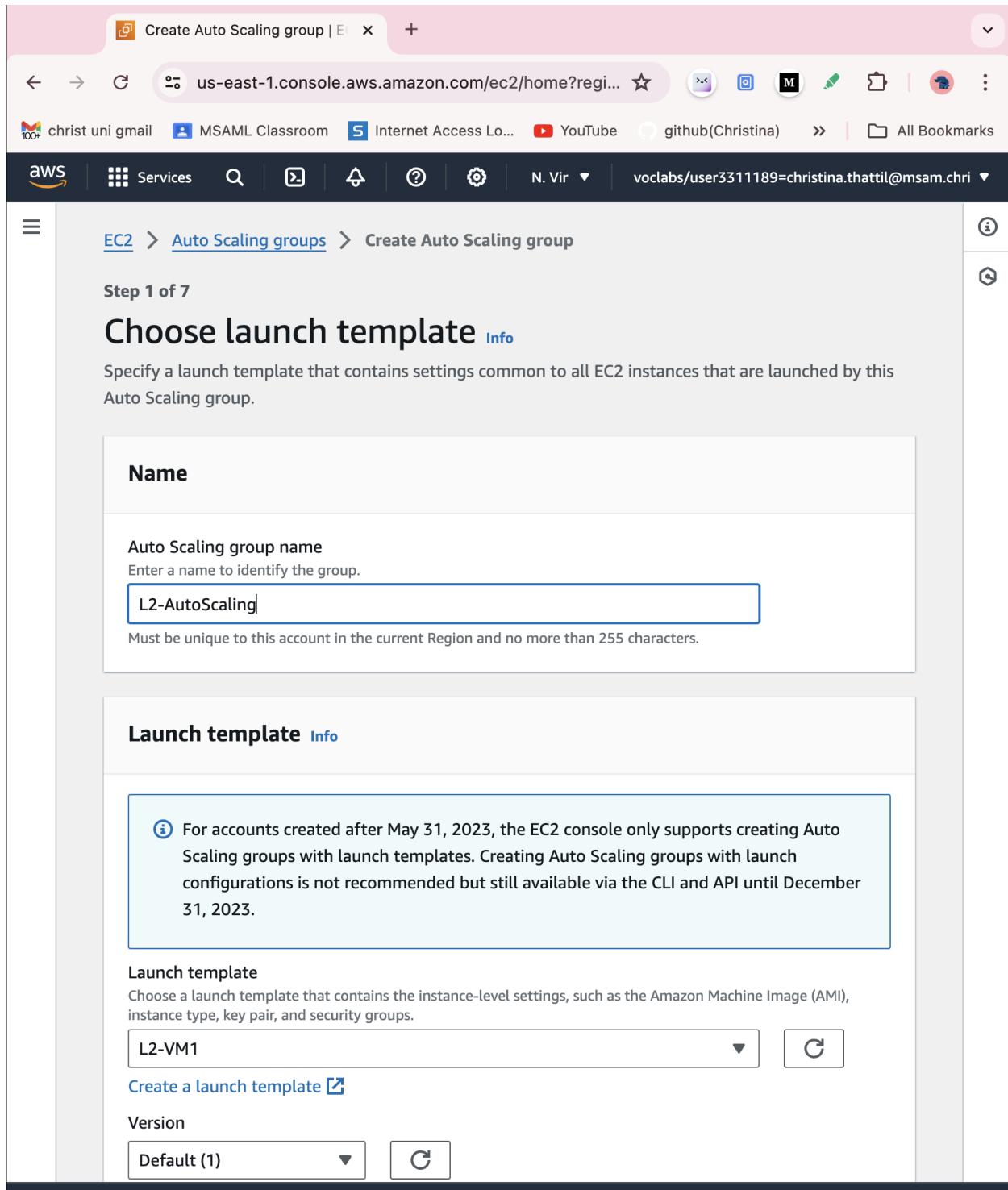
Launch template Info

i For accounts created after May 31, 2023, the EC2 console only supports creating Auto Scaling groups with launch templates. Creating Auto Scaling groups with launch configurations is not recommended but still available via the CLI and API until December 31, 2023.

Launch template
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.

[Create a launch template](#)

Version



Create Auto Scaling group | E X +

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Launch template L2-VM1 Version Default
lt-04a9dfc5b6f7b3601

Description - Instance type t2.micro

Network

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.
vpc-07e2ac73a6cbfe87d 172.31.0.0/16 Default
[Create a VPC](#)

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.
Select Availability Zones and subnets
us-east-1a | subnet-048f55351bf439dd5 172.31.32.0/20 Default
us-east-1d | subnet-090adbb6c5d407b21 172.31.16.0/20 Default
[Create a subnet](#)

Cancel Skip to review Previous Next

Create Auto Scaling group | E X +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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Configure advanced options - *optional* Info

Integrate your Auto Scaling group with other services to distribute network traffic across multiple servers using a load balancer or to establish service-to-service communications using VPC Lattice. You can also set options that give you more control over health check replacements and monitoring.

Load balancing Info

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.

Attach to an existing load balancer
Choose from your existing load balancers.

Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to an existing load balancer

Select the load balancers that you want to attach to your Auto Scaling group.

Choose from your load balancer target groups
This option allows you to attach Application, Network, or Gateway Load Balancers.

Choose from Classic Load Balancers

Existing load balancer target groups
Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups ▾

L2-VM1 | HTTP X
Application Load Balancer: L2-LoadBalancer

Create Auto Scaling group | E X +

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Health checks

Health checks increase availability by replacing unhealthy instances. When you use multiple health checks, all are evaluated, and if at least one fails, instance replacement occurs.

EC2 health checks

Always enabled

Additional health check types - optional | [Info](#)

Turn on Elastic Load Balancing health checks **Recommended**
Elastic Load Balancing monitors whether instances are available to handle requests. When it reports an unhealthy instance, EC2 Auto Scaling can replace it on its next periodic check.

Turn on VPC Lattice health checks
VPC Lattice can monitor whether instances are available to handle requests. If it considers a target as failed a health check, EC2 Auto Scaling replaces it after its next periodic check.

Health check grace period | [Info](#)
This time period delays the first health check until your instances finish initializing. It doesn't prevent an instance from terminating when placed into a non-running state.

300 seconds

Additional settings

Monitoring

Enable group metrics collection within CloudWatch

Default instance warmup

The amount of time that CloudWatch metrics for new instances do not contribute to the group's aggregated instance metrics, as their usage data is not reliable yet.

Enable default instance warmup

Cancel Skip to review Previous Next

Create Auto Scaling group | E X +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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the size of your group.

Group size Info

Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.

Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.

Units (number of instances) ▾

Desired capacity
Specify your group size.
2

Scaling Info

You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits
Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity 2 Equal or less than desired capacity	Max desired capacity 6 Equal or greater than desired capacity
---	--

Automatic scaling - optional

Choose whether to use a target tracking policy Info
You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Create Auto Scaling group | E X +

us-east-1.console.aws.amazon.com/ec2/home?regi... ☆

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Scaling Info

You can resize your Auto Scaling group manually or automatically to meet changes in demand.

Scaling limits

Set limits on how much your desired capacity can be increased or decreased.

Min desired capacity	Max desired capacity
2	6
Equal or less than desired capacity	Equal or greater than desired capacity

Automatic scaling - optional

Choose whether to use a target tracking policy | [Info](#)

You can set up other metric-based scaling policies and scheduled scaling after creating your Auto Scaling group.

No scaling policies
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.

Target tracking scaling policy
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

Scaling policy name

L2-ScalingPolicy

Metric type | [Info](#)

Monitored metric that determines if resource utilization is too low or high. If using EC2 metrics, consider enabling detailed monitoring for better scaling performance.

Average CPU utilization ▾

Target value

60

Instance warmup | [Info](#)

300 seconds

Disable scale in to create only a scale-out policy

- This tells Auto Scaling to maintain an *average* CPU utilization *across all instances* at 60%. Auto Scaling will automatically add or remove capacity as required to keep the metric at, or close to, the specified target value. It adjusts to fluctuations in the metric due to a fluctuating load pattern.

EC2 | us-east-1

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EC2 > Launch templates > L2-VM1

L2-VM1 (lt-04a9dfc5b6f7b3601)

[Actions](#) [Delete template](#)

Launch template details

Launch template ID	Launch template name
lt-04a9dfc5b6f7b3601	L2-VM1
Default version	Owner
1	arn:aws:sts::738204508764:assumed-role/vclabs/user3311189=christina.thattil@msam.christuniversity.in

[Details](#) [Versions](#) [Template tags](#)

Launch template version details

[Actions](#) [Delete template version](#)

Version	Description
1 (Default)	-
Date created	Created by
2024-07-10T13:46:24.000Z	arn:aws:sts::738204508764:assumed-role/vclabs/user3311189=christina.thattil@msam.christuniversity.in

< [Instance details](#) [Storage](#) [Resource tags](#) [Network interfaces](#) >

Create Auto Scaling group | E X +

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Step 7 of 7

Review Info

Step 1: Choose launch template Edit

Group details

Auto Scaling group name
L2-AutoScaling

Launch template

Launch template
[L2-VM1](#) ↗
lt-04a9dfc5b6f7b3601

Version
Default

Description

Step 2: Choose instance launch options Edit

Network

Network

VPC
[vpc-07e2ac73a6cbfe87d](#) ↗

Availability Zone Subnet

Create Auto Scaling group | E X +

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Step 2: Choose instance launch options Edit ⋮

Network

VPC
vpc-07e2ac73a6cbfe87d [i]

Availability Zone	Subnet	
us-east-1a	subnet-048f55351bf439dd5 [i]	172.31.32.0/20
us-east-1d	subnet-090adbb6c5d407b21 [i]	172.31.16.0/20

Instance type requirements

This Auto Scaling group will adhere to the launch template.

Step 3: Configure advanced options Edit

Load balancing

Load balancer 1

Name
L2-LoadBalancer [i]

Create Auto Scaling group | E X +

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Step 3: Configure advanced options

Edit

Load balancing

Load balancer 1

Name
L2-LoadBalancer 

Type
Application/HTTP

Target group
L2-VM1 

VPC Lattice integration options

VPC Lattice target groups
-

Health checks

Health check type
EC2

Health check grace period
300 seconds

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Additional settings

Monitoring
Enabled

Default instance warmup
Disabled

Step 4: Configure group size and scaling policies Edit

Group size

Desired capacity
2

Desired capacity type
Units (number of instances)

Scaling

Minimum desired capacity
2

Maximum desired capacity
6

Target tracking policy
Policy type
Target tracking scaling

This screenshot shows the 'Create Auto Scaling group' wizard on the AWS Management Console. The user is currently on Step 4, which involves configuring group size and scaling policies. In the 'Additional settings' section, monitoring is enabled and default instance warmup is disabled. The 'Group size' section specifies a desired capacity of 2 units. The 'Scaling' section sets the minimum desired capacity to 2 and the maximum desired capacity to 6, using a target tracking scaling policy.

Create Auto Scaling group | E X +

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Execute policy when
As required to maintain Average CPU utilization at 60

Take the action
Add or remove capacity units as required
Instances need
300 seconds to warm up before including in metric

Scale in
Enabled

Instance maintenance policy

Replacement behavior
No policy Min healthy percentage
-

Max healthy percentage
-

Instance scale-in protection

Instance scale-in protection
 Enable instance protection from scale in

Step 5: Add notifications Edit

Notifications

No notifications

Create Auto Scaling group | E X +

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Instance maintenance policy

Replacement behavior No policy	Min healthy percentage -
Max healthy percentage -	

Instance scale-in protection

Instance scale-in protection
<input type="checkbox"/> Enable instance protection from scale in

Step 5: Add notifications Edit

Notifications

No notifications

Step 6: Add tags Edit

Tags (1)

Key	Value	Tag new instances
Name	L2_VM1	Yes

Cancel Previous Create Auto Scaling group

Auto Scaling groups | EC2 | [+ New](#)

us-east-1.console.aws.amazon.com/ec2/home?regi... [star](#)

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aws Services [Search](#) [New](#) [?](#) [Help](#) N. Vir [Actions](#) vclabs/user3311189=christina.thattil@msam.chri

L2-AutoScaling, 1 Scaling policy created successfully. Group metrics collection is enabled.

EC2 > Auto Scaling groups

Auto Scaling groups (1) [Info](#)

[Create Auto Scaling group](#)

Search your Auto Scaling groups

< 1 > [Settings](#)

<input type="checkbox"/>	Name	Launch template/configuration	Instances
<input type="checkbox"/>	L2-AutoScaling	L2-VM1 Version Default	0

0 Auto Scaling groups selected

The screenshot shows the AWS Auto Scaling Groups page. At the top, there's a success message: "L2-AutoScaling, 1 Scaling policy created successfully. Group metrics collection is enabled." Below this, the main heading is "Auto Scaling groups (1)" with a "Info" link. There are four tabs: "Create Auto Scaling group" (highlighted in orange), "Launch configurations", "Launch templates", and "Actions". A search bar is present above the table. The table lists one Auto Scaling group: "L2-AutoScaling" using "L2-VM1" as the launch template, with 0 instances. At the bottom, it says "0 Auto Scaling groups selected". The browser address bar shows the URL as us-east-1.console.aws.amazon.com/ec2/home?regi... and the user is signed in as christina.thattil@msam.chri.

Target groups | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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Savings Plans

Reserved Instances

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Elastic IPs

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Network Interfaces

Load Balancing

Target Groups

Trust Stores New

Auto Scaling

Auto Scaling Groups

EC2 > Target groups

Target groups (1/1) Info

Actions ▼ Create target group

Filter target groups

< 1 > ⚙️

<input checked="" type="checkbox"/>	Name	ARN	Port
<input checked="" type="checkbox"/>	L2-VM1	arn:aws:elasticloadbalanci...	80

Target group: L2-VM1

Register targets

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Filter targets

< 1 > ⚙️

<input type="checkbox"/>	Instance ID	Health status	Health status details
<input type="checkbox"/>	i-0742fd61f410d6629	Healthy	-
<input type="checkbox"/>	i-01e6cb7e11fb0c793	Healthy	-

Load balancers | EC2 | us-east-1

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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Load balancers (1/1)

Actions Create load balancer

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

Name DNS name Stat

L2-LoadBalancer L2-LoadBalancer-6223001... A

Load balancer: L2-LoadBalancer

vpc-07e2ac73a6cbfe87d copy

IPv4

Availability Zones

subnet-048f55351bf439dd5 us-east-1a (use1-az6)

subnet-090adbb6c5d407b21 us-east-1d (use1-az4)

Date created

July 10, 2024, 18:59 (UTC+05:30)

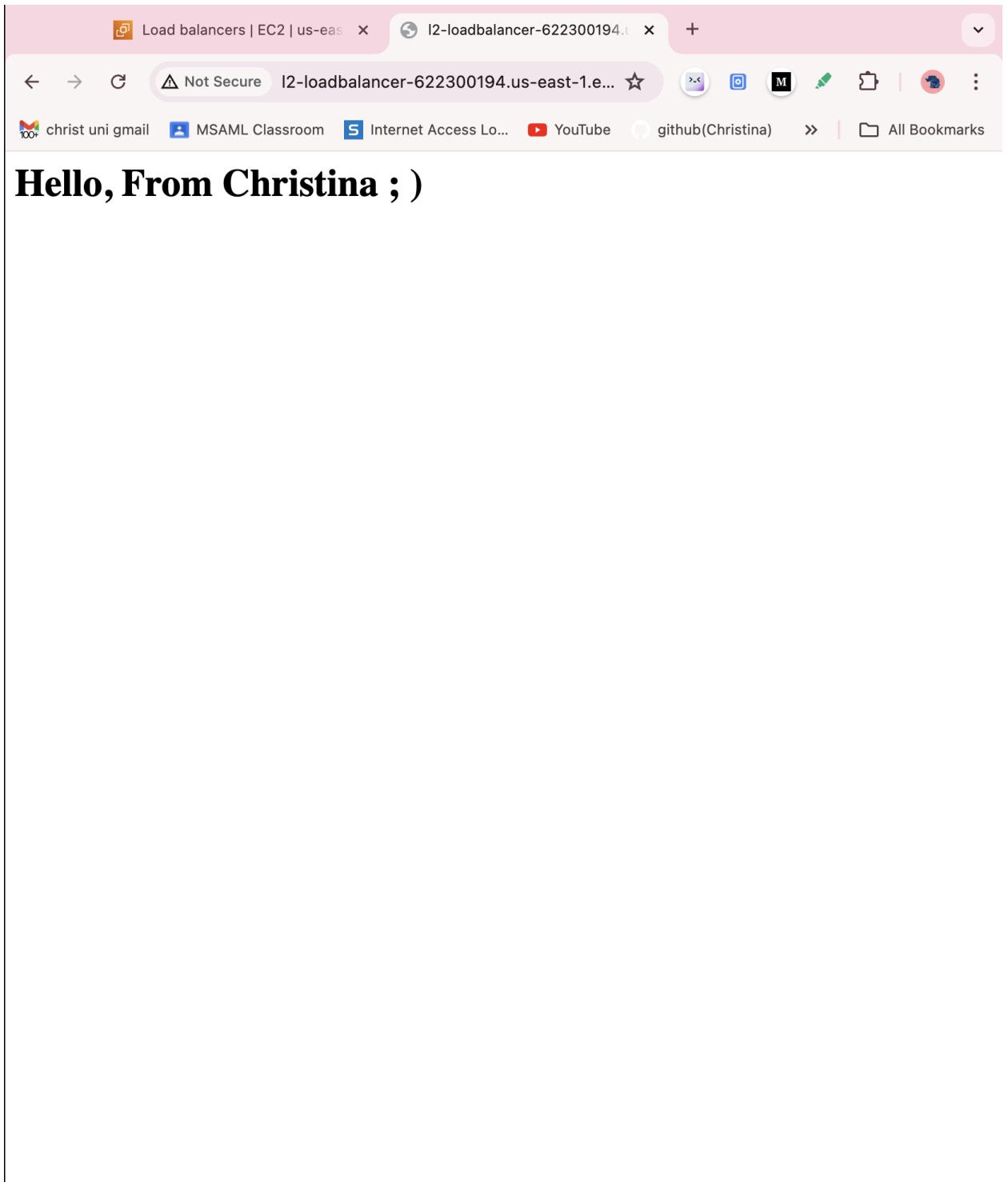
Load balancer ARN

arn:aws:elasticloadbalancing:us-east-1:738204508764:loadbalancer/app/L2-LoadBalancer/01d3d91191c6b632

DNS name copied

L2-LoadBalancer-622300194.us-east-1.elb.amazonaws.com (A Record)

Name	DNS name	Stat
L2-LoadBalancer	L2-LoadBalancer-6223001...	A



Test Auto Scaling

The screenshot shows the AWS Management Console interface. At the top, there are two tabs: "Load balancers | EC2 | us-eas" and "I2-loadbalancer-622300194...". Below the tabs is a browser-style header with back, forward, search, and other navigation icons. The URL bar shows "us-east-1.console.aws.amazon.com/ec2/home?regi...". The main navigation bar includes links for "christ uni gmail", "MSAML Classroom", "Internet Access Lo...", "YouTube", "github(Christina)", "All Bookmarks", and the user's email address "voclabs/user3311189=christina.thattil@msam.chri...".

The left sidebar is titled "Services" and lists various AWS services under categories like "Recently visited", "Favorites", and "All services". The "Recently visited" section includes EC2, S3, IAM, RDS, Elastic Beanstalk, Service Quotas, Lambda, and CloudWatch. The "Favorites" section includes Analytics, Application Integration, Blockchain, Business Applications, Cloud Financial Management, Compute, Containers, Customer Enablement, Database, Developer Tools, End User Computing, Front-end Web & Mobile, Game Development, and Internet of.

A modal window titled "Recently visited" is open on the right side of the screen, listing the same services as the sidebar: EC2, S3, IAM, RDS, Elastic Beanstalk, Service Quotas, Lambda, and CloudWatch. The "CloudWatch" entry is highlighted with a star icon and a tooltip "Monitor Resources and Applications".

Alarms | CloudWatch | us-east-1 | I2-loadbalancer-622300194... | +

us-east-1.console.aws.amazon.com/cloudwatch/ho... ☆

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CloudWatch Alarms (1/2)

Hide Auto Scaling alarms Clear selection C

Create composite alarm Actions ▾ Create alarm

Search Alarm state: Any ▾ Alarm type: Any ▾

Actions status: Any ▾

	Name	State	Last state update (UTC)
<input type="checkbox"/>	TargetTracking-L2- AutoScaling- AlarmLow- 7398044c-67f4- 4320-b3a5- b1c3065d4c14	⚠ In alarm	2024-07-10 14:11:45
<input checked="" type="checkbox"/>	TargetTracking-L2- AutoScaling- AlarmHigh- 712e08df-455f-482f- 8090-7989cd6a2e35	✓ OK	2024-07-10 13:56:18

< 1 > ⚙

CloudWatch Alarms

Favorites and recents

Dashboards

Alarms ⚠ 1 ✓ 1 ⚡ 0

In alarm

All alarms

Billing

Logs

Metrics

X-Ray traces

Events

Application Signals New

Network monitoring

Insights

Settings

Getting Started

What's new

Instances | EC2 | us-east-1 I2-loadbalancer-622300194... x +

us-east-1.console.aws.amazon.com/ec2/home?regi... star

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EC2 Dashboard EC2 Global View Events Console-to-Code [Preview](#)

▼ Instances

- Instances
- Instance Types
- Launch Templates
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▼ Elastic Block Store

- Volumes
- Snapshots
- Lifecycle Manager

▼ Network & Security

- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs

Instances (6) Info

Connect Instance state Actions

Launch instances Find Instance by attribute or tag (case-sensitive) All states

Name	Instance ID	Instance state	Ins
2348511_L1...	i-0530da4978d2a1fc3	Running	t2.1
2348511_L2...	i-0d9c1ef3e67466975	Running	t2.1
L2_VM1	i-01e6cb7e11fb0c793	Running	t2.1
2348511_L1...	i-09d6070de75b142de	Running	t2.1
2348511_L2...	i-079086ddfd24ad7f1	Running	t2.1
L2_VM1	i-0742fd61f410d6629	Running	t2.1

Select an instance