

N Virginia; Logged in on personal AWS account: [REDACTED]

The screenshot shows the AWS Console Home page. At the top right, the region is set to "N. Virginia".

**Recently visited:**

- EC2
- IAM
- S3
- Resource Groups & Tag Editor

**Applications (0)**

Region: US East (N. Virginia)

us-east-1 (Current Region) | Find applications

Name	Description	Region	Originating account
No applications			

Get started by creating an application.

[Create application](#)

[View all services](#) | [Go to myApplications](#)

**Welcome to AWS** | **AWS Health** | **Cost and usage**

CloudShell | Feedback | © 2024, Amazon Web Services, Inc. or its affiliates. | Privacy | Terms | Cookie preferences

## Navigate to Instances

### Select Launch instances

The screenshot shows the AWS EC2 Instances page. On the left, there is a navigation sidebar with the following categories:

- EC2 Dashboard
- EC2 Global View
- Events
- Console-to-Code [Preview](#)
- Instances
  - Instances** (highlighted with a red box)
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
- Images
  - AMIs
  - AMI Catalog
- Elastic Block Store

The main content area is titled "Instances Info". It features a search bar with placeholder text "Find Instance by attribute or tag (case-sensitive)" and a dropdown menu set to "All states". Below the search bar is a table header with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, and Avail. A message "No instances" is displayed, followed by the text "You do not have any instances in this region" and a large "Launch instances" button.

At the bottom of the page, the URL is https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:, and the footer includes links for © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

Name: **httpserver1**

AMI: **ami-06d5e0de6baf595ca**

The screenshot shows the AWS EC2 'Launch an instance' wizard. The 'Name and tags' section has 'Name' set to 'httpserver1'. The 'Application and OS Images (Amazon Machine Image)' section has a search bar containing 'ami-06d5e0de6baf595ca'. The 'Summary' section shows 1 instance being launched, using the 'Amazon Linux 2023 AMI 2023.5.2...' AMI, t2.micro instance type, and a new security group. A 'Launch instance' button is visible.

Launch an instance | EC2 | us-east-1

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

aws Services Search [Alt+S]

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  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.

Q ami-06d5e0de6baf595ca

Recents Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Li

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.5.2... read more  
ami-0ae8f15ae66fe8cda

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

Cancel **Launch instance** Review commands

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

## Instance type: t2.micro

The screenshot shows the AWS EC2 console interface for launching a new instance. The browser address bar indicates the URL is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances>. The left sidebar shows the selected AMI: "TIO AMI" (ami-06d5e0de6baf595ca). The main content area displays the "Summary" section with the following details:

- Number of instances:** 1
- Software Image (AMI):** TIO AMI (ami-06d5e0de6baf595ca)
- Virtual server type (instance type):** t2.micro
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 8 GiB

A red box highlights the "Instance type" section, which lists "t2.micro" as the selected option. Below this, there is descriptive text about the instance family and pricing.

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

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

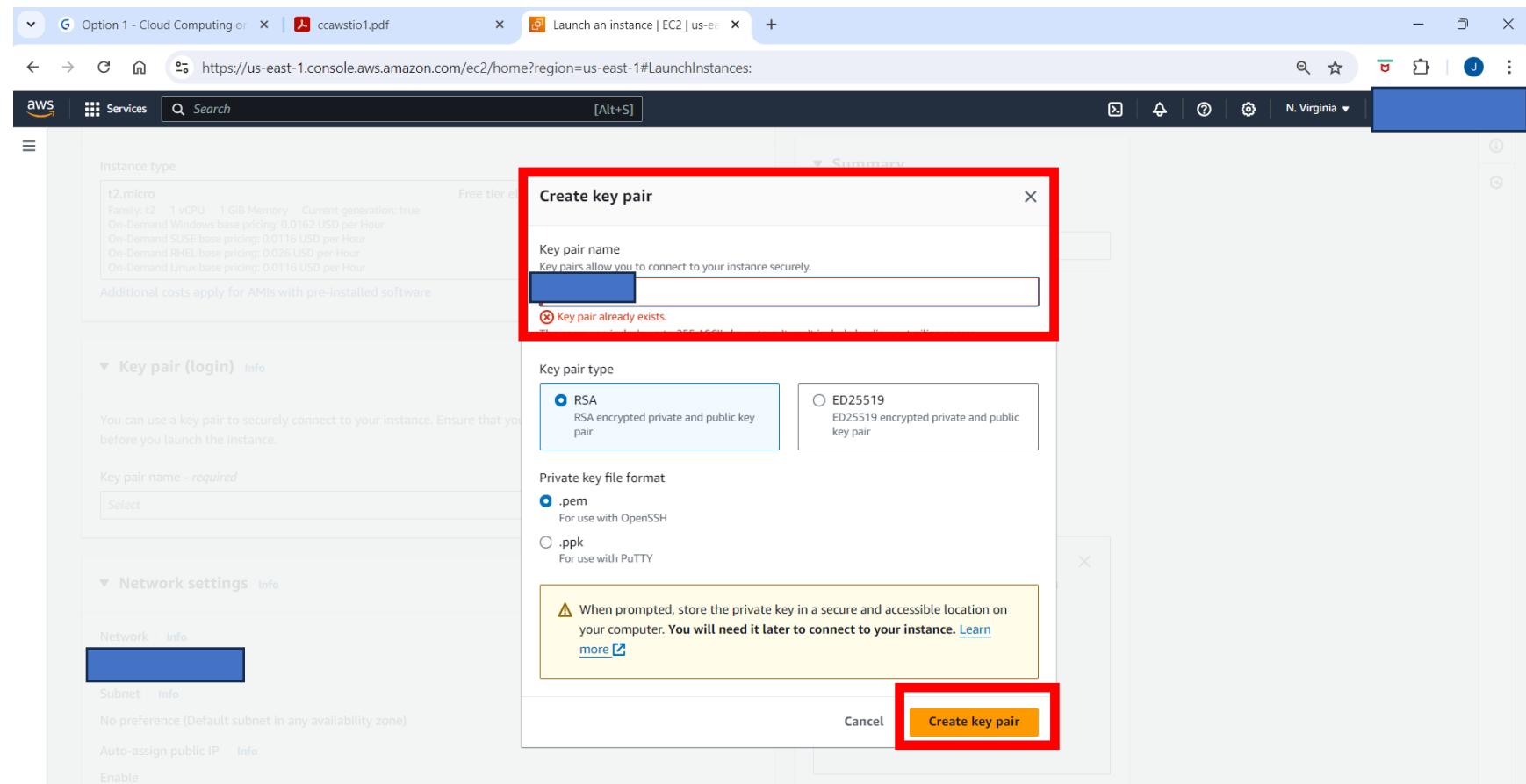
All generations

[Compare instance types](#)

**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

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Key Pair login section, Create key pair [Red Box] 1. Key pair already exists. This is to show that I created it but forgot to take a snapshot.



Select [REDACTED] 1

The screenshot shows the AWS EC2 "Launch an instance" wizard in progress. The current step is "Key pair (login)". A red box highlights the "Key pair name - required" dropdown menu, which contains the following options:

- Select (highlighted)
- Search icon
- Proceed without a key pair (Not recommended) Default value
- [REDACTED]1
- [REDACTED] papcc-kev1

Below the dropdown, there is a "Create new key pair" button and an "Edit" button. To the right of the dropdown, the "Summary" section shows the following configuration:

- Number of instances: 1
- Software Image (AMI): TIO AMI ami-06d5e0de6baf595ca
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

A tooltip for the "Free tier" is visible, stating: "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".

At the bottom of the screen, the footer includes links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

## Selected Default VPC

Subnet: **us-east-1a** (1<sup>st</sup> Instance)

The screenshot shows the AWS EC2 console interface for launching a new instance. A red box highlights the 'VPC - required' and 'Subnet' selection fields, both set to 'us-east-1a'. Other visible fields include 'Auto-assign public IP' (Enable), 'Additional charges apply' note, 'Firewall (security groups)' section (Create security group selected), 'Security group name' field, and a note about security group creation. To the right, the 'Summary' section shows 1 instance, TIO AMI, t2.micro instance type, New security group, and 1 volume(s) - 8 GiB storage. A tooltip for the 'Free tier' is displayed.

VPC - required [Info](#)

(default) ▾

Subnet [Info](#)

Create new subnet [\[i\]](#)

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

Security group name - required

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 \_-:/()#,@[]+=;&!\$\*

Number of instances [Info](#)

1

Software Image (AMI)

TIO AMI  
ami-06d5e0de6baf595ca

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

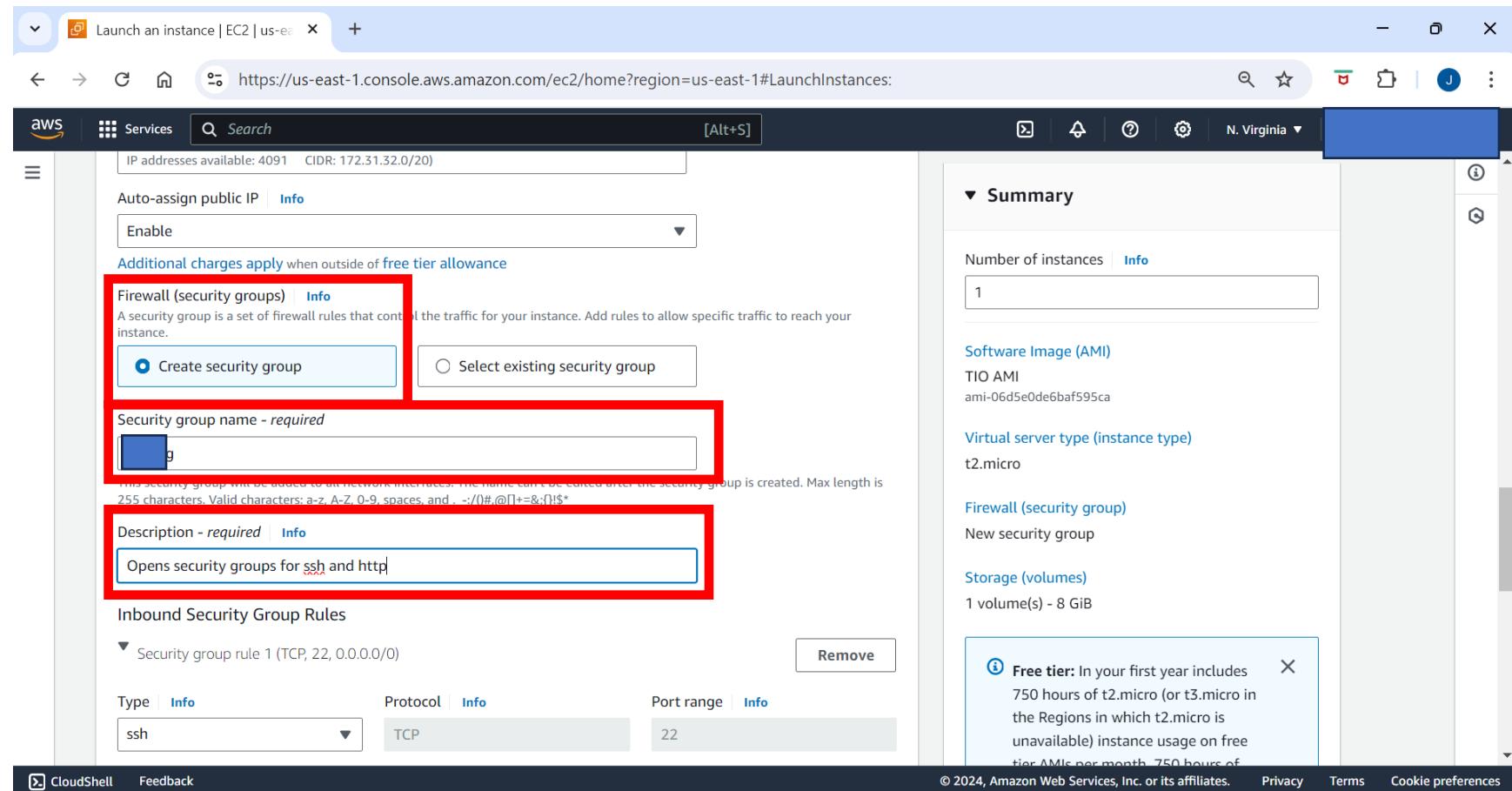
CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Create security group. Name:  g

Description: **Opens security groups for ssh and http**

**1<sup>st</sup> Rule: ssh, Protocol: TCP, Port Range: 22**

Source type: **Anywhere**



Selected **Add security group rule** to add **HTTP** type

Add type **HTTP**, port range **80**

Source dropdown, select **Anywhere**

The screenshot shows the AWS EC2 console interface for launching a new instance. The URL in the browser is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances>.

The main area displays two security group rule configurations:

- Security group rule 1 (TCP, 22, 0.0.0.0/0):** Type: ssh, Protocol: TCP, Port range: 22. Source type: Anywhere.
- Security group rule 2 (TCP, 80, 0.0.0.0/0):** Type: HTTP, Protocol: TCP, Port range: 80. Source type: Anywhere.

A yellow warning box highlights that rules with source 0.0.0.0/0 allow all IP addresses to access the instance, and it recommends setting security group rules to allow access from known IP addresses only. The "Add security group rule" button is also highlighted.

The right sidebar provides summary information about the instance launch:

- Number of instances: 1
- Software Image (AMI): TIO AMI, ami-06d5e0de6baf595ca
- 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

At the bottom, there are links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

## Select Launch Instance

The screenshot shows the 'Launch an instance' wizard in the AWS EC2 console. The left pane displays the 'Configure storage' section, where a single root volume of 8 GiB (gp2) is selected. A tooltip indicates that free-tier eligible customers can get up to 30 GB of EBS storage. Below this, there's a note about backup information and file systems. The right pane shows the selected AMI (TIO AMI), instance type (t2.micro), security group (New security group), and storage (1 volume - 8 GiB). A large callout box highlights the 'Launch instance' button, which is highlighted with a red rectangle.

Launch an instance | EC2 | us-east-1

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

Services Search [Alt+S]

N. Virginia

**Configure storage** Advanced

1x 8 GiB gp2 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

TIO AMI  
ami-06d5e0de6baf595ca

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

Cancel Launch instance Review commands

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Name: **httpserver2**

AMI: **ami-06d5e0de6baf595ca, TIO AMI**

The screenshot shows the AWS EC2 console interface for launching a new instance. A red box highlights the 'Name' field where 'httpserver2' has been typed. Another red box highlights the 'AMI from catalog' section, which displays the selected 'TIO AMI' (ami-06d5e0de6baf595ca) with a description of 'AMI created for PGPPC TIO exercises'. To the right, the 'Summary' pane shows the instance configuration: 1 instance, TIO AMI, t2.micro instance type, and a new security group. A tooltip in the summary pane explains the 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 usage per month are included in the free tier for each AWS account.'

Launch an instance | EC2 | us-east-1

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

aws Services Search [Alt+S]

Name: httpserver2

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

AMI from catalog Recents Quick Start

Name: TIO AMI

Description: AMI created for PGPPC TIO exercises

Image ID: ami-06d5e0de6baf595ca

Catalog Published Architecture Virtualization Root device type ENA Enabled

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

▼ Summary

Number of instances [Info](#): 1

Software Image (AMI): TIO AMI  
ami-06d5e0de6baf595ca

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 usage per month are included in the free tier for each AWS account.

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

## Instance type: t2.micro

The screenshot shows the AWS EC2 console interface for launching a new instance. The URL in the browser is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances>.

The left sidebar shows the AMI details for "PGPCC TIO exercises" (ami-06d5e0de6baf595ca), including its catalog, published date, architecture, virtualization type, root device type, and ENA support.

The main configuration area is titled "Instance type" and displays the selected "t2.micro" instance. A red box highlights this section. The "t2.micro" entry includes the following details:

- 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

Below this, a note states: "Additional costs apply for AMIs with pre-installed software".

To the right of the instance type section, there are buttons for "All generations" and "Compare instance types".

The "Summary" section on the right shows the following configuration:

- Number of instances: 1
- Software Image (AMI): TIO AMI (ami-06d5e0de6baf595ca)
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

A tooltip for the "Free tier" is displayed, stating: "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".

At the bottom, the footer includes links for CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

Select [ ] 1

### Created when launching 1<sup>st</sup> Instance

The screenshot shows the AWS EC2 "Launch an instance" wizard at the "Key pair (login)" step. A red box highlights the "Key pair name - required" dropdown, which contains "1" and "Proceed without a key pair (Not recommended)". The "Proceed without a key pair" option is selected, indicated by a checkmark in its dropdown entry. To the right, the "Summary" section shows the following details:

- Number of instances: 1
- Software Image (AMI): TIO AMI, ami-06d5e0de6baf595ca
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

A tooltip in the summary section states: "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".

At the bottom, the footer includes links for CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

## Selected Default VPC

Subnet: **us-east-1b** (2<sup>nd</sup> Instance)

The screenshot shows the AWS EC2 'Launch an instance' wizard. The 'Network settings' section is highlighted with a red box, containing fields for VPC (selected) and Subnet (selected). The 'Summary' section on the right lists the instance configuration.

**Network settings**

- VPC - required: (default)
- Subnet: us-east-1b
- Auto-assign public IP: Enable
- Additional charges apply when outside of free tier allowance
- Firewall (security groups): Create security group
- Security group name - required: (redacted)
- 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 \_-:/()#@+=;&!\$\*

**Summary**

- Number of instances: 1
- Software Image (AMI): TIO AMI  
ami-06d5e0de6baf595ca
- 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

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Select, Select existing security group

Select drop down

Select already created [REDACTED]-sg

The screenshot shows the AWS EC2 Launch Instances wizard at the 'Select existing security group' step. The interface is divided into two main sections: 'VPC - required' on the left and 'Summary' on the right.

**VPC - required:**

- Subnet: A dropdown menu showing '(default)' with a red box around it.
- Auto-assign public IP: A dropdown menu set to 'Enable'.
- Firewall (security groups): A section with two options:
  - Create security group
  - Select existing security groupA red box highlights the 'Select existing security group' option.
- Common security groups: A dropdown menu labeled 'Select security groups' with a red box around it.
- Advanced network configuration: A section with a red box around it.

**Summary:**

- Number of instances: Set to 1.
- Software Image (AMI): TIO AMI, ami-06d5e0de6baf59ca.
- Virtual server type (instance type): t2.micro.
- Firewall (security group): tio2-sg.
- Storage (volumes): 1 volume(s) - 8 GiB.
- Free tier information: 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

At the bottom, there are links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

## Select Launch Instance

The screenshot shows the 'Launch an instance' wizard in the AWS EC2 console. The left pane displays the 'Configure storage' section, where a single 8 GiB gp2 root volume is selected. A tooltip indicates that free-tier customers can get up to 30 GB of EBS storage. Below this, there's a note about refreshing backup information and a section for adding new file systems. The right pane contains configuration details: TIO AMI (ami-06d5e0de6baf595ca), Virtual server type (t2.micro), Firewall (tio2-sg), and Storage (1 volume - 8 GiB). A large callout box highlights the 'Free tier' information and the 'Launch instance' button, which is highlighted with a red border. The bottom navigation bar includes CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

Launch an instance | EC2 | us-east-1 X + https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

aws Services Search [Alt+S] N. Virginia ▾

**Configure storage** Info Advanced

1x 8 GiB gp2 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

TIO AMI ami-06d5e0de6baf595ca

Virtual server type (instance type) t2.micro

Firewall (security group) tio2-sg

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

Cancel Launch instance Review commands

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Both instances are running

The screenshot shows the AWS EC2 Instances page with two instances listed:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Available
httpserver1	i-0ca8f57773b17daa3	Running	t2.micro	2/2 checks passed	View alarms	us-east-1
httpserver2	i-0bf12a7f8055442e4	Running	t2.micro	2/2 checks passed	View alarms	us-east-1

The table is highlighted with a red box.

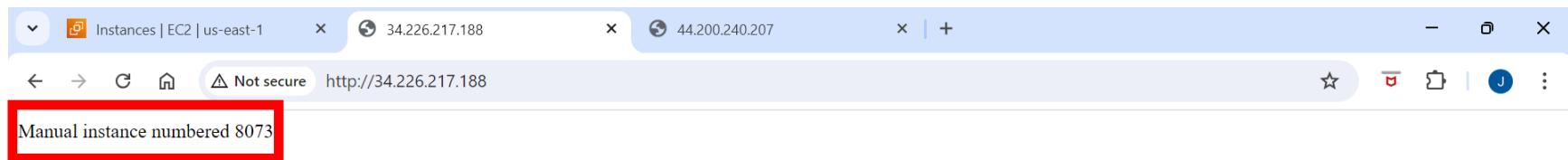
Both instances are in different availability zones

The screenshot shows the AWS EC2 Instances page. On the left, a sidebar navigation includes 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Console-to-Code Preview', 'Instances' (selected), 'Instance Types', 'Launch Templates', 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', 'Capacity Reservations', 'Images' (AMIs, AMI Catalog), and 'Elastic Block Store'. The main content area displays 'Instances (2) Info' with a search bar and filters for 'All states'. Two instances are listed:

Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
i-0ca8f57773b17daa3	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	ec2-34-226-217-188.co.
i-0bf12a7f8055442e4	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	ec2-44-200-240-207.co.

A red box highlights the 'Availability Zone' column for both instances, showing 'us-east-1a' and 'us-east-1b' respectively. A modal window titled 'Select an instance' is open at the bottom, containing a single line of placeholder text: 'Select an instance'.

1<sup>st</sup> Public IP address with the http page working (1<sup>st</sup> Instance)



2<sup>nd</sup> Public IP address with the http page working (2<sup>nd</sup> Instance)



Under **Load Balancing**, select **Target Groups**

Select **Create target group**

The screenshot shows the AWS EC2 Target Groups page. The left sidebar is collapsed, and the main content area displays the 'Target groups' list. The 'Actions' dropdown menu has a 'Create target group' option highlighted with a red box. The URL in the browser bar is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups>.

Target groups Info

Actions Actions Create target group

Filter target groups

Name	ARN	Port	Protocol	Target type	Load balancer
No target groups You don't have any target groups in us-east-1					

0 target groups selected

Select a target group above.

Load Balancers

Target Groups

Trust Stores New

Auto Scaling Groups

Settings

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

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Under **Choose Target type**: select **Instance**

Target group name: **web-tg**

The screenshot shows the 'Step 1 Create target group | EC2' wizard in the AWS Management Console. The browser address bar displays the URL <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup>. The page title is 'Step 1 Create target group | EC2'. The main content area is titled 'Choose Target type'.

The 'Instances' option is selected and highlighted with a red box. Its description states:

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

The other options are:

- 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.

The 'Target group name' input field is also highlighted with a red box and contains the value **web-tg**.

Scroll down to **Health checks**

Enter: **/health.html**

The screenshot shows the AWS CloudFormation console interface for creating a target group. The URL in the browser is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup>. The 'Health checks' section is highlighted with a red box. It contains the following configuration:

- Health check protocol:** HTTP
- Health check path:** //health.html (This field is also highlighted with a red box)
- Advanced health check settings:** A link to expand or collapse additional settings.

Below the 'Health checks' section is the 'Attributes' section, which contains a note: "Certain default attributes will be applied to your target group. You can view and edit them after creating the target group."

At the bottom of the page, there are links for CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, and Cookie preferences.

## Expand Advanced health check settings

Healthy threshold: **Adjust from 5 to 2**

The screenshot shows the AWS EC2 Target Group creation interface. The 'Advanced health check settings' section is highlighted with a red box. Within this section, the 'Healthy threshold' input field, which contains the value '2', is also highlighted with a red box. The 'Traffic port' radio button is selected. Other sections like 'Unhealthy threshold' and 'Timeout' are shown below.

▼ Advanced health check settings

**Health check port**  
The port the load balancer uses when performing health checks on targets. By default, the health check port is the same as the target group's traffic port. However, you can specify a different port as an override.

Traffic port  
 Override

**Healthy threshold**  
The number of consecutive health checks successes required before considering an unhealthy target healthy.

2

2-10

**Unhealthy threshold**  
The number of consecutive health check failures required before considering a target unhealthy.

2

2-10

**Timeout**  
The amount of time, in seconds, during which no response means a failed health check.

5 seconds

2-120

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Scroll down, select **Next**

The screenshot shows the AWS EC2 Target Group creation wizard, Step 1: Set health check parameters. The browser tabs are "Step 1 Create target group | EC2" and "34.226.217.188". The URL is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup>. The page has a search bar and navigation icons.

The main content area shows configuration for a target group:

- Health check interval:** 30 seconds (5-300 seconds)
- Success codes:** 200
- Attributes:** A note states: "Certain default attributes will be applied to your target group. You can view and edit them after creating the target group."
- Tags - optional:** A note states: "Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them."

At the bottom right, there are "Cancel" and "Next" buttons. The "Next" button is highlighted with a red box.

Under **Register targets**, select both instances via the **checkbox to the left**

The screenshot shows the AWS EC2 console interface for creating a target group. The top navigation bar includes tabs for 'Step 2 Create target group | EC2' and '34.226.217.188'. The main content area is titled 'Register targets' with a sub-instruction: 'This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.' Below this, a table titled 'Available instances (2/2)' lists two instances: 'httpserver2' and 'httpserver1', both in a 'Running' state. The first two columns of the table header ('Instance ID' and 'Name') have checkboxes to their left, which are highlighted with a red box. The table body also has checkboxes next to each instance's ID and name. At the bottom of the table, it says '2 selected'. Below the table, there is a section for 'Ports for the selected instances' with a text input field containing '80'.

	Instance ID	Name	State	Security groups
<input checked="" type="checkbox"/>	i-0bf12a7f8055442e4	httpserver2	Running	[Redacted]
<input checked="" type="checkbox"/>	i-0ca8f57773b17daa3	httpserver1	Running	[Redacted]

2 selected

Ports for the selected instances  
Ports for routing traffic to the selected instances.  
80  
1-65535 (separate multiple ports with commas)

Select **Include as pending below**

The screenshot shows the AWS EC2 console interface for creating a target group. The browser tabs indicate the user is on 'Step 2 Create target group | EC2'.

The main area displays a table of selected EC2 instances:

Instance ID	Name	State	Security groups
i-0bf12a7f8055442e4	httpserver2	Running	[Redacted]
i-0ca8f57773b17daa3	httpserver1	Running	[Redacted]

Below the table, it says "2 selected".

Under "Ports for the selected instances", there is a text input field containing "80".

Below the port input field, there is a note: "1-65535 (separate multiple ports with commas)".

A prominent red box highlights the "Include as pending below" button.

At the bottom, there is a "Review targets" section with a "Targets (0)" summary and a "Remove all pending" button.

Page footer: CloudShell, Feedback, © 2024, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences.

## Select Create target group

The screenshot shows the AWS EC2 console interface for creating a target group. The top navigation bar includes tabs for 'Step 2 Create target group | EC2' and '34.226.217.188'. The URL in the address bar is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup>. The main content area is titled 'Select Targets'.

In the 'Targets' section, two instances are listed:

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address
i-0bf12a7f8055442e4	httpserver2	80	Running	tio2-sg	us-east-1b	172.31.13.248
i-0ca8f57773b17daa3	httpserver1	80	Running	tio2-sg	us-east-1a	172.31.35.158

Below the table, there are buttons for 'Remove all pending' and 'Show only pending'. A note indicates '2 selections are now pending below. Include more or register targets when ready.'

At the bottom of the page, there are buttons for 'Cancel', 'Previous', and 'Create target group'. The 'Create target group' button is highlighted with a red box.

Target group successfully created

## Select Load Balancers

The screenshot shows the AWS EC2 Target Groups page for a target group named "web-tg". A green success message at the top states: "Successfully created the target group: web-tg. Anomaly detection is automatically applied to all registered targets. Results can be viewed in the Targets tab." The left sidebar is collapsed, and the main content area displays the target group details. The "Details" section shows the ARN: arn:aws:elasticloadbalancing:us-east-1:1851725205521:targetgroup/web-tg/02e8e047babfc11c. The "Targets" section indicates 2 total targets, with 0 healthy, 0 unhealthy, 2 unused, 0 initial, and 0 draining. The "Distribution of targets by Availability Zone (AZ)" section is shown below.

Successfully created the target group: web-tg. Anomaly detection is automatically applied to all registered targets. Results can be viewed in the Targets tab.

EC2 > Target groups > web-tg

Details

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	[Redacted]
IP address type	Load balancer	None associated	
IPv4			

Total targets	0 Healthy	0 Unhealthy	2 Unused	0 Initial	0 Draining
0 Anomalous					

Distribution of targets by Availability Zone (AZ)

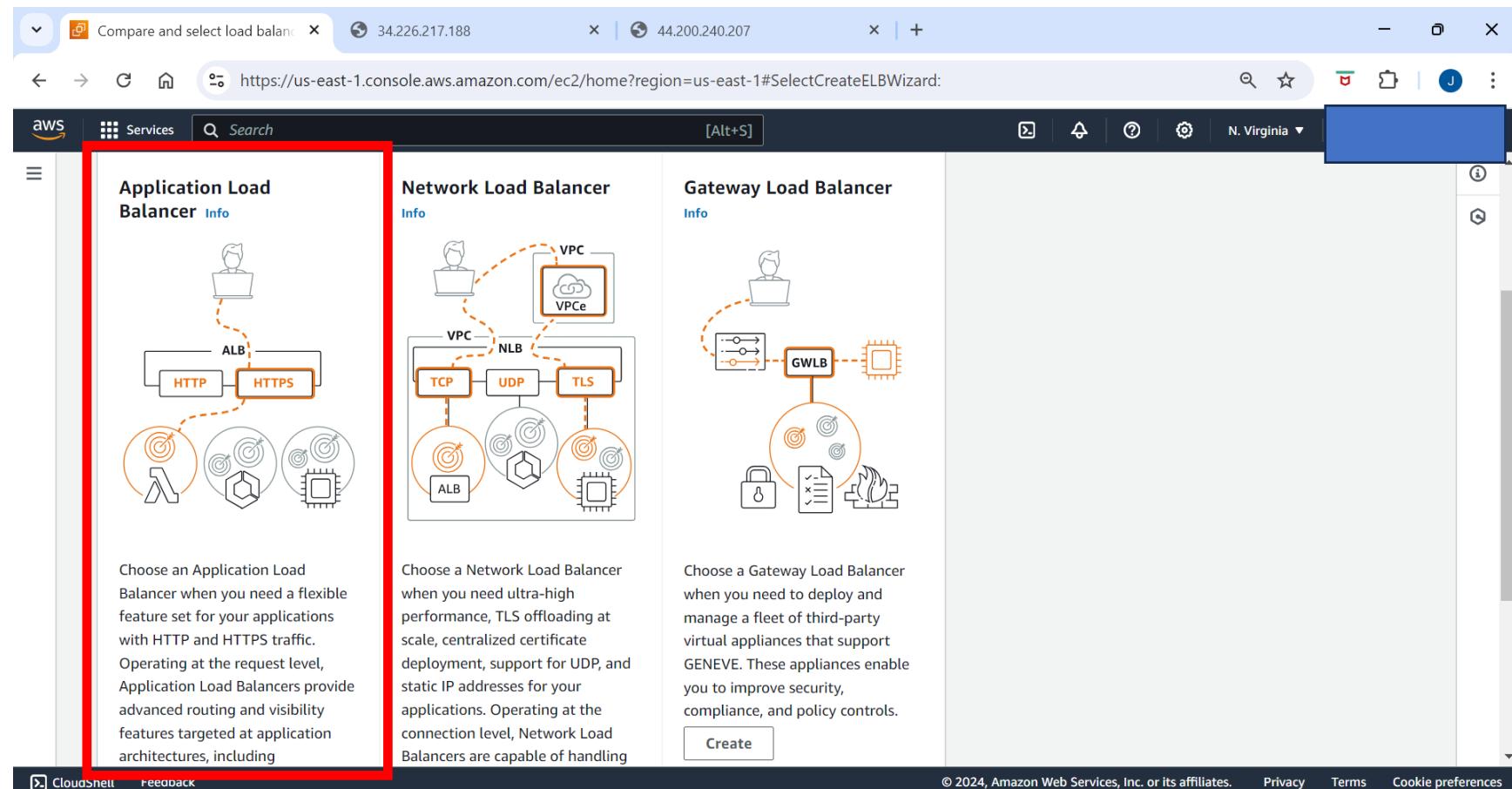
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancers: [Redacted]

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

## Select **Create load balancer**

The screenshot shows the AWS EC2 Load Balancers console in the N. Virginia region. The left sidebar navigation includes Network & Security (Schemas, Snapshots, Lifecycle Manager), Load Balancing (Load Balancers, Target Groups, Trust Stores), Auto Scaling (Auto Scaling Groups), and Settings. The main content area displays the 'Load balancers' page with a heading 'Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.' A search bar labeled 'Filter load balancers' and a table header with columns 'Name', 'DNS name', 'State', 'VPC ID', and 'Availability Zones' are visible. Below the table, a message says 'No load balancers'. A modal dialog box is open in the foreground with the title '0 load balancers selected' and the instruction 'Select a load balancer above.' The 'Create load balancer' button in the top right corner of the modal is highlighted with a red box.

Scroll down and select **Create** under Application Load Balancer



The screenshot shows the AWS CloudFront Select Create ELB Wizard interface. It displays three options for creating a new load balancer:

- Application Load Balancer**: This option is highlighted with a red box. It features a diagram showing traffic from a user's browser through an Application Load Balancer (ALB) to multiple back-end targets (Lambda function, database, and API gateway). It supports HTTP and HTTPS traffic. A descriptive text box explains that ALBs operate at the request level and provide advanced routing and visibility features.
- Network Load Balancer**: This option shows traffic from a user's browser through a Network Load Balancer (NLB) to back-end targets using TCP, UDP, or TLS protocols. It supports VPC and VPCE endpoints. A descriptive text box explains that NLBs operate at the connection level and support TLS offloading, centralized certificate deployment, and UDP support.
- Gateway Load Balancer**: This option shows traffic from a user's browser through a Gateway Load Balancer (GWLB) to back-end targets supporting GENEVE. It includes icons for a lock, file, and firewall. A descriptive text box explains that GWLBs are used for managing third-party virtual appliances.

At the bottom of the ALB section, there is a "Create" button.

Page navigation and footer information are visible at the top and bottom of the browser window.

Compare and select load balancer x 34.226.217.188 x 44.200.240.207 x +

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

AWS Services Search [Alt+S] N. Virginia ▾

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**

Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

**Create**

Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

**Create**

▶ Classic Load Balancer - previous generation

Close

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Load balancer name: **web-lb**

The screenshot shows the AWS Management Console with the URL <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard>. The page is titled "How Application Load Balancers work" under the "Basic configuration" section. A red box highlights the "Load balancer name" field, which contains the value "web-lb". Below the field, a note states: "Name must be unique within your AWS account and can't be changed after the load balancer is created." To the right of the input field, it says: "A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen." Further down, the "Scheme" section is shown, with "Internet-facing" selected (indicated by a blue circle). The "Load balancer IP address type" section is also visible at the bottom.

Create application load balance X

34.226.217.188 X | 44.200.240.207 X | +

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

AWS Services Search [Alt+S] N. Virginia ▾

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 front-end IP address type to assign to the load balancer. The VPC and subnets mapped to this load balancer must include the selected IP address types. Public IPv4 addresses have an additional cost.

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

## Network mapping, select all Availability Zones

The screenshot shows the AWS Cloud console with the URL <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard>. The page is titled "Create application load balance". The "Network mapping" section is highlighted with a red box. It contains a VPC dropdown menu and a "Mappings" section. The "Mappings" section is also highlighted with a red box and contains two entries: "us-east-1a (use1-az6)" and "us-east-1b (use1-az1)". Both entries have checkboxes next to them, and the first one is checked.

Create application load balance

34.226.217.188 | 44.200.240.207

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

aws Services Search [Alt+S]

N. Virginia

Network mapping Info

The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

VPC Info

The load balancer will exist and scale within the selected VPC. The selected VPC is also where the load balancer targets must be hosted unless routing to Lambda or on-premises targets, or if using VPC peering. To confirm the VPC for your targets, view [target groups](#). For a new VPC, [create a VPC](#).

Mappings Info

Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

Availability Zones

us-east-1a (use1-az6)

Subnet

us-east-1b (use1-az1)

Subnet

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Create application load balance x 34.226.217.188 44.200.240.207 x x +/-

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

AWS Services Search [Alt+S] N. Virginia

Assigned by AWS

us-east-1c (use1-az2)  
Subnet [REDACTED]

IPv4 address Assigned by AWS

us-east-1d (use1-az4)  
Subnet [REDACTED]

IPv4 address Assigned by AWS

us-east-1e (use1-az3)  
Subnet [REDACTED]

IPv4 address Assigned by AWS

us-east-1f (use1-az5)

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

The screenshot shows the 'Create application load balance' wizard in the AWS EC2 console. The user is selecting subnets for their load balancer. There are five subnets listed, each with a checkbox and a dropdown menu. The first four subnets have their checkboxes checked. The fifth subnet's checkbox is also checked but is located below the dropdown menu. A large red box highlights the entire list of subnets. The subnets are labeled with their names and availability zones: us-east-1c (use1-az2), us-east-1d (use1-az4), us-east-1e (use1-az3), and us-east-1f (use1-az5). Each entry includes a 'Subnet' section with a dropdown menu and an 'IPv4 address' section with the note 'Assigned by AWS'.

Create application load balance x 34.226.217.188 x 44.200.240.207 x + https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

aws Services Search [Alt+S] N. Virginia ▾

us-east-1f (use1-az5)

Subnet

IPv4 address  
Assigned by AWS

**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

**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.

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Select [REDACTED]sg under **Security groups** dropdown

The screenshot shows the AWS CloudFormation Create Application Load Balancer wizard. At the top, there are two browser tabs: "Create application load balance" and "34.226.217.188". The main content area has a header "Services" and a search bar. Below the header, a note states: "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](#)". A red box highlights the "Security groups" dropdown menu, which contains the placeholder text "Select up to 5 security groups". A blue rectangular box is overlaid on the dropdown menu, obscuring some options. In the "Listeners and routing" section, there is a listener configuration for "HTTP:80" with protocol "HTTP", port "80", and a default action of "Forward to" a target group. The target group dropdown is labeled "Select a target group". A "Create target group" link is also present. At the bottom of the page, there are links for "CloudShell", "Feedback", "© 2024, Amazon Web Services, Inc. or its affiliates.", "Privacy", "Terms", and "Cookie preferences".

Under **Listeners and routing**, under **Default action**, select **web-tg**

The screenshot shows the AWS CloudFormation Create Application Load Balancer wizard at the 'Listener configuration' step. The 'Listeners and routing' section is highlighted with a red box. Within this section, the 'Default action' dropdown is also highlighted with a red box. The dropdown shows 'Forward to web-tg' selected, with a note below stating 'Target type: Instance, IPv4'. Other options in the dropdown include 'Forward to target group' and 'Create target group'. The 'Protocol' dropdown is set to 'HTTP' and the 'Port' dropdown is set to '80'. A 'Remove' button is visible to the right of the listener settings.

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

Protocol Port

HTTP : 80  
1-65535

Default action [Info](#)

Forward to **web-tg**  
Target type: Instance, IPv4

Create target group [\[x\]](#)

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

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

Scroll down, select **Create load balancer**

The screenshot shows the AWS CloudFormation console interface for creating a new stack. At the top, there are two tabs: 'Create application load balance' and '44.200.240.207'. The URL in the address bar is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard>. The main content area displays the 'Create stack' step of the wizard. It includes sections for 'Service integrations' (AWS WAF: None, AWS Global Accelerator: None), 'Tags' (None), and 'Attributes' (a note: 'Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer'). Below this is a 'Creation workflow and status' section with a 'Server-side tasks and status' card. The card contains the text: 'After completing and submitting the above steps, all server-side tasks and their statuses become available for monitoring.' At the bottom right of the card is a red rectangular box highlighting the 'Create load balancer' button. Navigation buttons 'Cancel' and 'Next Step' are also visible.

## Load balancer successfully created

The screenshot shows the AWS EC2 Load Balancers page. A green success message box is highlighted with a red border. The message reads: "Successfully created load balancer: web-lb. 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." Below the message, the breadcrumb navigation shows "EC2 > Load balancers > web-lb". The main content area displays the "Details" for the load balancer "web-lb". The details include:

Load balancer type	Status	VPC	Load balancer IP address type
Application	Provisioning	[REDACTED]	IPv4
Scheme	Internet-facing	Hosted zone [REDACTED] 7K	Date created August 7, 2024, 19:09 (UTC-05:00)
		Availability Zones	
		us-east-1b (use1-az1)	
		us-east-1a (use1-az6)	
		us-east-1d (use1-az4)	
		us-east-1c (use1-az2)	

The left sidebar lists various AWS services: 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). At the bottom, there are links for CloudShell, Feedback, Copyright notice (© 2024, Amazon Web Services, Inc. or its affiliates.), Privacy, Terms, and Cookie preferences.

## web-lb load balancer is Active

The screenshot shows the AWS EC2 Load Balancers console. The left sidebar is collapsed, and the main area displays a table titled "Load balancers (1)". The table has columns for Name, DNS name, State, VPC ID, and Availability Zones. A single row is present, representing a load balancer named "web-lb". The "State" column shows "Active" with a green checkmark. The "Availability Zones" column indicates "6 Availability Zones". A red box highlights the "Name" column for "web-lb" and the "State" column showing "Active". Below the table, a message says "0 load balancers selected" and "Select a load balancer above."

Name	DNS name	State	VPC ID	Availability Zones
web-lb	[REDACTED]	Active	[REDACTED]	6 Availability Zones

0 load balancers selected

Select a load balancer above.

Select the **checkbox to the left of the web-lb load balancer**

Select **copy** to the left of DNS name

The screenshot shows the AWS EC2 Load Balancers console. On the left, there is a navigation sidebar with sections like EC2 Dashboard, EC2 Global View, Events, Console-to-Code Preview, Instances, Images, and Elastic Block Store. The main area is titled "Load balancers (1/1)" and contains a table with one row. The row for "web-lb" has a checkbox checked, which is highlighted with a red box. The table columns are Name, DNS name, State, VPC ID, and Availability Zones. The "Availability Zones" column shows "6 Availability Zones". Below the table, a modal window is open for the "Load balancer: web-lb". It displays the "us-east-1e (use1-az3)" and "us-east-1f (use1-az5)" availability zones. Under "Load balancer ARN", it shows "arn:aws:elasticloadbalancing:us-east-1:851725205521:loadbalancer/app/web-lb/77c24811b9df7d2e". Under "DNS name Info", it shows "web-lb-326402155.us-east-1.elb.amazonaws.com (A Record)" with a copy icon highlighted with a red box.

Name	DNS name	State	VPC ID	Availability Zones
<input checked="" type="checkbox"/> web-lb	web-lb-326402155.us-eas...	Active		6 Availability Zones

**Load balancer: web-lb**

us-east-1e (use1-az3)  
us-east-1f (use1-az5)

Load balancer ARN  
arn:aws:elasticloadbalancing:us-east-1:851725205521:loadbalancer/app/web-lb/77c24811b9df7d2e

DNS name Info  
web-lb-326402155.us-east-1.elb.amazonaws.com (A Record)

Open a new browser tab

Type http://

Paste DNS of load balancer (**web-lb-326402155.us-east-1.elb.amazonaws.com**)



Manual instance number 8073

## Load balancer alternates between instances



**Bonus step:**

Under **Load Balancing**, navigate to **Target groups**

Select **checkbox** next to Target group **web-tg**

Select **Attributes**, select **Edit**

The screenshot shows the AWS EC2 Target Groups interface. On the left, the navigation pane is open, showing the 'Load Balancing' section with 'Target Groups' selected. A red box highlights this selection. In the main content area, the 'Target groups (1/1)' table is displayed. A red box highlights the checkbox next to the target group 'web-tg'. Below the table, a modal window titled 'Target group: web-tg' is open. The 'Attributes' tab is selected, and a red box highlights the 'Edit' button at the bottom right of the modal.

Name	ARN	Port	Protocol	Target type	Load balancer
web-tg	arn:aws:elasticloadbalancing:us-east-1:326402155:targetgroup/web-tg/53f3e03a233a4a2d	80	HTTP	Instance	web-lb

**Target group: web-tg**

Attributes

Edit

Select **Turn on stickiness**

Enter a value between **1 second and 7 days**

Select **Save changes**

The screenshot shows the 'Edit target group attributes' page for an Application Load Balancer (ALB) in the N. Virginia region. The target group ARN is `arn:aws:elasticloadbalancing:us-east-1:326402155:targetgroup/test-target-group/5e0f34a0d4a54a10`. The 'Stickiness' tab is selected.

**Stickiness** Info  
Session persistence allows the load balancer to bind a user's session to a specific target within the target group. The stickiness type differs based on the type of cookie used.

Turn on stickiness Not compatible with the Weighted random routing algorithm. Can't be turned on if Cross-zone load balancing is off.

**Stickiness type**  
 Load balancer generated cookie  
 Application-based cookie

**Stickiness duration** Unit of time  
10 seconds ▾  
1 second - 7 days

**Cross-zone load balancing** Info  
Cross-zone load balancing can be configured for each target group or inherited from the load balancer.

Inherit settings from load balancer attributes  
Uses the cross-zone settings from the Application Load Balancer attributes - On by default.

**Target group health requirements** Info  
Specify the target group health requirements and the resulting actions when the minimum is not met.

Cancel **Save changes**

CloudShell Feedback © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

After multiple **refreshes** on the **Load balancer**, it remains on the 1<sup>st</sup> Instance

As described by AWS: By default, an Application Load Balancer routes each request independently to a registered target based on the chosen load-balancing algorithm. However, you can use the sticky session feature (also known as session affinity) to enable the load balancer to bind a user's session to a specific target. This ensures that all requests from the user during the session are sent to the same target. This feature is useful for servers that maintain state information in order to provide a continuous experience to clients. To use sticky sessions, the client must support cookies.



After multiple refreshes, the Load Balancer switched to the 2<sup>nd</sup> Instance



# Session clean-up

Navigate to **Management Console, Load Balancer Page**

Select the **checkbox** to the left of **web-lb** Load balancer

Select **Actions** dropdown, Select **Delete Load Balancer**

The screenshot shows the AWS Management Console interface for the EC2 service, specifically the Load Balancers section. The URL in the browser is <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancers>. The left sidebar shows navigation options like EC2 Dashboard, Instances, Images, and Elastic Block Store. The main content area displays a table titled "Load balancers (1/1)". A single row is present for a load balancer named "web-lb". The "Actions" dropdown menu is open over this row, with the "Delete load balancer" option highlighted and surrounded by a red box. The "Details" tab is selected in the sub-navigation bar below the table.

## Enter Confirm

### Select Delete

The screenshot shows the AWS EC2 Load Balancers console in the N. Virginia region. A modal dialog titled "Delete load balancer" is open, asking if the user wants to permanently delete the load balancer "web-lb". It states that proceeding will delete the load balancer and its listeners, making target groups available for association to another load balancer. To avoid accidental deletion, it asks for written consent by typing "confirm" into a text input field. The "Delete" button at the bottom right is highlighted with a red box.

Load balancers (1/1)

Name: web-lb

Delete load balancer

Delete load balancer web-lb permanently? This action can't be undone.

⚠ Proceeding with this action deletes the load balancer and its listeners. Target groups associated to this load balancer will become available for association to another load balancer and their registered targets remain unaffected.

To avoid accidental deletion we ask you to provide additional written consent.

Type **confirm** to agree.

confirm

Cancel Delete

Details

Load balancer type: Application

Status: Active

VPC: vpc-054d753022a29fc2

Load balancer IP address type: IPv4

CloudShell Feedback

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

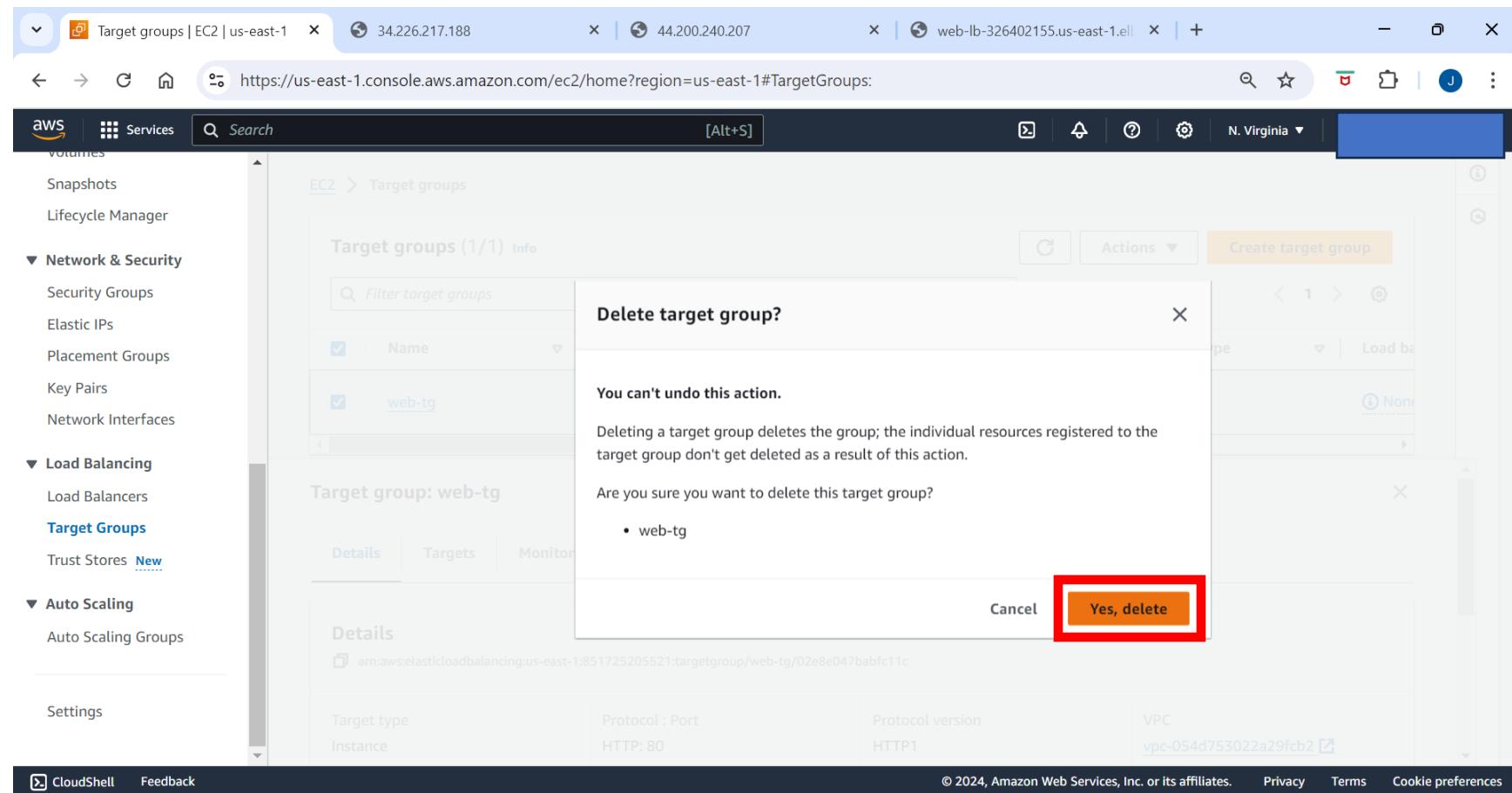
Navigate to **Target groups**

Select the **checkbox** to the left of **web-tg** Target group

**Actions** dropdown, select **Delete**

The screenshot shows the AWS EC2 Target Groups page. On the left, there is a navigation sidebar with sections like Snapshots, Lifecycle Manager, Network & Security, Load Balancing, Auto Scaling, and Settings. Under Load Balancing, the 'Target Groups' option is selected and highlighted with a red box. In the main content area, the 'Target groups (1/1)' section is displayed. A single target group named 'web-tg' is listed. To the left of the 'Name' column, there is a checkbox which is checked and highlighted with a red box. To the right of the table, there is an 'Actions' dropdown menu with several options: Create target group, Delete (which is highlighted with a red box), Register targets, Edit health check settings, Edit target group attributes, Manage tags, Associate with a new load balancer, and Associate with an existing load balancer. Below the table, a detailed view for the 'web-tg' target group is shown with tabs for Details, Targets, Monitoring, Health checks, Attributes, and Tags. The 'Details' tab is selected, showing the ARN: arn:aws:elasticloadbalancing:us-east-1:851725205521:targetgroup/web-tg/02e8e047babfc11c, Target type: Instance, Protocol: Port HTTP: 80, Protocol version: HTTP1, and VPC (which is also highlighted with a red box). At the bottom of the page, there are links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

## Select Yes, Delete



## Navigate to Instances

Select **both Instances** via **checkbox to left**

Select dropdown for **Instance state**

Select **Terminate instance**

The screenshot shows the AWS EC2 Instances page. On the left, the navigation pane is open, with the 'Instances' section expanded and the 'Instances' item selected. Two instances, 'httpserver1' and 'httpserver2', are listed in the main table, both of which have their checkboxes checked. The 'Instance state' dropdown menu is open, and the 'Terminate instance' option is highlighted with a red box. The status bar at the bottom indicates '2 instances selected'.

Name	Instance ID	Instance state
httpserver1	i-0ca8f57773b17daa3	Running
httpserver2	i-0bf12a7f8055442e4	Running

**Actions** dropdown menu:

- Stop instance
- Start instance
- Reboot instance
- Hibernate instance
- Terminate instance

**Monitoring** section:

- Alarm recommendations
- Configure CloudWatch agent
- Add to dashboard

**CPU utilization (%)**: Percent: 7.18

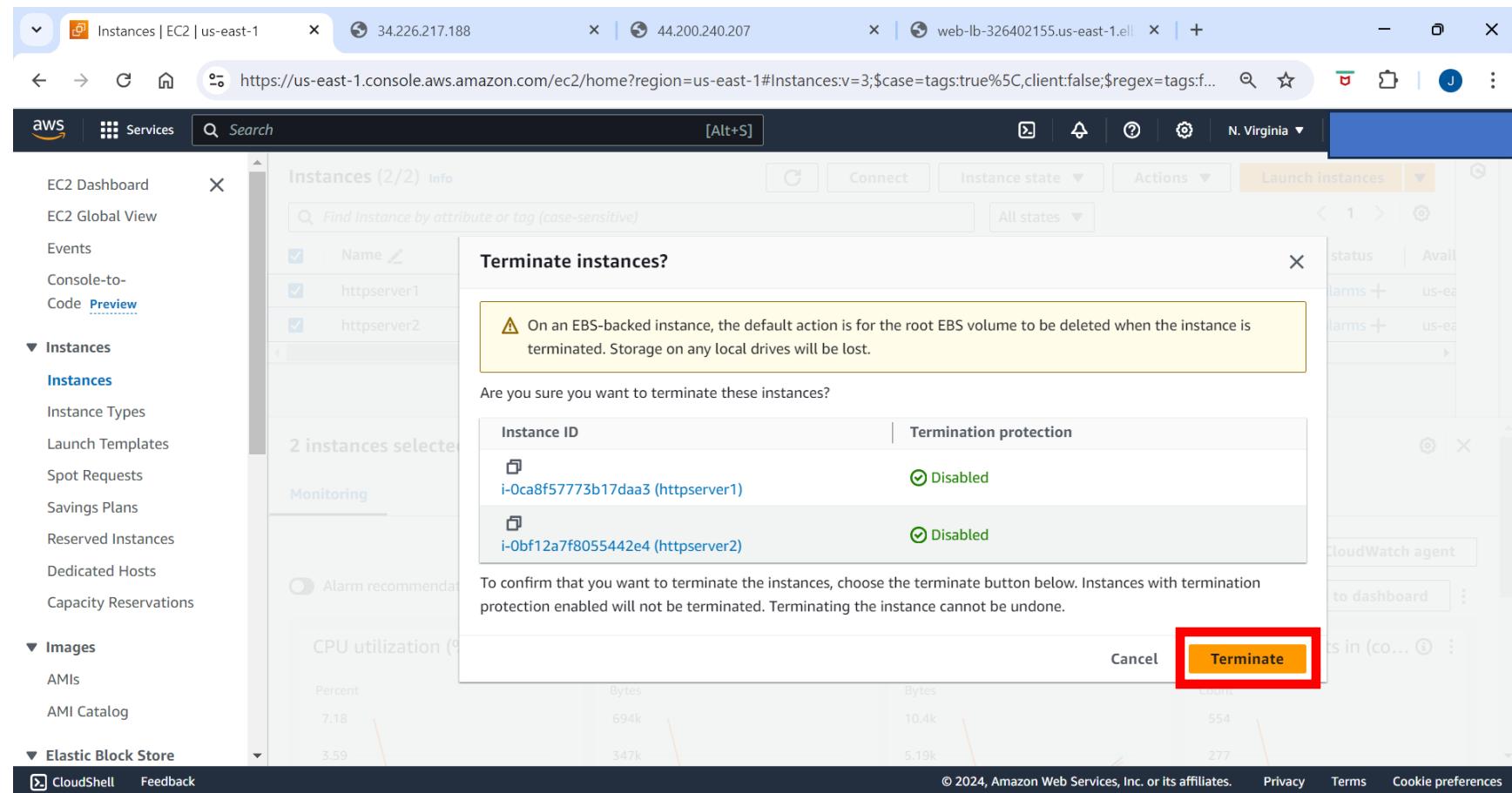
**Network in (bytes)**: Bytes: 694k

**Network out (bytes)**: Bytes: 10.4k

**Network packets in (c...)**: Count: 554

**Network packets out (c...)**: Count: 277

## Select Terminate



## Navigate to EC2 Dashboard

Both Instances are **not Running**

The screenshot shows the AWS EC2 Dashboard in the N. Virginia region. The left sidebar is collapsed, and the main content area displays the 'Resources' section. The 'Instances (running)' and 'Instances' cards are highlighted with red boxes. The 'Instances' card shows 2 instances, while the 'Instances (running)' card shows 0. The 'EC2 Free Tier' section indicates 2 offers in use, with 0 forecasted to exceed the limit. The 'Offer usage (monthly)' section shows 0% usage for Linux EC2 Instances and Storage space on EBS.

**Resources**

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	0	Auto Scaling Groups	0
Dedicated Hosts	0	Elastic IPs	0
<b>Instances</b>	<b>2</b>	Key pairs	1
Load balancers	0	Placement groups	0
Security groups	8	Snapshots	0
Volumes	2		

**Launch instance**  
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.  
**Launch instance**

**Service health**  
[AWS Health Dashboard](#)

Region  
US East (N. Virginia)

**EC2 Free Tier** [Info](#)  
Offers for all AWS Regions.

2 EC2 free tier offers in use

End of month forecast  
⚠️ 0 offers forecasted to exceed free tier limit.

Exceeds free tier  
⚠️ 0 offers exceeded and is now pay-as-you-go pricing.

[View Global EC2 resources](#)

**Offer usage (monthly)**

Linux EC2 Instances  
0%

746.887223 hours remaining

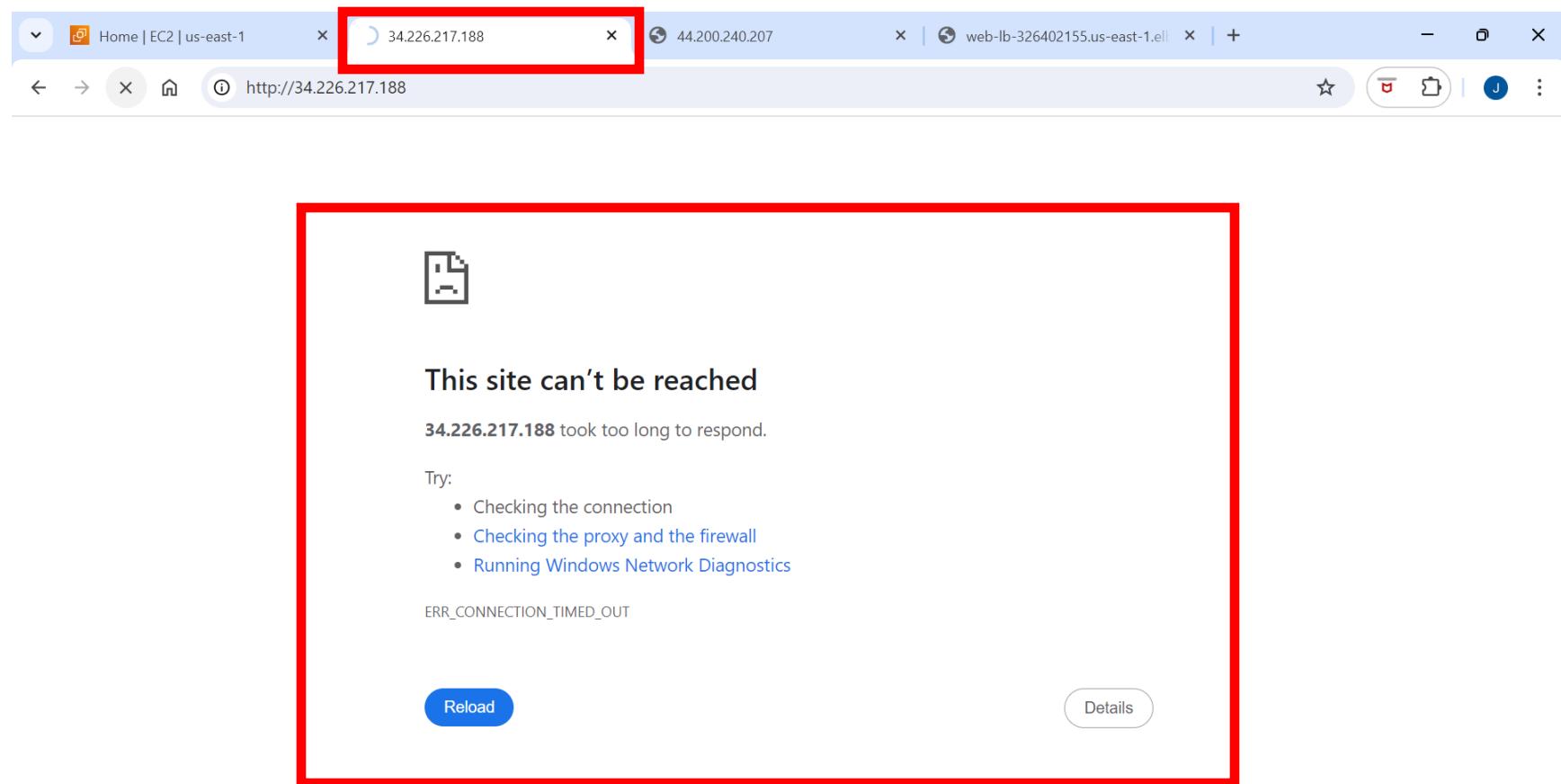
Storage space on EBS  
0%

29.96 GB remaining

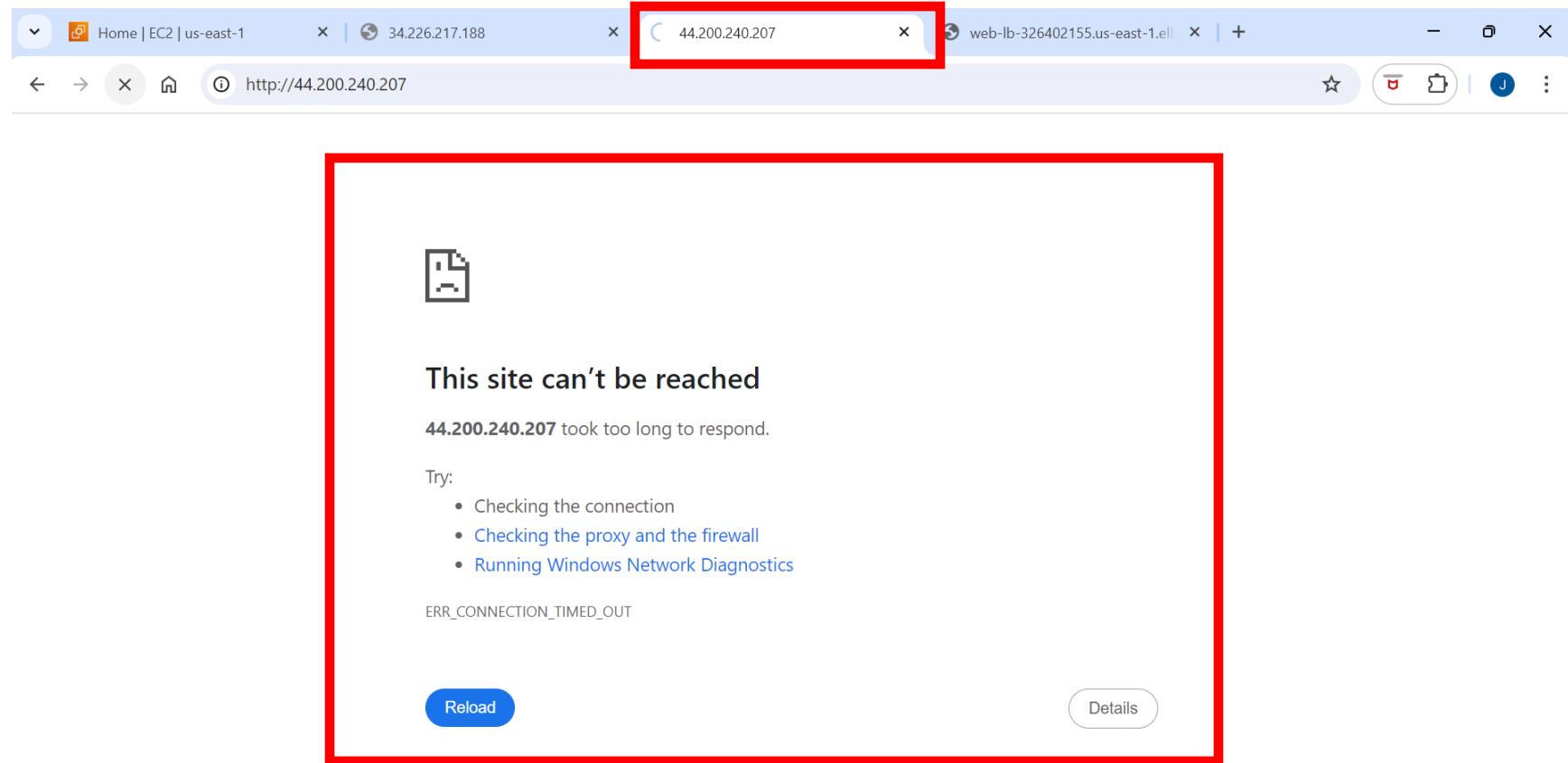
[View all AWS Free Tier offers](#)

© 2024, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

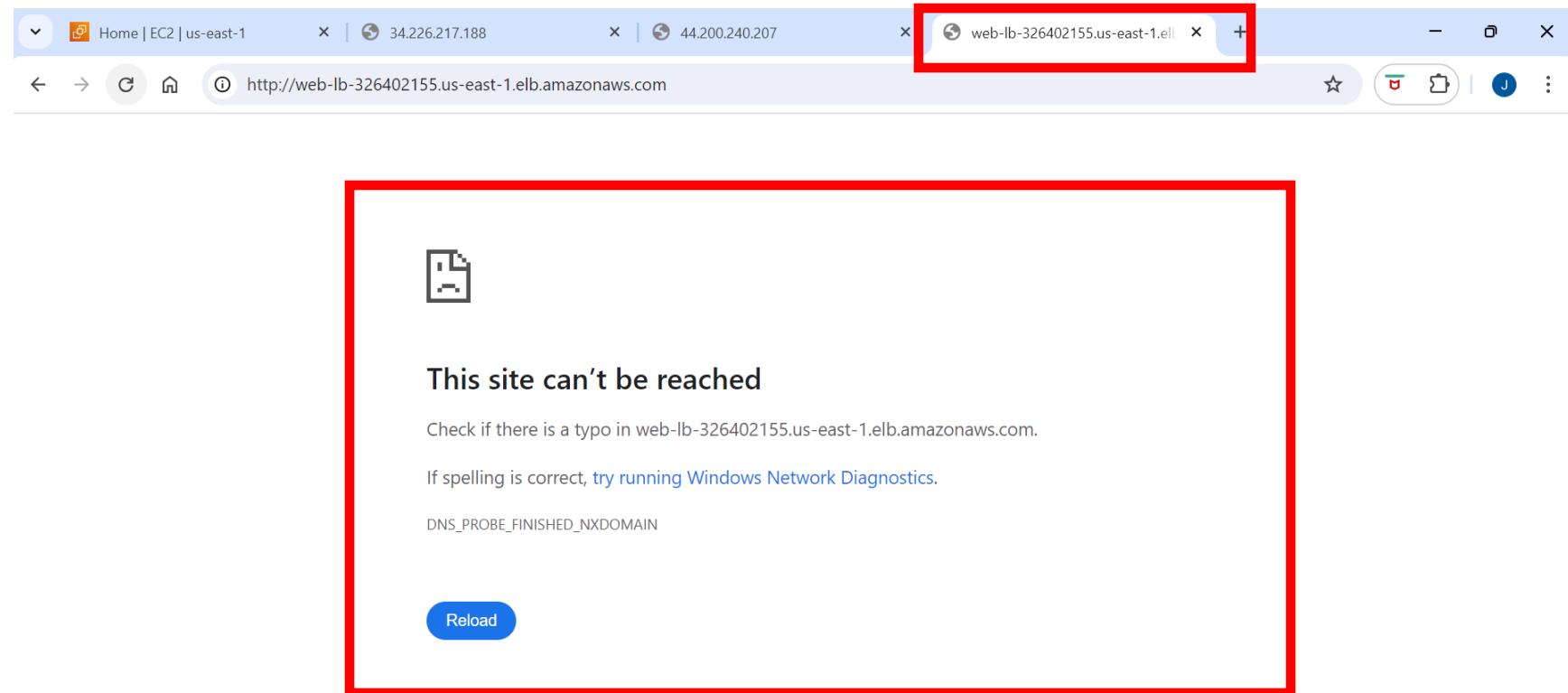
1<sup>st</sup> Instance is **not Running**



2<sup>nd</sup> Instance is not Running



## Load Balancer is not operational



## No Load balancer

The screenshot shows the AWS Management Console interface for the EC2 service, specifically the Load Balancers section. The browser address bar displays the URL <https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancers>. The left sidebar navigation menu includes Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups, Trust Stores), Auto Scaling (Auto Scaling Groups), and Settings. The main content area is titled "Load balancers" and contains the message "Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic." Below this is a table header with columns: Name, DNS name, State, VPC ID, Availability Zones, and Type. A red box highlights the text "No load balancers" located in the center of the table body. A modal dialog box is overlaid on the page, titled "0 load balancers selected", with the instruction "Select a load balancer above." at the bottom.

Load balancers

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

Name	DNS name	State	VPC ID	Availability Zones	Type
No load balancers					

0 load balancers selected

Select a load balancer above.

© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

## No Target groups

The screenshot shows the AWS EC2 Target Groups page. The browser tabs at the top are: Target groups | EC2 | us-east-1, 34.226.217.188, 44.200.240.207, and web-lb-326402155.us-east-1.elb.amazonaws.com. The address bar shows the URL: https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups:. The AWS logo and Services menu are visible at the top left. The main navigation bar includes: Search tabs, Search (with placeholder [Alt+S]), Actions, Create target group, and N. Virginia. The left sidebar has sections for volumes, Network & Security (Security Groups, Lifecycle Manager, Network Interfaces), Load Balancing (Load Balancers, Target Groups, Trust Stores), Auto Scaling (Auto Scaling Groups), and Settings. The Target Groups section is expanded, showing sub-options: 0 target groups selected, Select a target group above, and a message: You don't have any target groups in us-east-1. A red box highlights the "No target groups" message.