

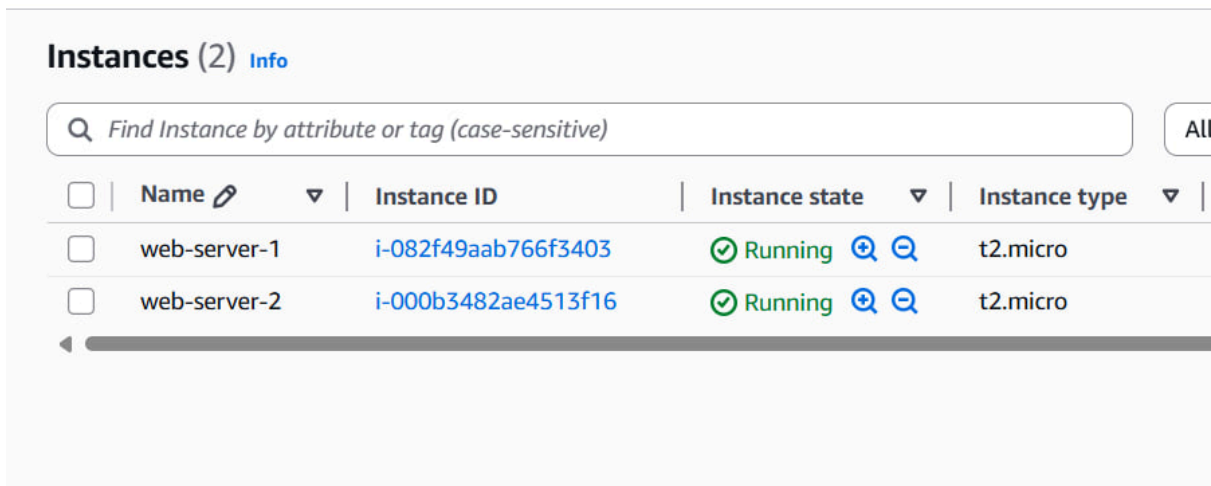
AWS EC2 Домашнє завдання #1

Мета: створити два EC2-інстанси, встановити nginx, налаштувати Target Group та Application Load Balancer. Надати скріншоти для підтвердження коректної роботи.

Крок 1: Створення інстансів EC2

- AMI: Amazon Linux 2
- Тип: t2.micro
- Статус: Running

Скрін 1: EC2 Dashboard з двома інстансами



Крок 2: Створення Key Pair

- Тип: RSA
- Формат: .pem

Скрін 2: Key Pair

sg-02807b95a580c3850 - launch-wizard-1

Actions ▾

Details

Security group name
launch-wizard-1

Security group ID
sg-02807b95a580c3850

Description
launch-wizard-1 created 2025-06-24T22:54:39.773Z

VPC ID
vpc-00fd883473bdae861

Owner
938094936571

Inbound rules count
2 Permission entries

Outbound rules count
1 Permission entry

[Inbound rules](#) | [Outbound rules](#) | [Sharing - new](#) | [VPC associations - new](#) | [Tags](#)

Inbound rules (2)

 [Manage tags](#) [Edit inbound rules](#)

| <input type="checkbox"/> | Name ▾ | Security group rule ID ▾ | IP version ▾ | Type ▾ | Protocol ▾ | Port range ▾ | Source ▾ | Description |
|--------------------------|--------|--------------------------|--------------|--------|------------|--------------|-----------|-------------|
| <input type="checkbox"/> | - | sgr-0ec7780000bb23ebc | IPv4 | HTTP | TCP | 80 | 0.0.0.0/0 | - |
| <input type="checkbox"/> | - | sgr-0c0357864109fdb13 | IPv4 | SSH | TCP | 22 | 0.0.0.0/0 | - |

sg-0ce4016fe8675f595 - launch-wizard-2

Actions

Details

Security group name

launch-wizard-2

Security group ID

sg-0ce4016fe8675f595

Description

launch-wizard-2 created 2025-06-24T22:59:08.358Z

VPC ID

vpc-00fd883473bdae861

Owner

938094936571

Inbound rules count

2 Permission entries

Outbound rules count

1 Permission entry

Inbound rules

Outbound rules

Sharing - new

VPC associations - new

Tags

Inbound rules (2)

Manage tags

Edit inbound rules

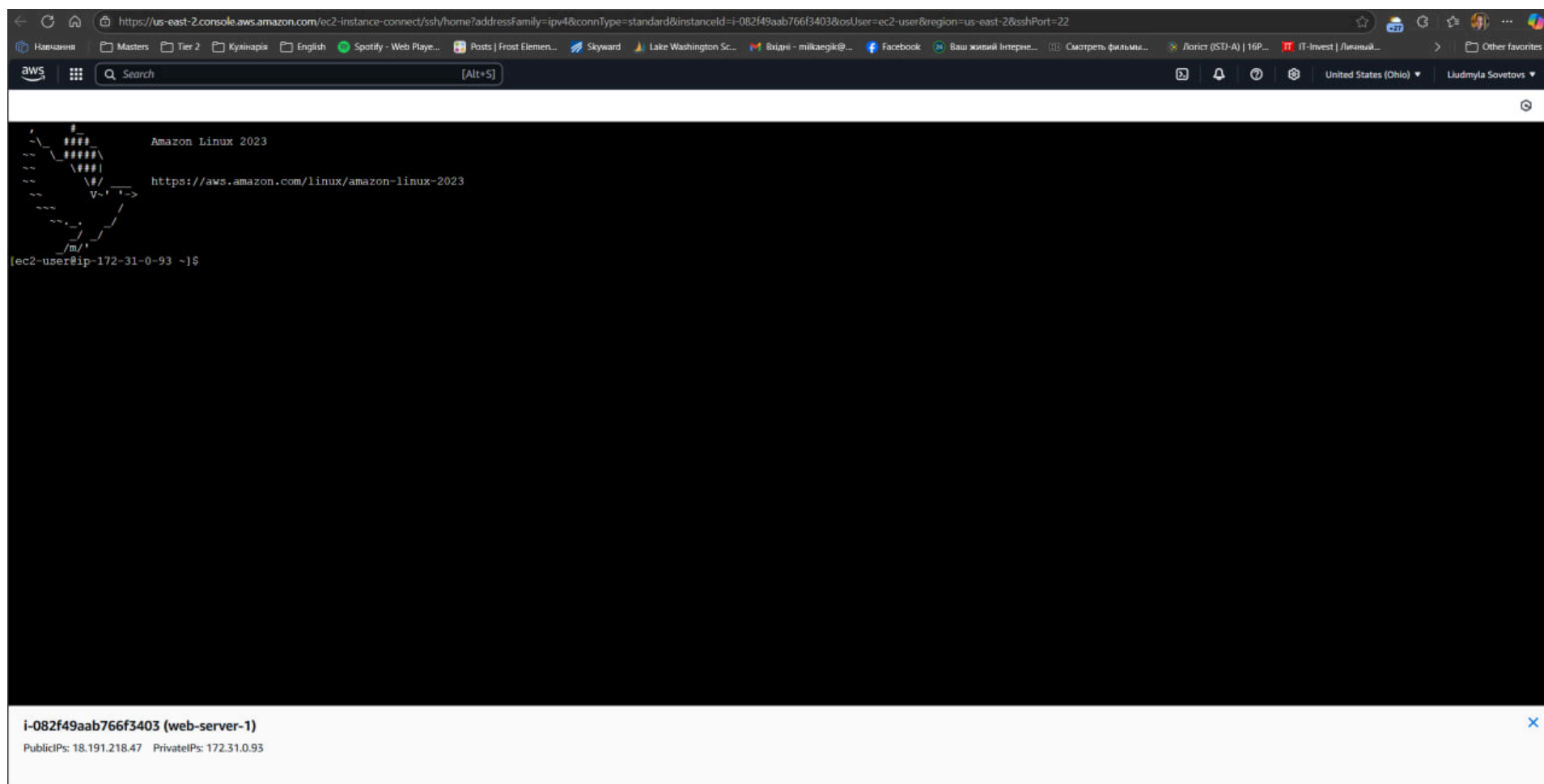
Search

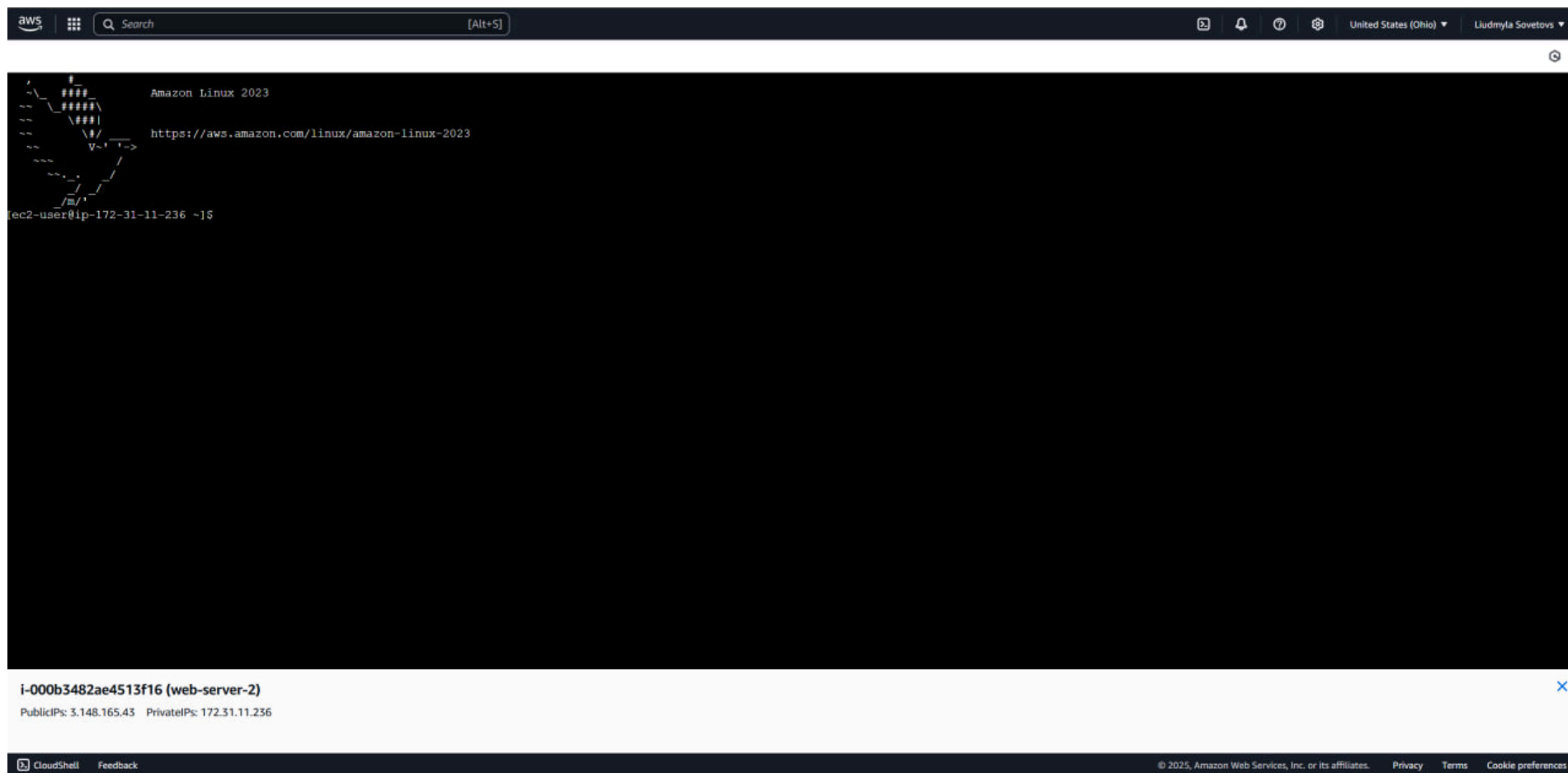
| | Name | Security group rule ID | IP version | Type | Protocol | Port range | Source | Description |
|--------------------------|------|------------------------|------------|------|----------|------------|-----------|-------------|
| <input type="checkbox"/> | - | sgr-0729666ec2e00900f | IPv4 | SSH | TCP | 22 | 0.0.0.0/0 | - |
| <input type="checkbox"/> | - | sgr-07595904562b76a5a | IPv4 | HTTP | TCP | 80 | 0.0.0.0/0 | - |

Крок 4: Підключення через EC2 Instance Connect

- Web-консоль AWS
- Успішне підключення

Скрін 4: Термінал інстансу





Крок 5: Встановлення nginx

- `yum install nginx -y`
- `systemctl enable nginx`
- `systemctl start nginx`

Скрін 5: Вивід команд

```
aws [Alt+S] Search United States (Ohio) Liudmyla Sovetovs

Total 10 MB/s | 1.1 MB 00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing : 1/1
Running scriptlet: nginx-filessystem-1:1.26.3-1.amzn2023.0.1.noarch 1/7
Installing : nginx-filessystem-1:1.26.3-1.amzn2023.0.1.noarch 1/7
Installing : nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch 2/7
Installing : libunwind-1.4.0-5.amzn2023.0.2.x86_64 3/7
Installing : gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64 4/7
Installing : nginx-core-1:1.26.3-1.amzn2023.0.1.x86_64 5/7
Installing : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 6/7
Installing : nginx-1:1.26.3-1.amzn2023.0.1.x86_64 7/7
Running scriptlet: nginx-1:1.26.3-1.amzn2023.0.1.x86_64 7/7
Verifying : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 1/7
Verifying : gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64 2/7
Verifying : libunwind-1.4.0-5.amzn2023.0.2.x86_64 3/7
Verifying : nginx-1:1.26.3-1.amzn2023.0.1.x86_64 4/7
Verifying : nginx-core-1:1.26.3-1.amzn2023.0.1.x86_64 5/7
Verifying : nginx-filessystem-1:1.26.3-1.amzn2023.0.1.noarch 6/7
Verifying : nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch 7/7

WARNING:
A newer release of "Amazon Linux" is available.

Available Versions:

Version 2023.7.20250623:
Run the following command to upgrade to 2023.7.20250623:

dnf upgrade --releasever=2023.7.20250623

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.7.20250623.html

Installed:
generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64 libunwind-1.4.0-5.amzn2023.0.2.x86_64 nginx-1:1.26.3-1.amzn2023.0.1.x86_64 nginx-core-1:1.26.3-1.amzn2023.0.1.x86_64
nginx-filessystem-1:1.26.3-1.amzn2023.0.1.noarch nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch

Complete!
[ec2-user@ip-172-31-0-93 ~]$ sudo systemctl enable nginx
sudo: systemctl: command not found
[ec2-user@ip-172-31-0-93 ~]$ sudo systemctl enable nginx
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
[ec2-user@ip-172-31-0-93 ~]$ sudo systemctl start nginx
[ec2-user@ip-172-31-0-93 ~]$ [
```

```
Transaction Summary
-----
Install 7 Packages

Total download size: 1.1 M
Installed size: 3.6 M
Uninstalling Packages:
1/7) : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm
2/7) : libunwind-1.4.0-5.amzn2023.0.2.x86_64.rpm
3/7) : gperftools-libe-2.9.1-1.amzn2023.0.3.x86_64.rpm
4/7) : nginx-1.26.3-1.amzn2023.0.1.x86_64.rpm
5/7) : nginx-core-1.26.3-1.amzn2023.0.1.x86_64.rpm
6/7) : nginxfilesystem-1.26.3-1.amzn2023.0.1.noarch.rpm
7/7) : nginx-minetypes-2.1.49-3.amzn2023.0.3.noarch.rpm

Total
-----
0.9 MB/s | 1.1 MB | 00:00

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing
Running scriptlet: nginxfilesystem-1:1.26.3-1.amzn2023.0.1.noarch
Installing : nginxfilesystem-1:1.26.3-1.amzn2023.0.1.noarch
Installing : nginx-minetypes-2.1.49-3.amzn2023.0.3.noarch
Installing : libunwind-1.4.0-5.amzn2023.0.2.x86_64
Installing : gperftools-libe-2.9.1-1.amzn2023.0.3.x86_64
Installing : nginx-core-1:1.26.3-1.amzn2023.0.1.x86_64
Installing : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
Installing : nginx-1:1.26.3-1.amzn2023.0.1.x86_64
Running scriptlet: nginx-1:1.26.3-1.amzn2023.0.1.x86_64
Verifying : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch
Verifying : gperftools-libe-2.9.1-1.amzn2023.0.3.x86_64
Verifying : libunwind-1.4.0-5.amzn2023.0.2.x86_64
Verifying : nginx-1:1.26.3-1.amzn2023.0.1.x86_64
Verifying : nginx-core-1:1.26.3-1.amzn2023.0.1.x86_64
Verifying : nginxfilesystem-1:1.26.3-1.amzn2023.0.1.noarch
Verifying : nginx-minetypes-2.1.49-3.amzn2023.0.3.noarch

ANNOUNCEMENT:
A newer release of "Amazon Linux" is available.

Available Versions:
Version 2023.7.20250623:
Run the following command to upgrade to 2023.7.20250623:

dnf upgrade --releasever=2023.7.20250623

Release notes:
https://docs.aws.amazon.com/linux/al2023/release-notes/relnotes-2023.7.20250623.html

Installed:
generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch gperftools-libe-2.9.1-1.amzn2023.0.3.x86_64 libunwind-1.4.0-5.amzn2023.0.2.x86_64 nginx-1:1.26.3-1.amzn2023.0.1.x86_64 nginx-core-1:1.26.3-1.amzn2023.0.1.x86_64
nginxfilesystem-1:1.26.3-1.amzn2023.0.1.noarch nginx-minetypes-2.1.49-3.amzn2023.0.3.noarch

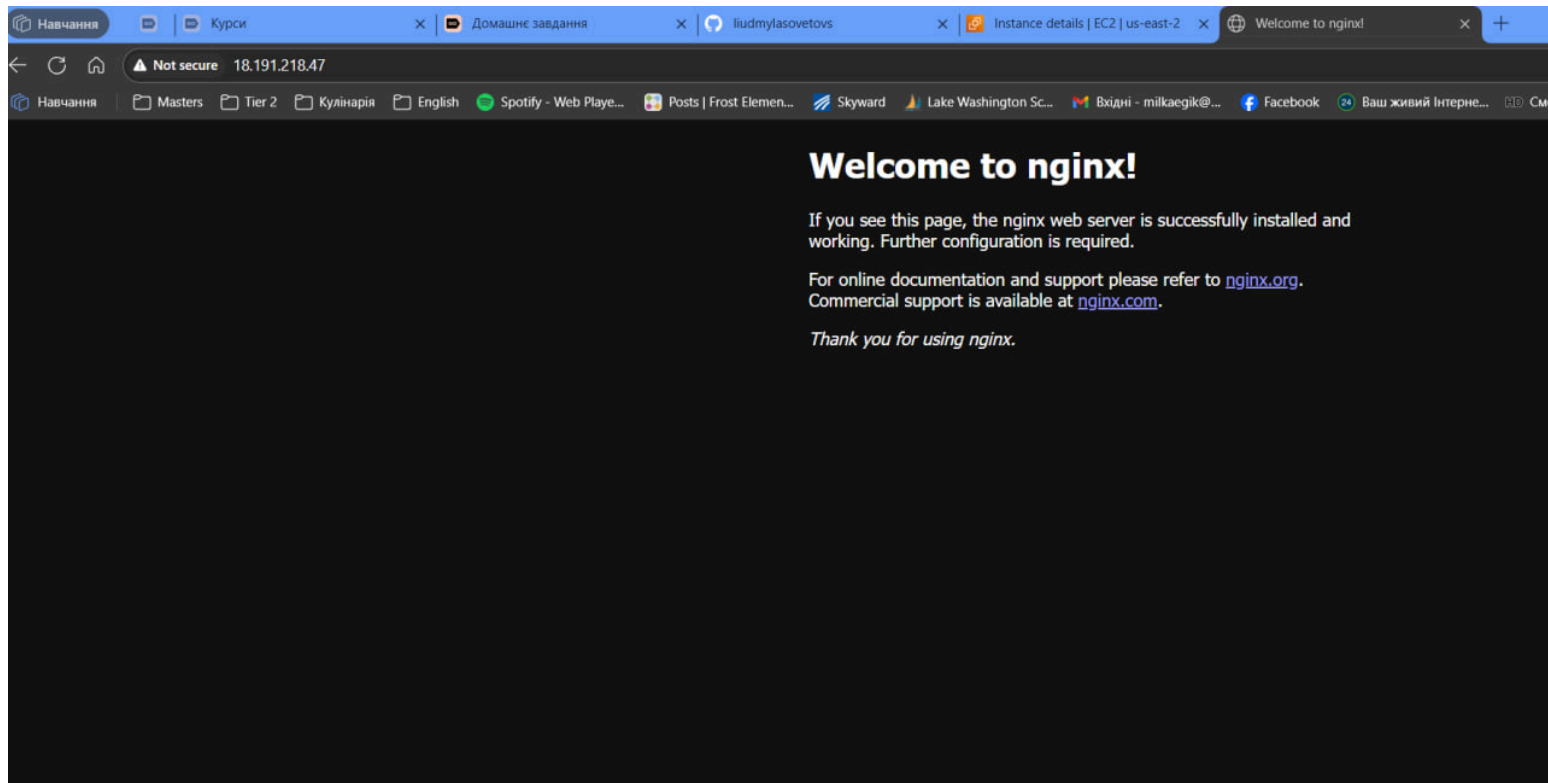
complete!
ec2-user@ip-172-31-11-236 ~$ sudo systemctl enable nginx
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
ec2-user@ip-172-31-11-236 ~$ sudo systemctl start nginx
ec2-user@ip-172-31-11-236 ~$ ||

i-000b3482ae4513f16 (web-server-2)
PublicIP: 5.148.165.45 PrivateIP: 172.31.11.236
```

Крок 6: Перевірка nginx

- Відкрити по Public IP
- Сторінка "Welcome to nginx!"

Скрін 6: nginx у браузері



Крок 7: Target Group

- Тип: Instances
- Target Group Name: web-servers-tg
- Port: 80
- Додано обидва інстанси

Скрін 7: Target Group

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

web-servers-tg

Actions

Details

arn:aws:elasticloadbalancing:us-east-2:938094936571:targetgroup/web-servers-tg/baf90ed93a88a98

Target type

Instance

Protocol : Port

HTTP: 80

Protocol version

HTTP1

VPC

vpc-00fd883473bdae861

IP address type

IPv4

Load balancer

None associated

2

Total targets

0

Healthy

0

Unhealthy

2

Unused

0

Initial

0

Draining

0

Anomalous

Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets

Monitoring

Health checks

Attributes

Tags

Registered targets (2)

Anomaly mitigation: Not applicable

Deregister

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 | Name | Port | Zone | Health status | Health status details | Administrative override |
|--------------------------|-------------------------------------|--------------|------|--------------------|---------------|---------------------------|-------------------------|
| <input type="checkbox"/> | i-000b3482ae4513f16 | web-server-2 | 80 | us-east-2a (us...) | Unused | Target group is not co... | - |
| <input type="checkbox"/> | i-082f49aab766f3403 | web-server-1 | 80 | us-east-2a (us...) | Unused | Target group is not co... | - |

Крок 8: Application Load Balancer

- Тип: Application

- Scheme: Internet-facing
- Listener: HTTP:80
- Target Group: web-servers-tg

Скрін 8: ALB і DNS




Load balancers

(1/1)

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

Q

Filter load balancers

| <input checked="" type="checkbox"/> | Name | DNS name | State | VPC ID | Availability Zones | Type | Date created |
|-------------------------------------|---------|--|--|-----------------------|--|-------------|----------------------------------|
| <input checked="" type="checkbox"/> | web-alb |  web-alb-44554621.us-east-2.elb.amazonaws.com |  Active | vpc-00fd883473bdae861 |  3 Availability Zones | application | June 24, 2025, 17:02 (UTC-07:00) |

Load balancer: web-alb

Details

Listeners and rules

Network mapping

Resource map

Security

Monitoring

Integrations

Attributes

Capacity

Tags

Details


Load balancer type

Application


Scheme

Internet-facing

Load balancer ARN

 arn:aws:elasticloadbalancing:us-east-2:938094936571:loadbalancer/app/web-alb/0ba767a8114fe706


Status

 Active


Hosted zone

Z3AADJGX6KTTL2


VPC

 vpc-00fd883473bdae861


Availability Zones

 subnet-0b3eea7e258708daf

us-east-2b (use2-az2)

 subnet-035630a19b01b0717

us-east-2a (use2-az1)

 subnet-0465fd9de0f00c6ca

us-east-2c (use2-az3)


Load balancer IP address type

IPv4

Date created

June 24, 2025, 17:02 (UTC-07:00)

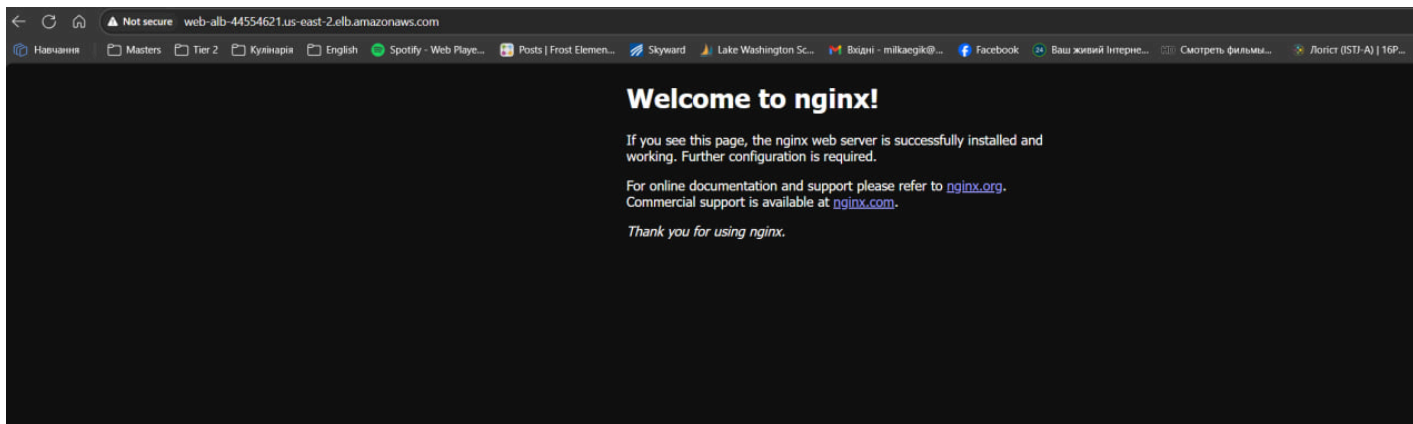
DNS name

 web-alb-44554621.us-east-2.elb.amazonaws.com (A Record)

Крок 9: Перевірка ALB

- DNS ALB відкритий у браузері
- nginx відображається через Load Balancer

Скрін 9: nginx через ALB



Крок 10: Зупинка інстансів

- EC2 state: Stopped

Скрін 10: Stopped instances

Successfully initiated stopping of i-082f49aab766f3403, i-000b3482ae4513f16

Instances (2/2) [Info](#)

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find instance by attribute or tag (case-sensitive)

All states

| <input checked="" type="checkbox"/> | Name | Instance ID | Instance state | Instance type | Status check | Alarm status | Availability Zone | Public IPv4 DNS | Public IPv4 ... | Elastic IP | IPv6 IPs | Monitoring | Security group name | Key name | Launch time |
|-------------------------------------|--------------|---------------------|----------------|---------------|-------------------|-------------------------------|-------------------|-----------------|-----------------|------------|----------|------------|---------------------|----------|----------------------|
| <input checked="" type="checkbox"/> | web-server-1 | i-082f49aab766f3403 | Stopped | t2.micro | 2/2 checks passed | View alarms + | us-east-2a | - | - | - | - | disabled | launch-wizard-1 | ec2-key | 2025/06/24 15:57 GMT |
| <input checked="" type="checkbox"/> | web-server-2 | i-000b3482ae4513f16 | Stopped | t2.micro | 2/2 checks passed | View alarms + | us-east-2a | - | - | - | - | disabled | launch-wizard-2 | ec2-key2 | 2025/06/24 16:00 GMT |