AWS VPC & EC2 Web Server Deployment

Step-by-Step Implementation

1. VPC & Network Setup

- Created custom VPC with public subnets
- Configured Internet Gateway for public access
- Set up route tables with internet routing

2. Security Configuration

- Configured security groups
- Opened SSH (Port 22) and HTTP (Port 80) access
- Applied proper network ACLs

3. EC2 Instance Deployment

- Launched Amazon Linux 2023 instance
- Used key pair for secure access
- Placed instance in public subnet

4. Web Server Installation

- Connected to instance via SSH
- Installed Nginx web server
- Started and verified web service

5. Access Verification

- Accessed web server via public IP
- Confirmed "Welcome to nginx!" page
- Validated public accessibility

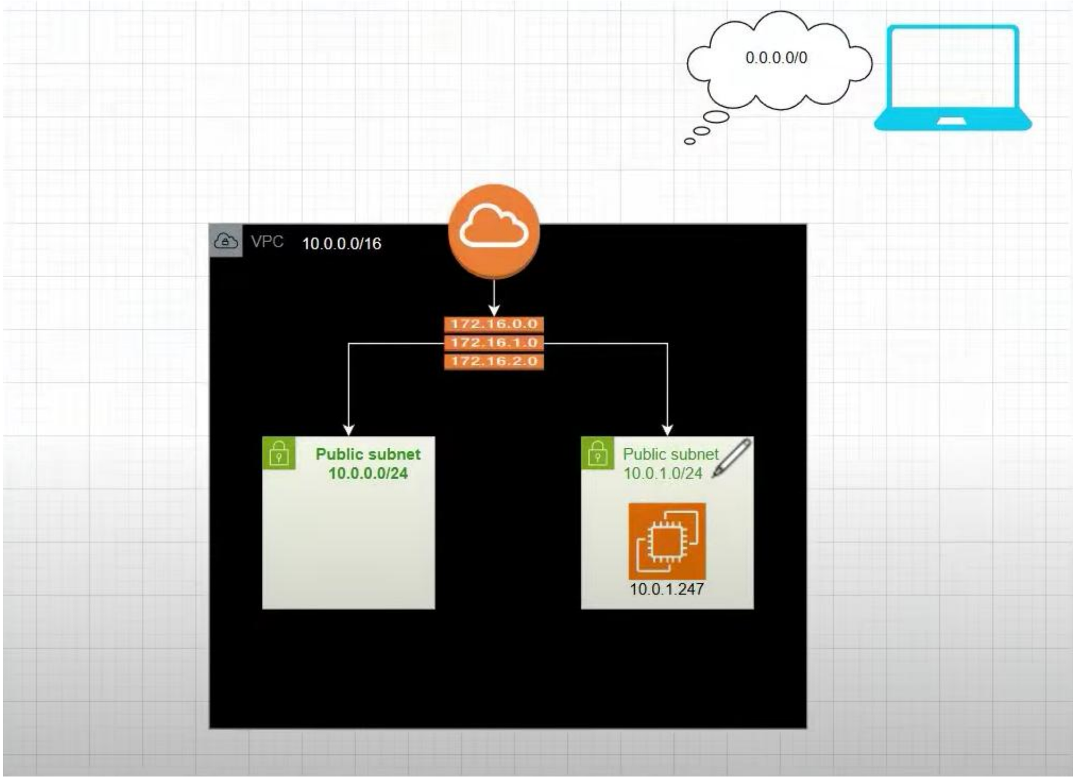
Architecture

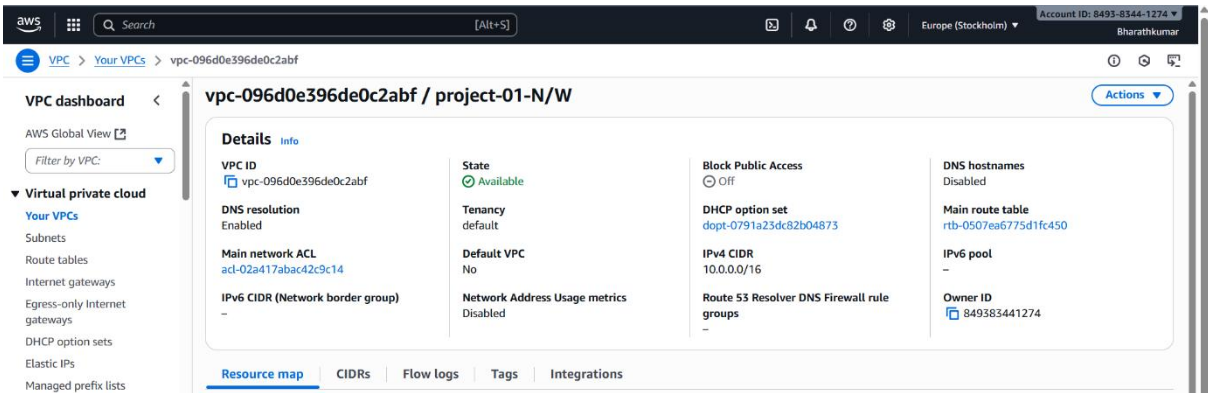
➔ Custom VPC → Public Subnets → EC2 Instance → Nginx Web Server

Technologies Used

- AWS VPC, EC2, Security Groups
- Amazon Linux 2023
- Nginx Web Server
- SSH Key Authentication

Architecture diagram





vpc-096d0e396de0c2abf / project-01-N/W

Details Info

VPC ID
vpc-096d0e396de0c2abf

State
Available

Block Public Access
Off

DNS hostnames
Disabled

DNS resolution
Enabled

Tenancy
default

DHCP option set
dopt-0791a23dc82b04873

Main route table
rtb-0507ea6775d1fc450

Main network ACL
acl-02a417abac42c9c14

Default VPC
No

IPv4 CIDR
10.0.0.0/16

IPv6 pool
–

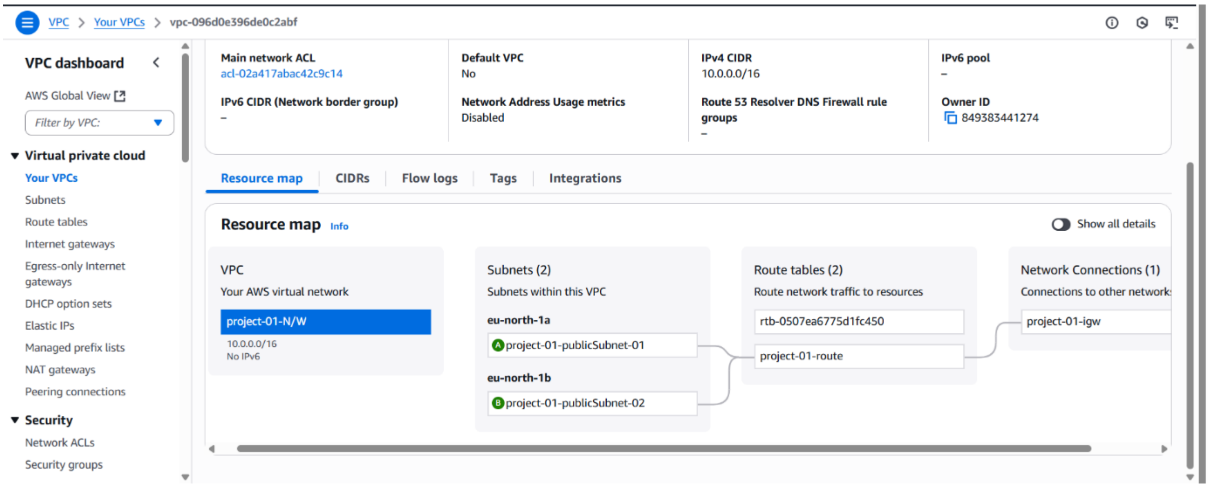
IPv6 CIDR (Network border group)
–

Network Address Usage metrics
Disabled

Route 53 Resolver DNS Firewall rule groups
–

Owner ID
849383441274

Resource map | CIDRs | Flow logs | Tags | Integrations



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Resource map | CIDRs | Flow logs | Tags | Integrations

Resource map Info

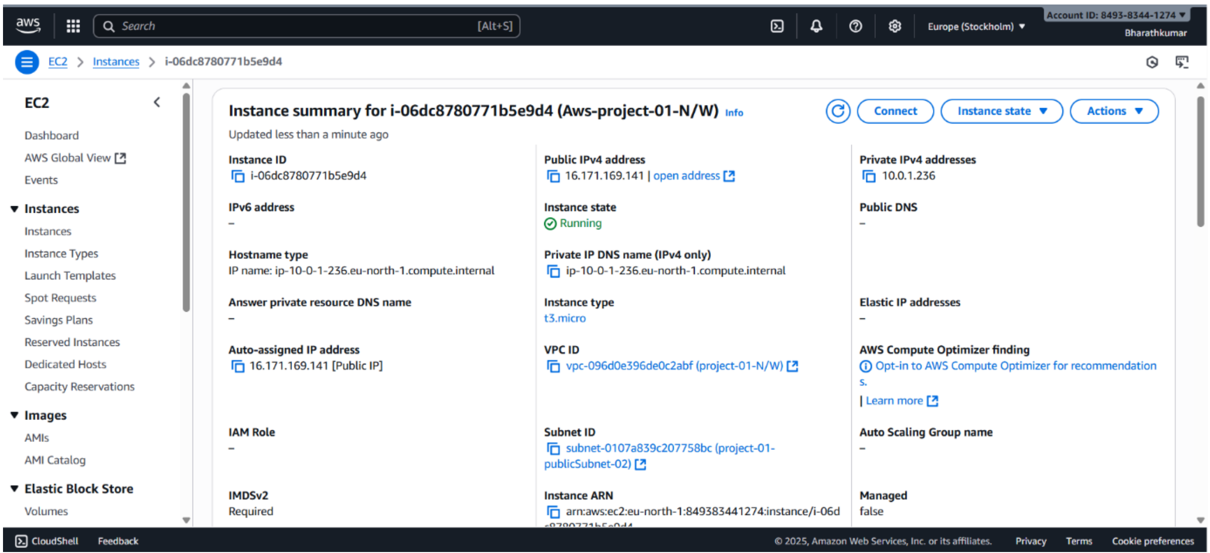
Show all details

VPC
Your AWS virtual network
project-01-N/W
10.0.0.0/16
No IPv6

Subnets (2)
Subnets within this VPC
eu-north-1a
project-01-publicSubnet-01
eu-north-1b
project-01-publicSubnet-02

Route tables (2)
Route network traffic to resources
rtb-0507ea6775d1fc450
project-01-route

Network Connections (1)
Connections to other network
project-01-igw



Instance summary for i-06dc8780771b5e9d4 (Aws-project-01-N/W) Info

Updated less than a minute ago

Instance ID
i-06dc8780771b5e9d4

Public IPv4 address
16.171.169.141 | open address

Private IPv4 addresses
10.0.1.236

IPv6 address
–

Instance state
Running

Public DNS
–

Hostname type
IP name: ip-10-0-1-236.eu-north-1.compute.internal

Private IP DNS name (IPv4 only)
ip-10-0-1-236.eu-north-1.compute.internal

Answer private resource DNS name
–

Instance type
t3.micro

Elastic IP addresses
–

Auto-assigned IP address
16.171.169.141 [Public IP]

VPC ID
vpc-096d0e396de0c2abf (project-01-N/W)

AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations.
| Learn more

IAM Role
–

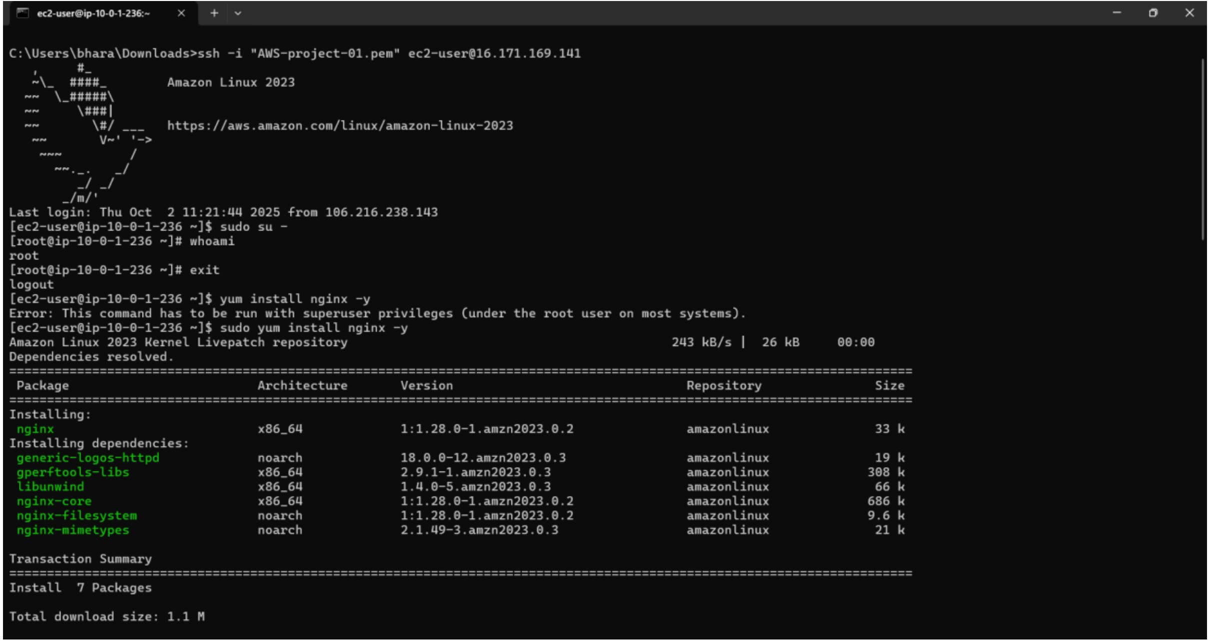
Subnet ID
subnet-0107a839c207758bc (project-01-publicSubnet-02)

Auto Scaling Group name
–

IMDSv2
Required

Instance ARN
arn:aws:ec2:eu-north-1:849383441274:instance/i-06d

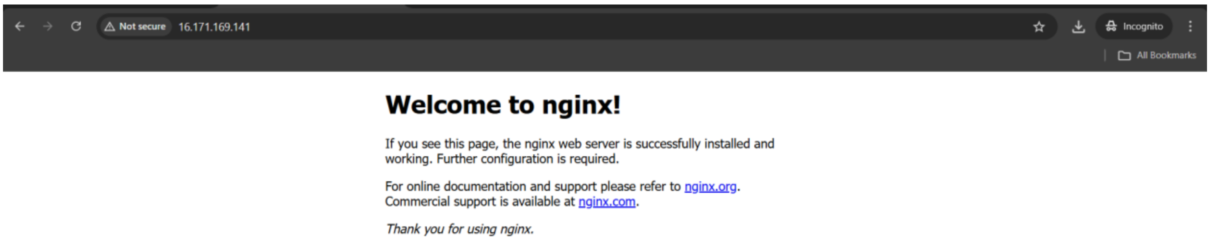
Managed
false



```
C:\Users\bhara\Downloads>ssh -i "AWS-project-01.pem" ec2-user@16.171.169.141
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
Last login: Thu Oct  2 11:21:44 2025 from 106.216.238.143
[ec2-user@ip-10-0-1-236 ~]$ sudo su -
[root@ip-10-0-1-236 ~]# whoami
root
[root@ip-10-0-1-236 ~]# exit
logout
[ec2-user@ip-10-0-1-236 ~]$ yum install nginx -y
Error: This command has to be run with superuser privileges (under the root user on most systems).
[ec2-user@ip-10-0-1-236 ~]$ sudo yum install nginx -y
Amazon Linux 2023 Kernel Livepatch repository                                           243 kB/s |  26 kB     00:00
Dependencies resolved.
========================================================================================================================
 Package                         Architecture       Version                               Repository               Size
========================================================================================================================
Installing:
 nginx                           x86_64             1:1.28.0-1.amzn2023.0.2               amazonlinux              33 k
Installing dependencies:
 generic-logos-httpd             noarch             18.0.0-12.amzn2023.0.3                amazonlinux              19 k
 gperftools-libs                 x86_64             2.9.1-1.amzn2023.0.3                  amazonlinux             308 k
 libunwind                       x86_64             1.4.0-5.amzn2023.0.3                  amazonlinux              66 k
 nginx-core                      x86_64             1:1.28.0-1.amzn2023.0.2               amazonlinux             686 k
 nginx-filesystem                noarch             1:1.28.0-1.amzn2023.0.2               amazonlinux             9.6 k
 nginx-mimetypes                 noarch             2.1.49-3.amzn2023.0.3                 amazonlinux              21 k

Transaction Summary
========================================================================================================================
Install  7 Packages

Total download size: 1.1 M
```



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.