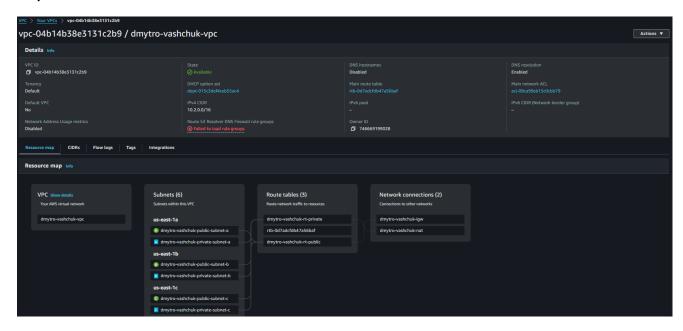
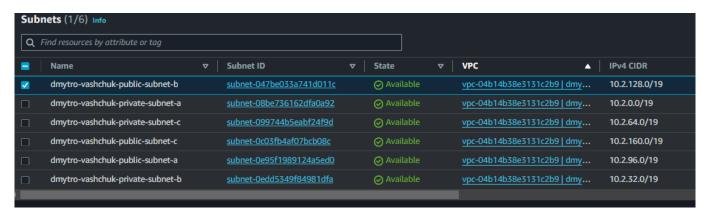
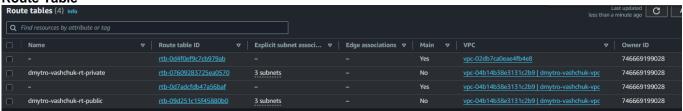
## Створення VPC



#### Публічна та приватна підмережі



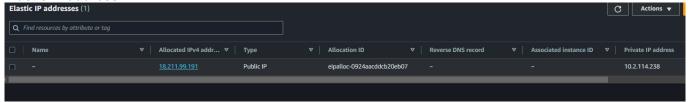
# **Route Table**



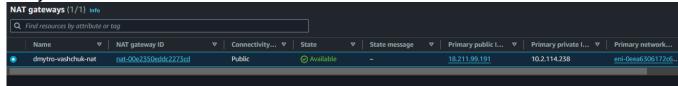
**Internet Gateways** 



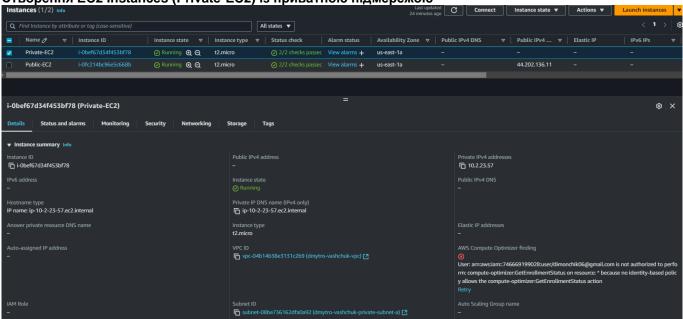
### **Elastic IP address**



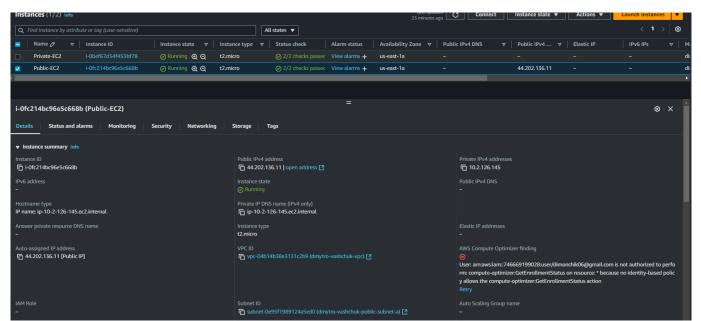
## **NAT Gateways**



Створення EC2 Instances (Private-EC2) із приватною підмережою



## Створення EC2 Instances (Public-EC2) із публічною підмережою



Підключення до Public-EC2 з хостової машини

```
Підключення до Public-EC2 3 хостової машини
dmytro@ubuntuserver:~$ chmod 400 /home/dmytro/MyKeyPair.pem
dmytro@ubuntuserver:~$ ssh -v -i /home/dmytro/MyKeyPair.pem ubuntu@44.202.136.11
OpenSSH_9.6p1 Ubuntu-3ubuntu13.5, OpenSSL 3.0.13 30 Jan 2024
debug1: Reading configuration data /etc/ssh/ssh_config
debug1: /etc/ssh/ssh_config line 19: include /etc/ssh/ssh_config.d/*.conf matched no files
debug1: /etc/ssh/ssh_config line 21: Applying options for *
debug1: Connecting to 44.202.136.11 [44.202.136.11] port 22.
debug1: Connection established.
debug1: identity file /home/dmytro/MyKeyPair.pem type -1
debug1: identity file /home/dmytro/MyKeyPair.pem-cert type -1
debug1: Local version string SSH-2.0-OpenSSH_9.6p1 Ubuntu-3ubuntu13.5
debug1: Remote protocol version 2.0, remote software version OpenSSH_9.6p1 Ubuntu-3ubuntu13.5
debug1: compat_banner: match: OpenSSH_9.6p1 Ubuntu-3ubuntu13.5 pat OpenSSH* compat 0x040000000
debug1: AuthenTicating to 44.202.136.11:22 as 'ubuntu'
```

ubuntu@ip-10-2-126-145:~\$ ssh -v -i /home/dmytro/MyKeyPair.pem ubuntu@10.2.23.57

**Примітка:** <u>Перед підключенням до Public-EC2, із хостової машини на Ubuntu був перекинутий файл МуКеуPair.pem після чого надані йому відповідні права</u>

#### Підключення до Private-EC2 з Public-EC2

```
ubuntu@ip-10-2-126-145:~$ ssh -v -i /home/dmytro/MyKeyPair.pem ubuntu@10.2.23.57
Warning: Identity file /home/dmytro/MyKeyPair.pem not accessible: No such file or directory.
OpenSSH_9.6p1 Ubuntu-3ubuntu13.5, OpenSSL 3.0.13 30 Jan 2024
debug1: Reading configuration data /etc/ssh/ssh_config
debug1: /etc/ssh/ssh_config line 19: include /etc/ssh/ssh_config.d/*.conf matched no files debug1: /etc/ssh/ssh_config line 21: Applying options for * debug1: Connecting to 10.2.23.57 [10.2.23.57] port 22.
debug1: Connection established.
                       ubuntu@ip-10-2-126-145:~$ ssh -i /home/ubuntu/MyKeyPair.pem ubuntu@10.2.23.57
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)
                         * Documentation: <a href="https://help.ubuntu.com">https://help.ubuntu.com</a>
                         * Management:
                                              https://landscape.canonical.com
                         * Support:
                                              https://ubuntu.com/pro
                         System information as of Mon Oct 21 20:52:42 UTC 2024
                          System load: 0.08 Processes: 104
Usage of /: 22.8% of 6.71GB Users logged in: 0
Memory usage: 19% IPv4 address for enX0: 10.2.23.57
                          Swap usage:
                        Expanded Security Maintenance for Applications is not enabled.
                        O updates can be applied immediately.
                       Enable ESM Apps to receive additional future security updates.
```

The list of available updates is more than a week old. To check for new updates run: sudo apt update

See https://ubuntu.com/esm or run: sudo pro status

ubuntu@ip-10-2-23-57:~\$ ping -c 4 google.com

The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/\*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

To run a command as administrator (user "root"), use "sudo <command>". See "man sudo\_root" for details.

#### Пінгуємо сайт google

```
ubuntu@ip-10-2-23-57:~$ ping -c 4 google.com
PING google.com (142.251.179.100) 56(84) bytes of data.
64 bytes from pd-in-f100.1e100.net (142.251.179.100): icmp_seq=1 ttl=57 time=2.29 ms
64 bytes from pd-in-f100.1e100.net (142.251.179.100): icmp_seq=2 ttl=57 time=1.92 ms
64 bytes from pd-in-f100.1e100.net (142.251.179.100): icmp_seq=3 ttl=57 time=2.30 ms

^C--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.924/2.171/2.298/0.174 ms
```

#### Для тесту запустимо оновлення

```
ubuntu@ip-10-2-23-57:~$ sudo apt update
Hit:1 <u>http://us-east-1.ec2.archive.ubuntu.com/ubuntu</u> noble InRelease
ubuntu@ip-10-2-23-57:~$ sudo apt update
Hit: http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [3871 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [301 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-multiverse amd64 Components [35.0 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [35.0 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [146 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [10.2 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [10.2 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [10.2 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [10.2 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/miverse amd64 Packages [598 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/miverse amd64 Components 
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.7 kB] Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B] Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B] Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B] Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B] Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B] Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.6 kB] Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.8 kB] Get:37 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [21.2 kGet:38 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [21.2 kGet:40 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Conponents [212 Get:41 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 Get:42 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 C-n-f Metadata [Get:41 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 C-n-f Metadata [Get:42 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [212 Get:43 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [51.9 kB] Get:44 http://security.ubuntu.com/ubuntu noble-security/universe amd64 C-n-f Metadata [13.5 kB] Get:46 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B] Get:47 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B] Get:51 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B] Get:52 http://security.ubuntu.com/ubuntu noble-se
         Reading package tists... Done

Reading state information... Done

26 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-10-2-23-57:~$ ■
```