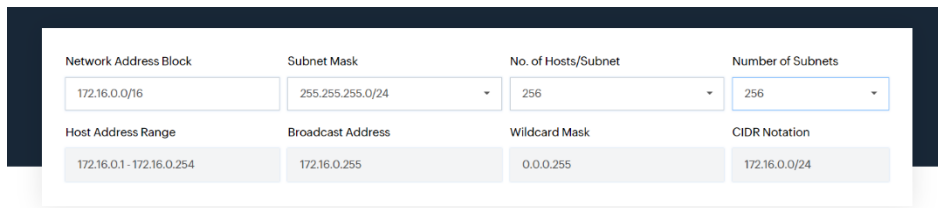


# Networking-Project

1- Create VPC that can have 256 subnet and each subnet can have 256 IP and Name it (Lab-VPC) in Riyadh Region.



The screenshot shows the AWS VPC configuration console. The 'Network Address Block' is set to 172.16.0.0/16. The 'Subnet Mask' is set to 255.255.255.0/24. The 'No. of Hosts/Subnet' is set to 256. The 'Number of Subnets' is set to 256. Below these fields, the 'Host Address Range' is 172.16.0.1 - 172.16.0.254, the 'Broadcast Address' is 172.16.0.255, the 'Wildcard Mask' is 0.0.0.255, and the 'CIDR Notation' is 172.16.0.0/24.

Network Address Block	Subnet Mask	No. of Hosts/Subnet	Number of Subnets
172.16.0.0/16	255.255.255.0/24	256	256

Host Address Range	Broadcast Address	Wildcard Mask	CIDR Notation
172.16.0.1 - 172.16.0.254	172.16.0.255	0.0.0.255	172.16.0.0/24

2- Create 2 Vswitch in (Lab-VPC) in Zone A and name first Vswitch (Public-VSwitch-A) and second Vswitch (Private-Vswitch-A).

3- Repeat Task 2 , Create 2 Vswitch in (Lab-VPC) in Zone B and name first Vswitch (Public-VSwitch-B) and second Vswitch (Private-Vswitch-B).

4-Create Security Group that has 2 rule and name it (SecGro) :

rule 1 :allow| Protocol type (All ICMP IPv4) | Source (0.0.0.0/0).

rule 2 : allow| Protocol type (Custom TCP) |Port range (SSH 22) | Source (0.0.0.0/0).

5- Create ECS Instance inside (Private-Vswitch-A) with configuration and name it (Private-ECS):

Billing Method: Pay-as-you-go .

Region : Zone A .

Instance Type : (General Purpose Type g6 ).

Image : Public Image | ubuntu | 22.04 64bit .

Click Next at buttom .

Network Type : Select Lab-VPC | (Private-Vswitch-A).

Public IP Address : don't check Assign Public IPv4 Address.

Security Group : Select SecGro.

Click Next at buttom .

Logon Credentials : select Password | logon Username choose root| in logon password choose your password.

Click Next at buttom untill appear Create insance and click on it.

6- Create ECS Instance inside (Public-Vswitch-B) with configuration and name it (Public-ECS):

Billing Method: Pay-as-you-go .

Region : Zone B .

Instance Type : (General Purpose Type g6 ).

Image : Public Image | ubuntu | 22.04 64bit

Click Next at buttom

Network Type : Select Lab-VPC | (Public-Vswitch-B).

Public IP Address : check box Assign Public IPv4 Address.

Security Group : Select SecGro.

Click Next at buttom .

Logon Credentials : select Password | logon Username choose root| in logon password choose your password.  
Click Next at bottom untill appear Create insance and click on it .

7- Connect to Private-ECS through VNC .

8- After login to Private\_ECS :

- Enter: (ping alibabacloud.sa) command and take screenshot of output .
- Enter: (ping "PRIVATE IP OF Public-ECS") command and take screenshot of output.

```
root@i214vbdz5kac10hftk3gx82:~# ping alibabacloud.sa
PING alibabacloud.sa (95.177.164.12) 56(84) bytes of data.

^C
--- alibabacloud.sa ping statistics ---
17 packets transmitted, 0 received, 100% packet loss, time 16390ms

root@i214vbdz5kac10hftk3gx82:~#
```

```
root@i214vbdz5kac10hftk3gx82:~# ping 172.16.3.206
PING 172.16.3.206 (172.16.3.206) 56(84) bytes of data.
64 bytes from 172.16.3.206: icmp_seq=1 ttl=64 time=1.14 ms
64 bytes from 172.16.3.206: icmp_seq=2 ttl=64 time=0.957 ms
64 bytes from 172.16.3.206: icmp_seq=3 ttl=64 time=0.971 ms
64 bytes from 172.16.3.206: icmp_seq=4 ttl=64 time=0.966 ms
64 bytes from 172.16.3.206: icmp_seq=5 ttl=64 time=0.964 ms
```

9- Connect to Public-ECS through VNC :

- Enter: (ping alibabacloud.sa) command and take screenshot of output.
- Enter: (ping "PRIVATE IP OF Private-ECS") command and take screenshot of output.

```
root@i214v9mcb8raymwo39tc2:~# ping alibabacloud.sa
PING alibabacloud.sa (95.177.164.12) 56(84) bytes of data.
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=1 ttl=243 time=17.4 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=2 ttl=243 time=16.0 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=3 ttl=243 time=16.1 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=4 ttl=243 time=16.2 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=5 ttl=243 time=15.8 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=6 ttl=243 time=15.9 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=7 ttl=243 time=16.1 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=8 ttl=243 time=16.2 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=9 ttl=243 time=15.9 ms
^C
-- alibabacloud.sa ping statistics --
9 packets transmitted, 9 received, 0% packet loss, time 8010ms
rtt min/avg/max/mdev = 15.798/16.168/17.364/0.439 ms
root@i214v9mcb8raymwo39tc2:~# ping 172.16.1.217
```

```
root@i214v9mcb8raymwo39tc2:~# ping 172.16.1.217
PING 172.16.1.217 (172.16.1.217) 56(84) bytes of data.
64 bytes from 172.16.1.217: icmp_seq=1 ttl=64 time=1.14 ms
64 bytes from 172.16.1.217: icmp_seq=2 ttl=64 time=0.975 ms
64 bytes from 172.16.1.217: icmp_seq=3 ttl=64 time=0.983 ms
64 bytes from 172.16.1.217: icmp_seq=4 ttl=64 time=0.985 ms
64 bytes from 172.16.1.217: icmp_seq=5 ttl=64 time=0.981 ms
64 bytes from 172.16.1.217: icmp_seq=6 ttl=64 time=0.984 ms
64 bytes from 172.16.1.217: icmp_seq=7 ttl=64 time=0.986 ms
64 bytes from 172.16.1.217: icmp_seq=8 ttl=64 time=0.978 ms
64 bytes from 172.16.1.217: icmp_seq=9 ttl=64 time=0.986 ms
^C
~
```

10- Create internet Nat Gateway to allow private instances to access internet :

- Enter: (ping alibabacloud.sa) command and take screenshot of output.

```
root@i214vbdz5kac10hftk3gx82:~# ping alibabacloud.sa
PING alibabacloud.sa (95.177.164.12) 56(84) bytes of data.
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=1 ttl=243 time=17.6 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=2 ttl=243 time=16.5 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=3 ttl=243 time=16.5 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=4 ttl=243 time=20.9 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=5 ttl=243 time=16.4 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=6 ttl=243 time=17.0 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=7 ttl=243 time=16.5 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=8 ttl=243 time=16.3 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=9 ttl=243 time=17.1 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=10 ttl=243 time=16.3 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=11 ttl=243 time=16.7 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=12 ttl=243 time=16.6 ms
64 bytes from 95.177.164.12 (95.177.164.12): icmp_seq=13 ttl=243 time=16.4 ms
^C
-- alibabacloud.sa ping statistics --
13 packets transmitted, 13 received, 0% packet loss, time 12013ms
rtt min/avg/max/mdev = 16.284/16.989/20.952/1.170 ms
root@i214vbdz5kac10hftk3gx82:~#
```