AWS SimuLearn: Connecting VPCs

ÍNDICE

Introducción

Descripción:

En esta actividad, vamos a explorar cómo configurar la conectividad entre VPCs en AWS. A través de un ejercicio práctico, aprenderemos a establecer VPC Peering para

optimizar la comunicación entre departamentos en un entorno simulado.

Objetivo:

El objetivo es entender cómo funciona el aislamiento lógico de redes en AWS utilizando VPCs. Configuraremos y probaremos conexiones de VPC Peering, lo que permitirá una comunicación efectiva entre redes privadas. Además, analizaremos las implicaciones de conectar diferentes VPCs dentro de una organización para mejorar la colaboración y la eficiencia operativa.

- Entender cómo funciona el aislamiento de redes en AWS usando VPCs.
- Configurar y probar VPC Peering para conectar redes privadas de forma segura.
- Analizar los efectos de interconectar distintas VPCs en una organización.

Audiencia:

Esta actividad está diseñada para TI, arquitectos cloud y sysadmins que quieran profundizar en redes AWS y llevar sus habilidades al siguiente nivel.

Contexto del Cliente

Ben Hertz, Director de Marketing de la ciudad, nos plantea el desafío de mejorar la conectividad entre los departamentos. Actualmente, cada área (Marketing, Desarrollo y Finanzas) opera sus aplicaciones en VPCs separadas. Aunque esta estructura aporta orden, también genera barreras: los equipos de Marketing y Desarrollo necesitan los reportes financieros para avanzar en su trabajo, pero deben solicitar acceso mediante tickets, lo que ralentiza los procesos y afecta la productividad. Estamos buscando una solución que elimine estos obstáculos y potencie la colaboración entre los equipos.

Solución Propuesta: VPC Peering

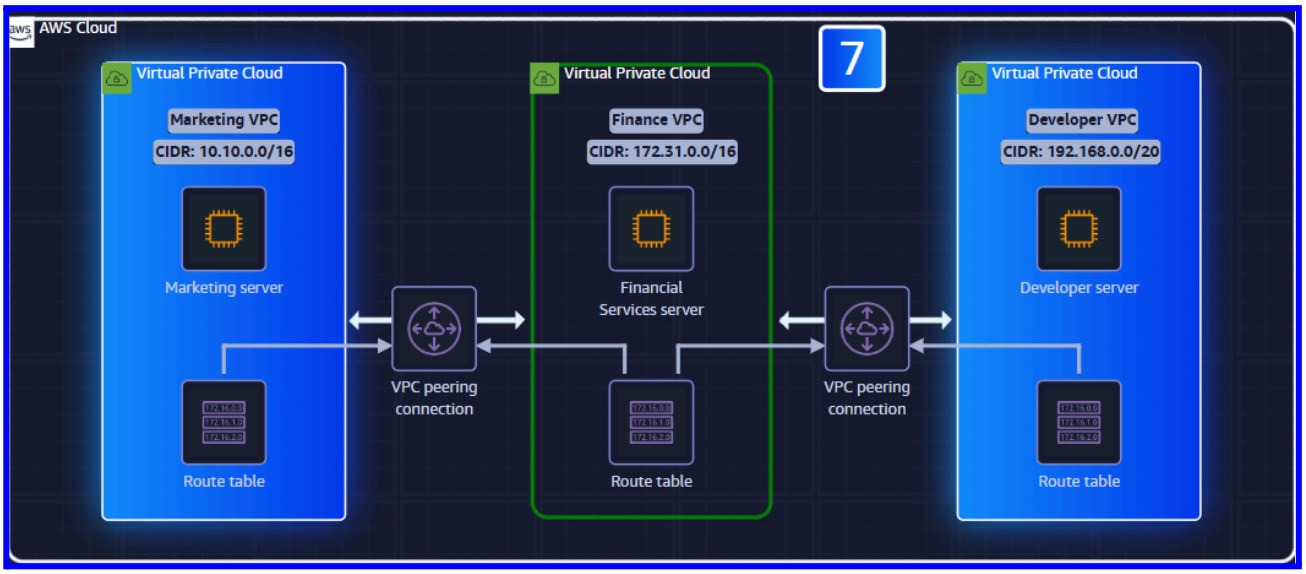
Para resolver las necesidades de conectividad, AWS ofrece VPC Peering, una funcionalidad que permite interconectar redes privadas (VPCs) usando direcciones IP privadas. Esto asegura un acceso directo entre redes sin comprometer la seguridad, ya que los datos no se exponen a Internet.

- Conexión segura y eficiente: Las VPCs pueden comunicarse directamente sin depender de una conexión VPN.
- Limitación en la conectividad: El tráfico no es transitivo. Por ejemplo, si Marketing se conecta a Finanzas, y Desarrollo también se conecta a Finanzas, no habrá

comunicación directa entre Marketing y Desarrollo a menos que se configure una conexión adicional.

- Versatilidad: Permite conectar VPCs dentro de la misma cuenta de AWS o entre diferentes cuentas

Descripción técnica:



En esta imagen vemos la arquitectura de AWS Cloud con tres Virtual Private Clouds (VPCs) independientes, cada una representando un departamento clave: Marketing, Finanzas y Desarrollo.

Cada VPC tiene:

Su propio espacio de direcciones IP privadas (CIDR):

- Marketing: 10.10.0.0/16 (¡un rango amplio para campañas y datos!).
- Finanzas: 172.31.0.0/16 (protegido como una caja fuerte).
- Desarrollo: 192.168.0.0/20 (ideal para entornos flexibles).

Servidores dedicados: Cada VPC tiene sus propios recursos (ej. "Marketing Server", "Financial Services Server").

Tablas de ruteo (Route Tables): Como mapas internos que definen cómo viaja la información dentro de cada VPC.

Procedimiento

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Observar el entorno

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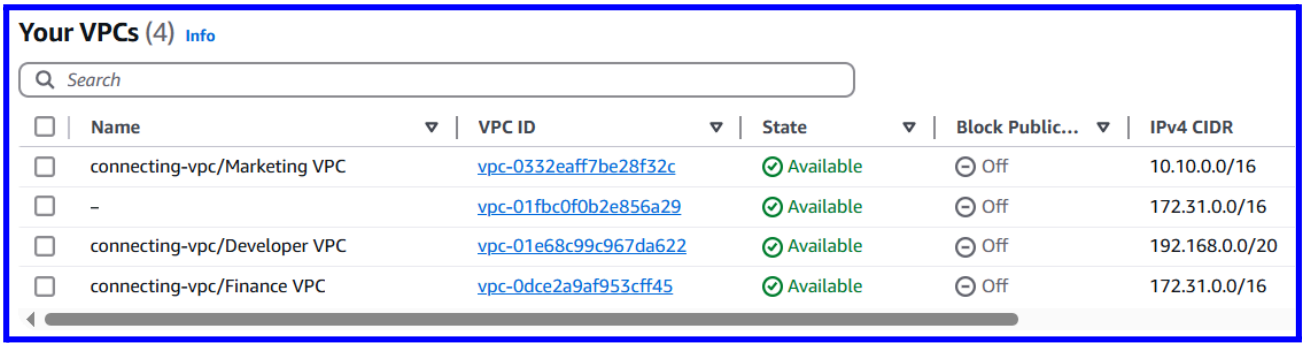
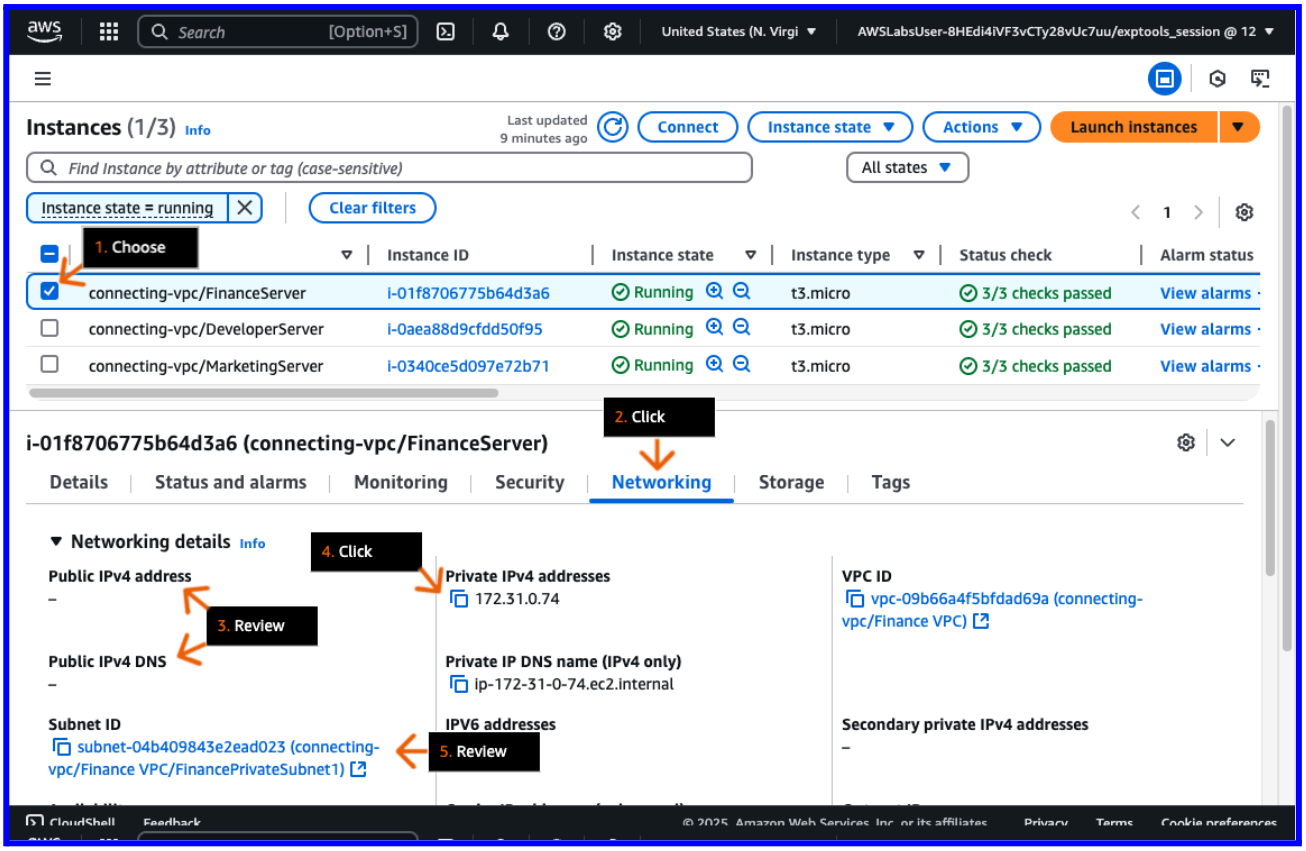




1. In the Instances section, choose the check box to select the FinanceServer instance.

2. Below that section, click the Networking tab.

3. Review to see that no Public IPv4 address or Public IPv4DNS is populated.

- An instance created in a private subnet has no public addresses.

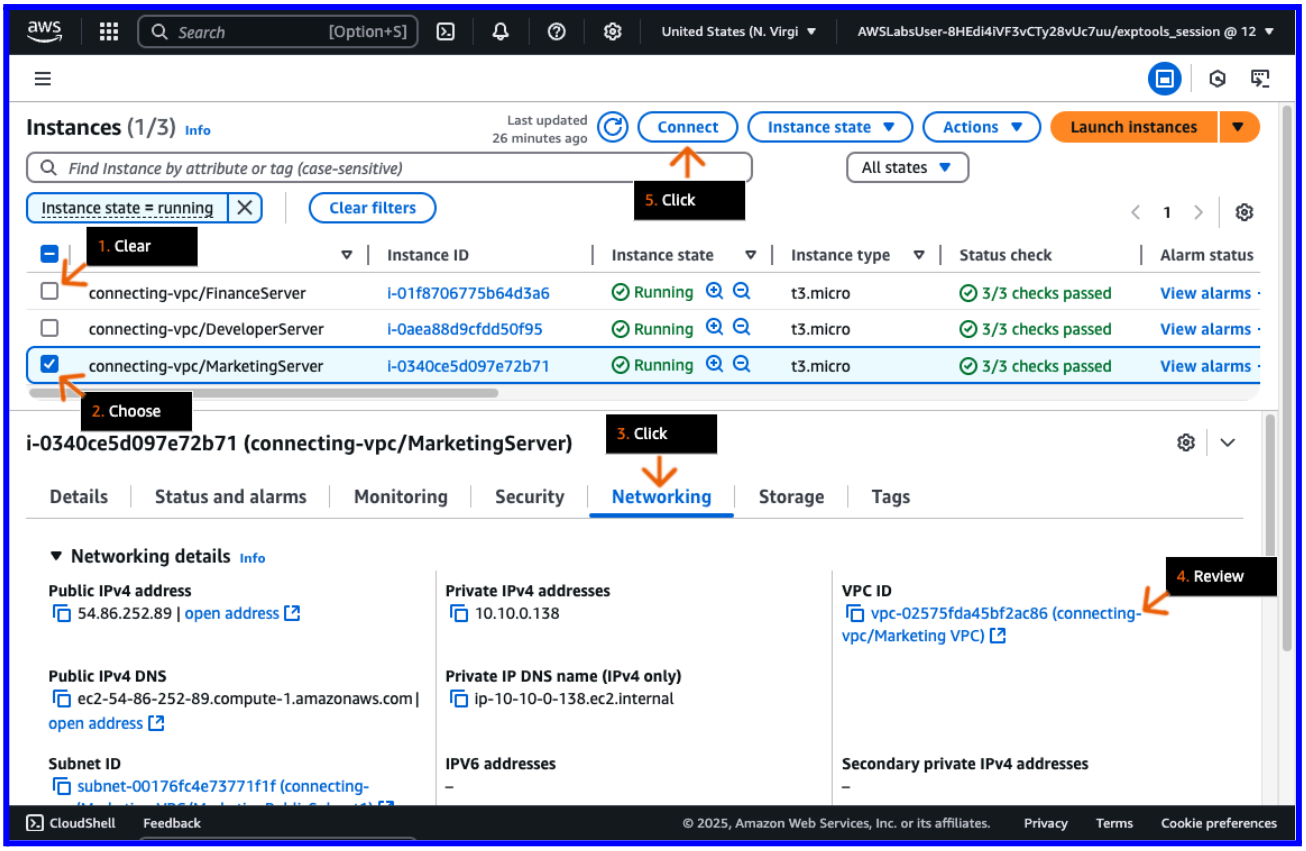
4. Under Private IPv4 addresses, click the copy icon to copy the provided IP address, and then paste it in the text editor of your choice on your device.

- You use this address in later steps.

5. Under Subnet ID, review the provided ID.

6. Go to the next step.

IP : 172.31.0.22



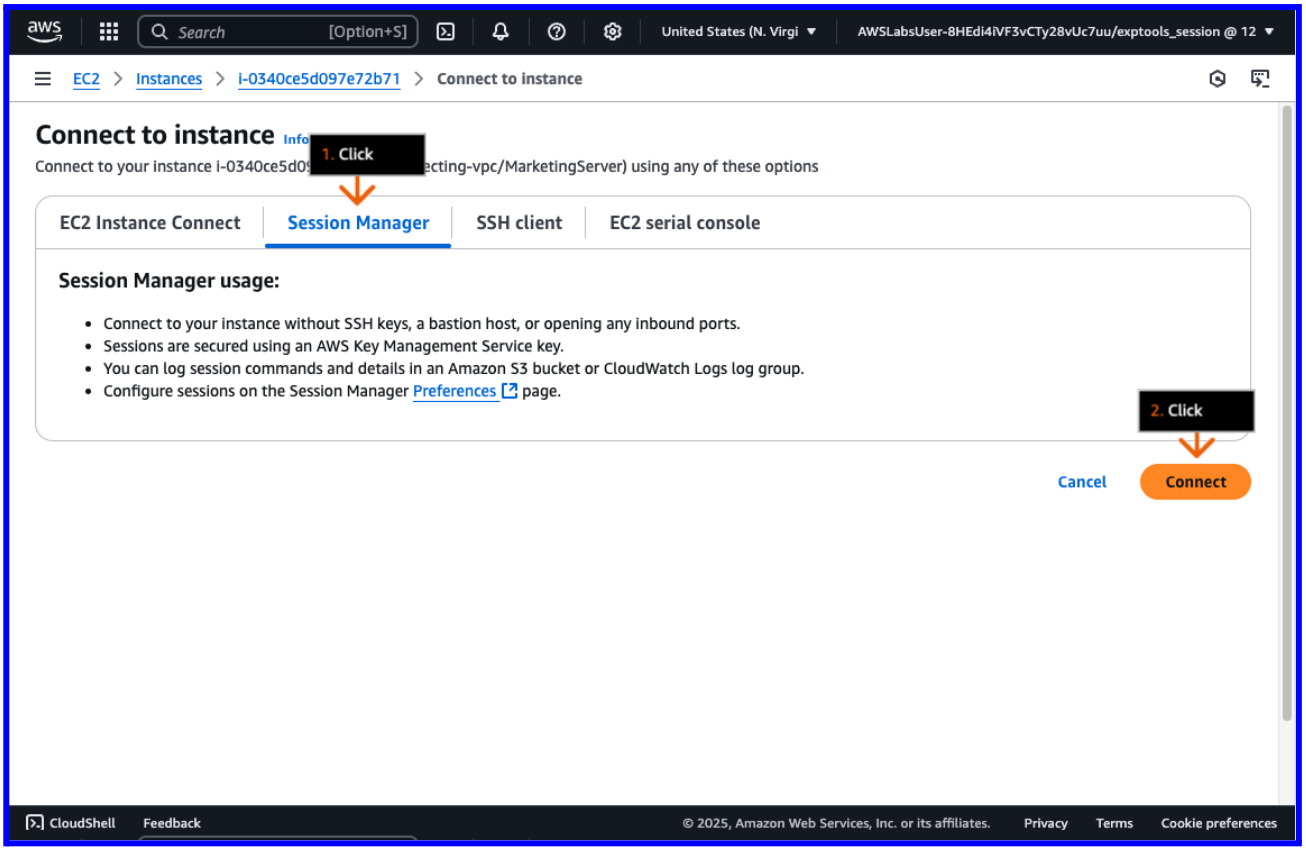
1. In the Instances section, clear the check box to deselect the FinanceServer instance.

2. Choose the MarketingServer instance.

3. Below that section, on the Networking tab, under VPC ID, review the VPC that the MarketingServer instance belongs to.

4. At the top of the Instances section, click Connect.

5. Go to the next step.

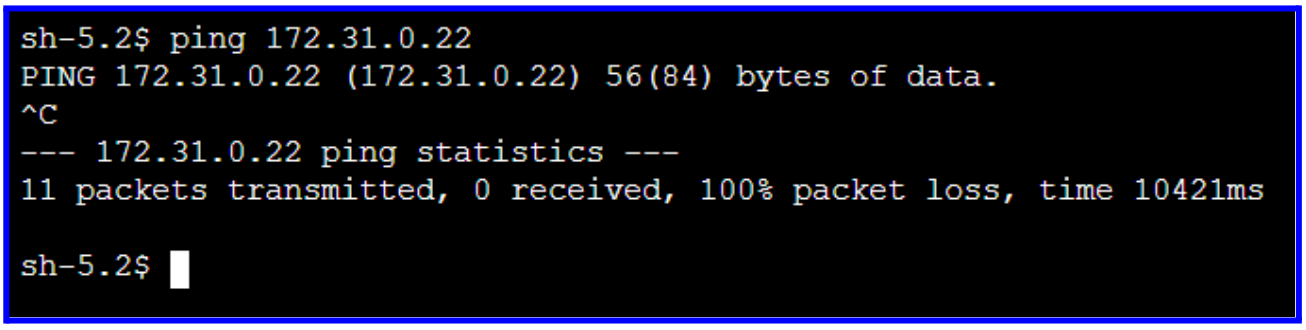


1. Click the Session Manager tab.

2. Click Connect.

- The Session Manager terminal for the MarketingServer instance opens in a new browser tab (or window).

3. Go to the next step.



1. In the Session Manager terminal window, replacing the current IP address with the IP address of the FinanceServer that you copied in an earlier step, run (type the

command and press Enter):

ping 172.31.x.xx

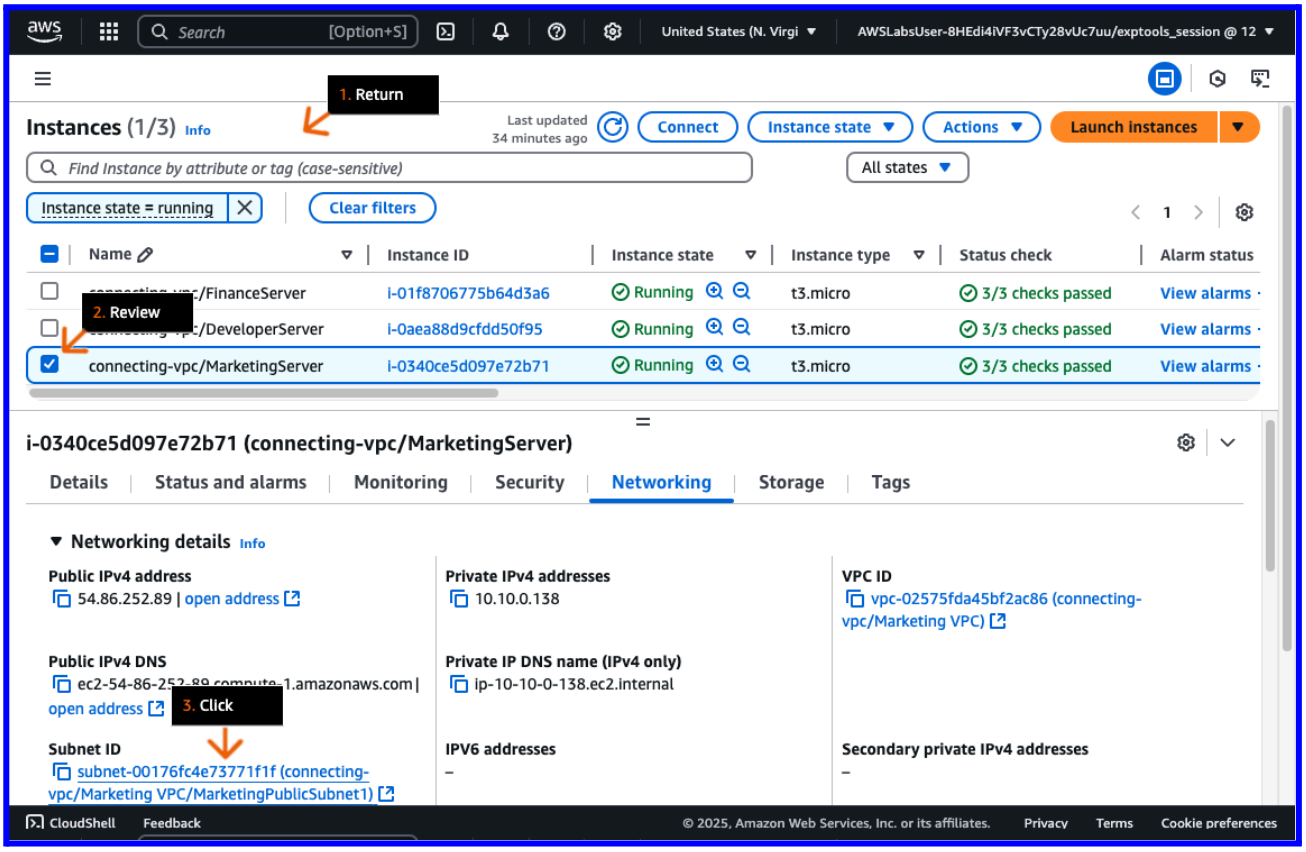
- This command checks the connection to the FinanceServer instance.

2. Review to see that your command hangs, and there is no connection. There is no error alert.

- Because the FinanceServer instance uses only a private IP address, VPCs cannot establish routing paths to destinations outside their local private IP range.

3. To exit the running process, on your keyboard, press Ctrl+C.

4. Go to next the step.

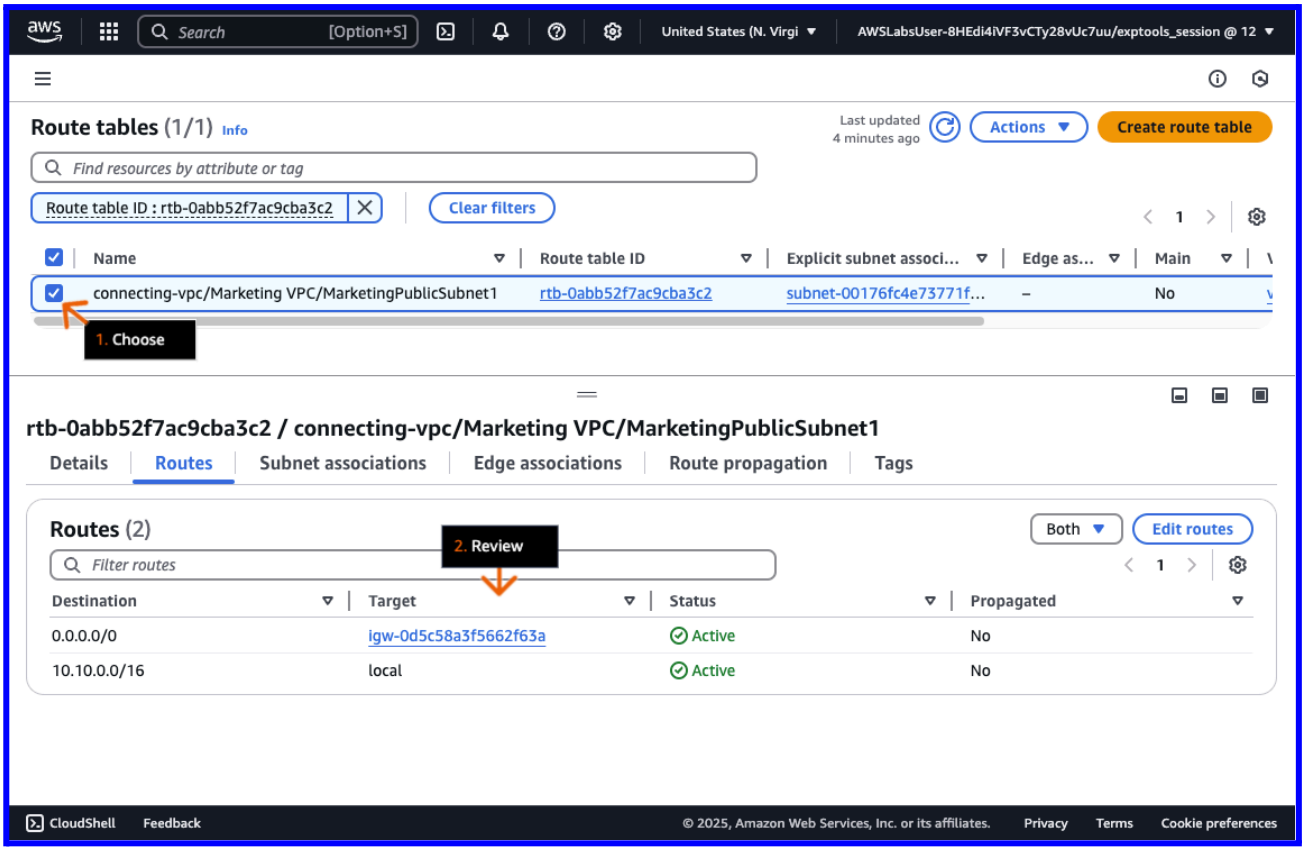


1. Return to the Amazon EC2 console browser tab.

2. Review to confirm that the MarketingServer instance is still selected.

3. On the Networking tab, under Subnet ID, click the ID for MarketingPublicSubnet1.

4. Go to the next step.



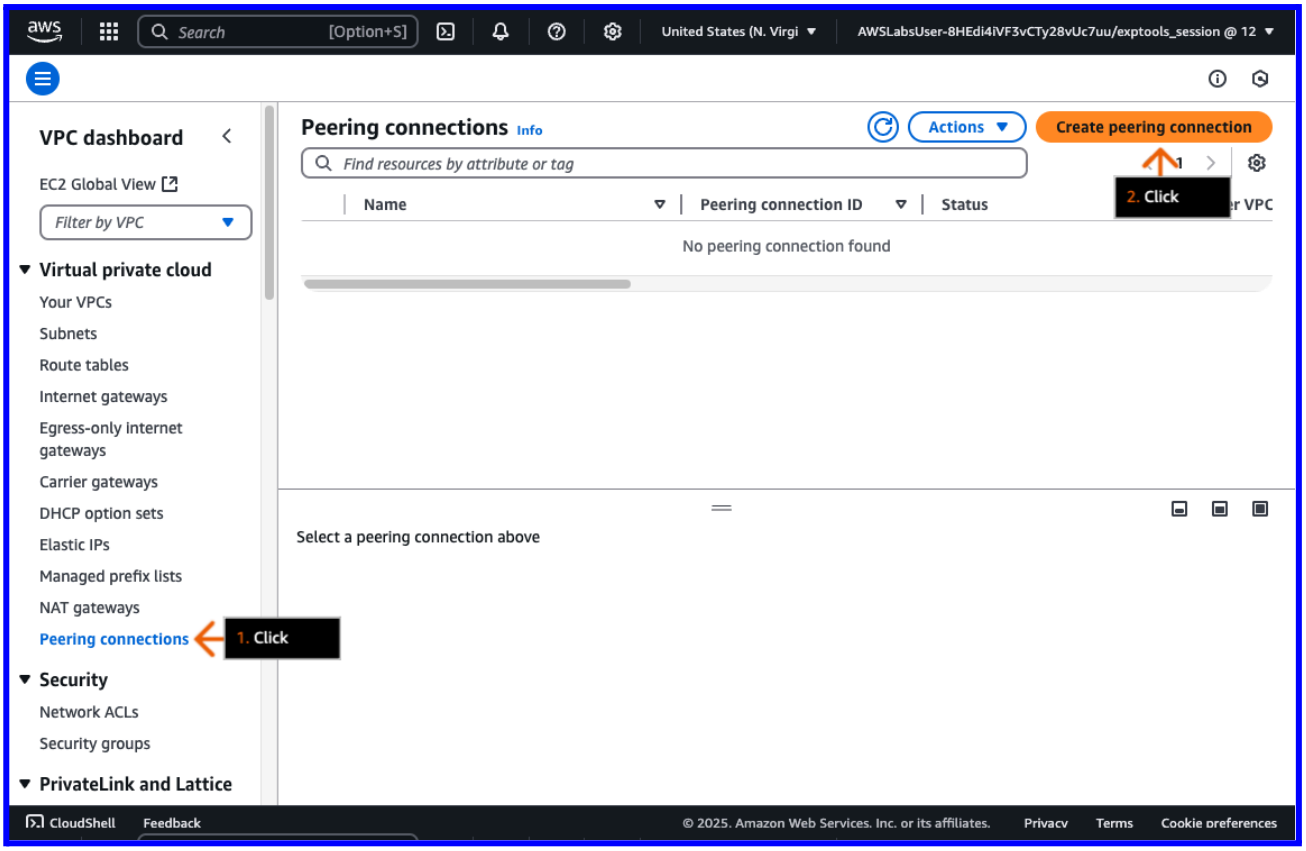
1. In the Route tables section, choose the available Marketing route table.

2. On the Routes tab, review the routing rules.

- Two routes should be displayed: one route for local traffic and one route for internet traffic through the internet gateway.

3. Go to the next step.

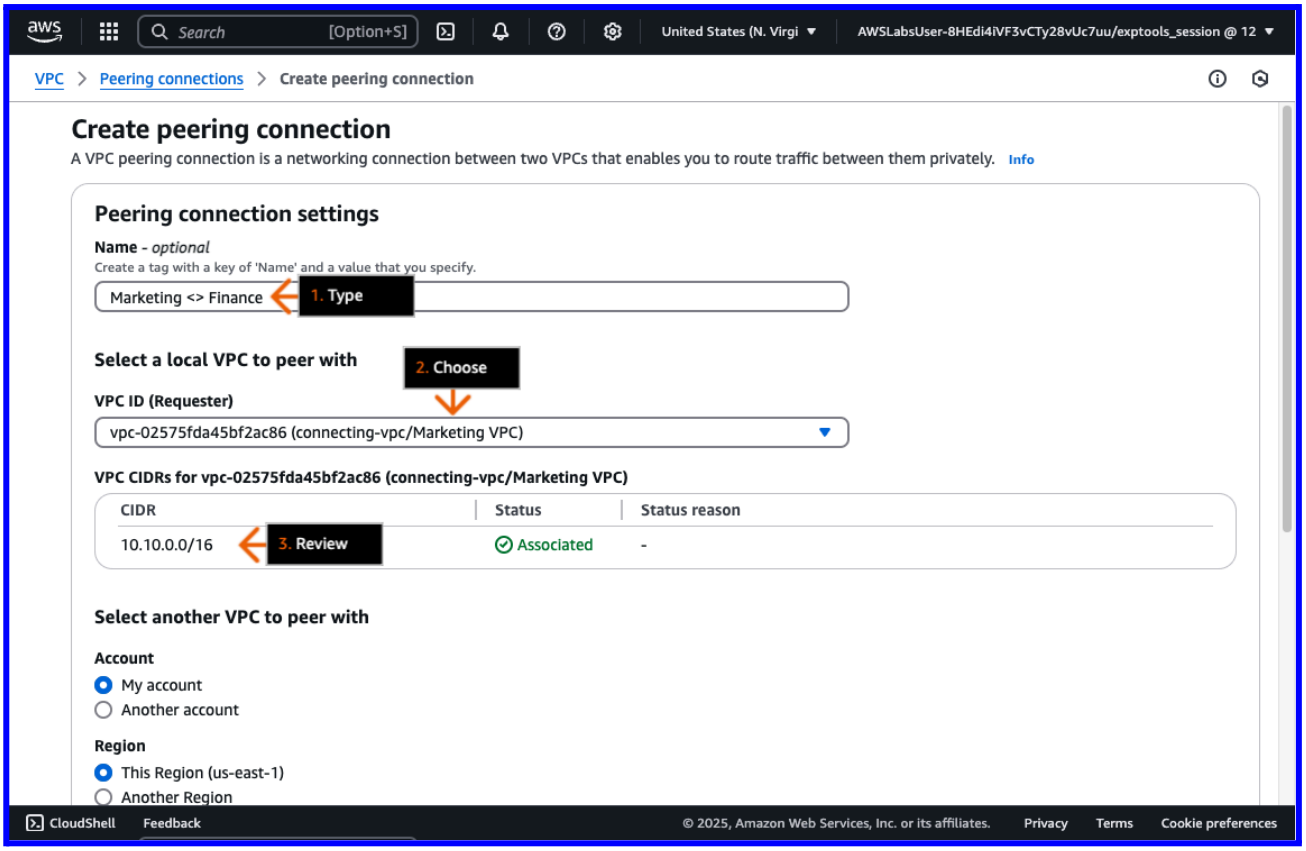
Target: igw-0e180def4bd9e2cea



1. In the left navigation pane, click Peering connections.

2. In the Peering connections section, click Create peering connection.

3. Go to the next step.



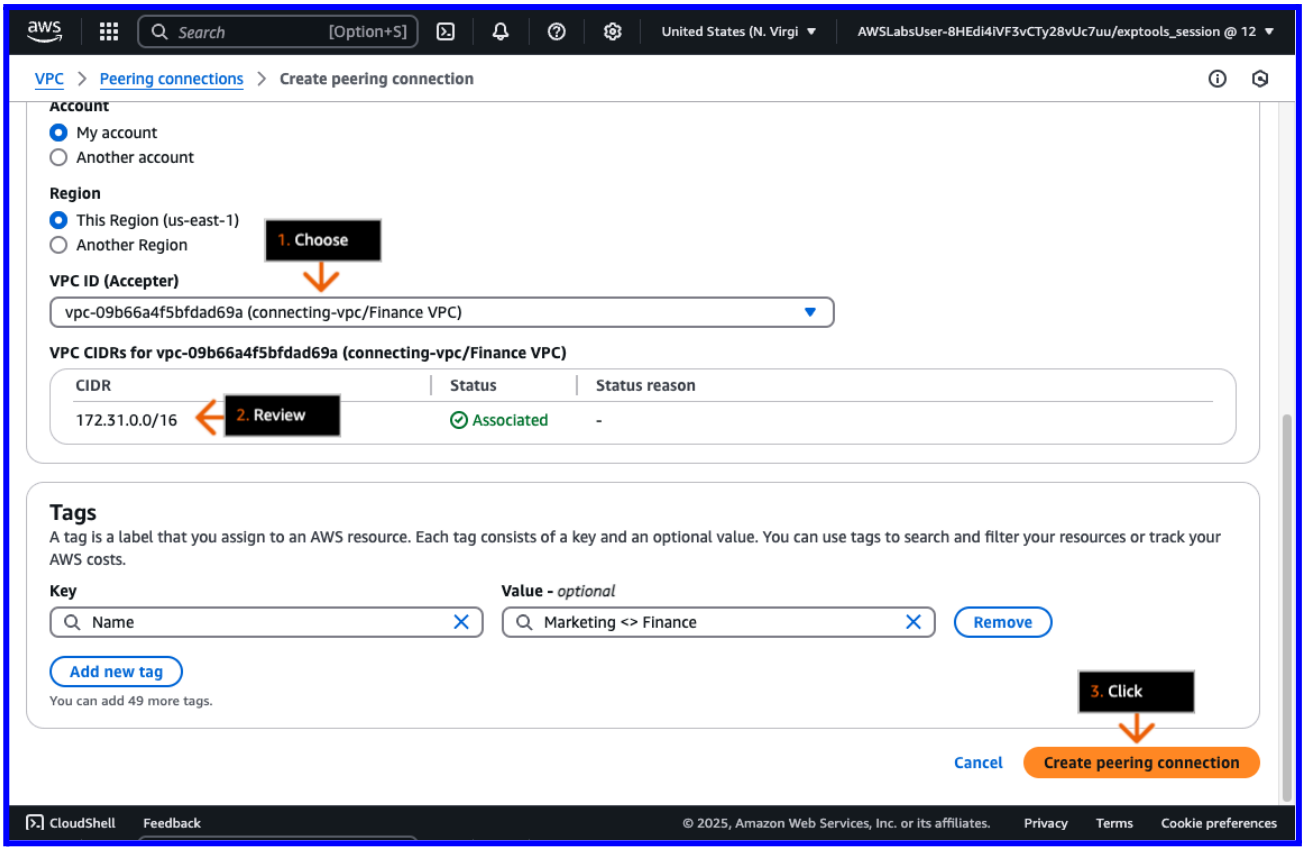
1. In the Peering connection settings section, for Name, type:

Marketing <> Finance

2. For VPC ID (Requester), on the dropdown list, choose the Marketing VPC.

3. For VPC CIDRs, review to confirm that the Marketing VPC has 10.10.0.0/16 as its CIDR range.

4. Go to the next step.

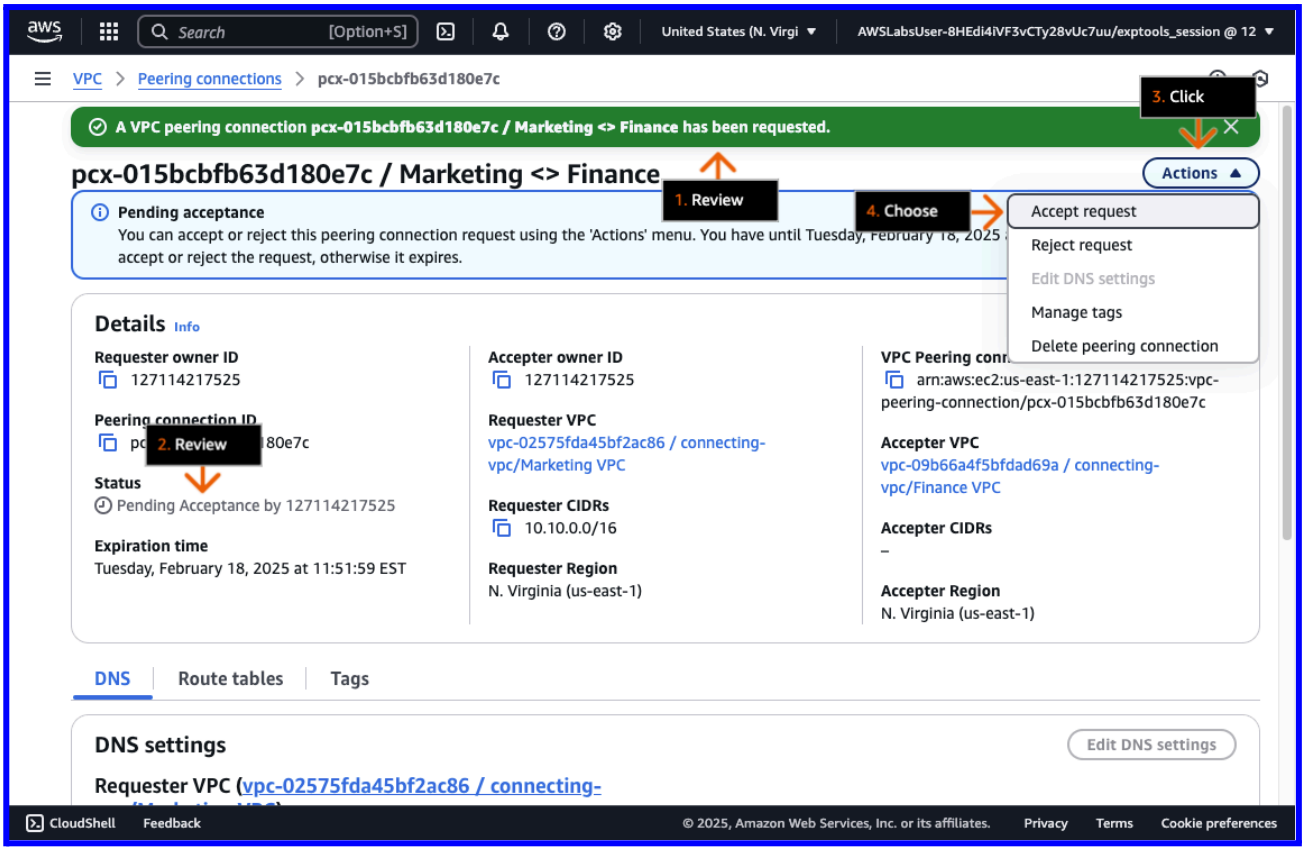


1. For VPC ID (Accepter), choose the Finance VPC.

2. For VPC CIDRs, review to confirm that the Finance VPC has 172.31.0.0/16 as its CIDR range.

3. Click Create peering connection.

4. Go to the next step.



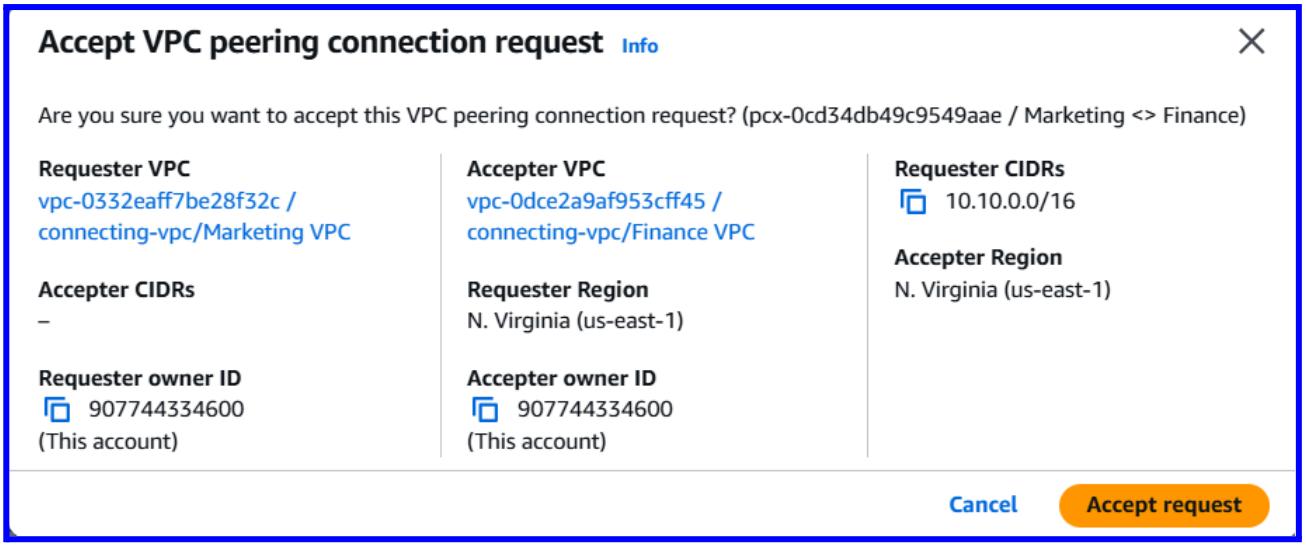
1. In the success alert, review the message.

2. Under Status, review to confirm that the status is Pending Acceptance.

3. Click Actions to expand the dropdown list.

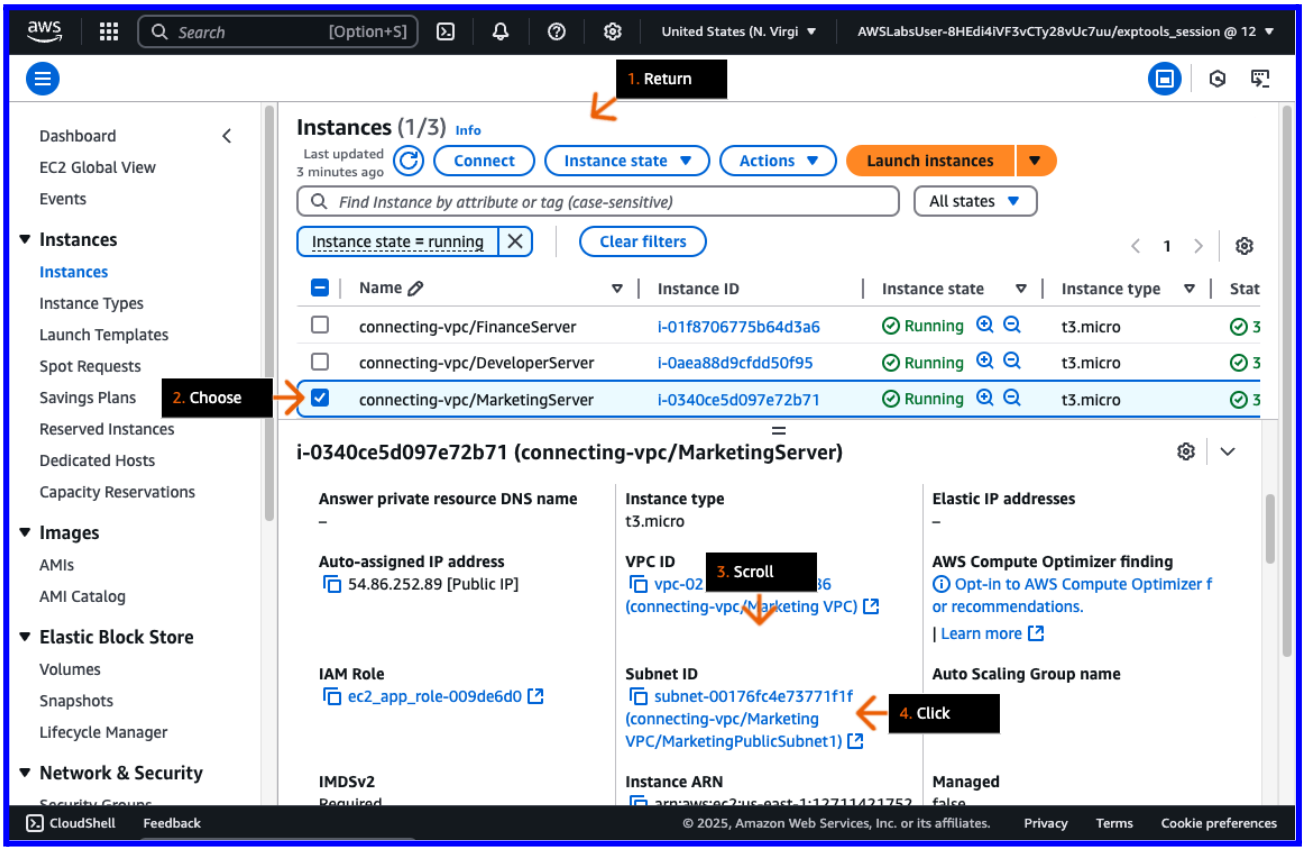
4. Choose Accept request.

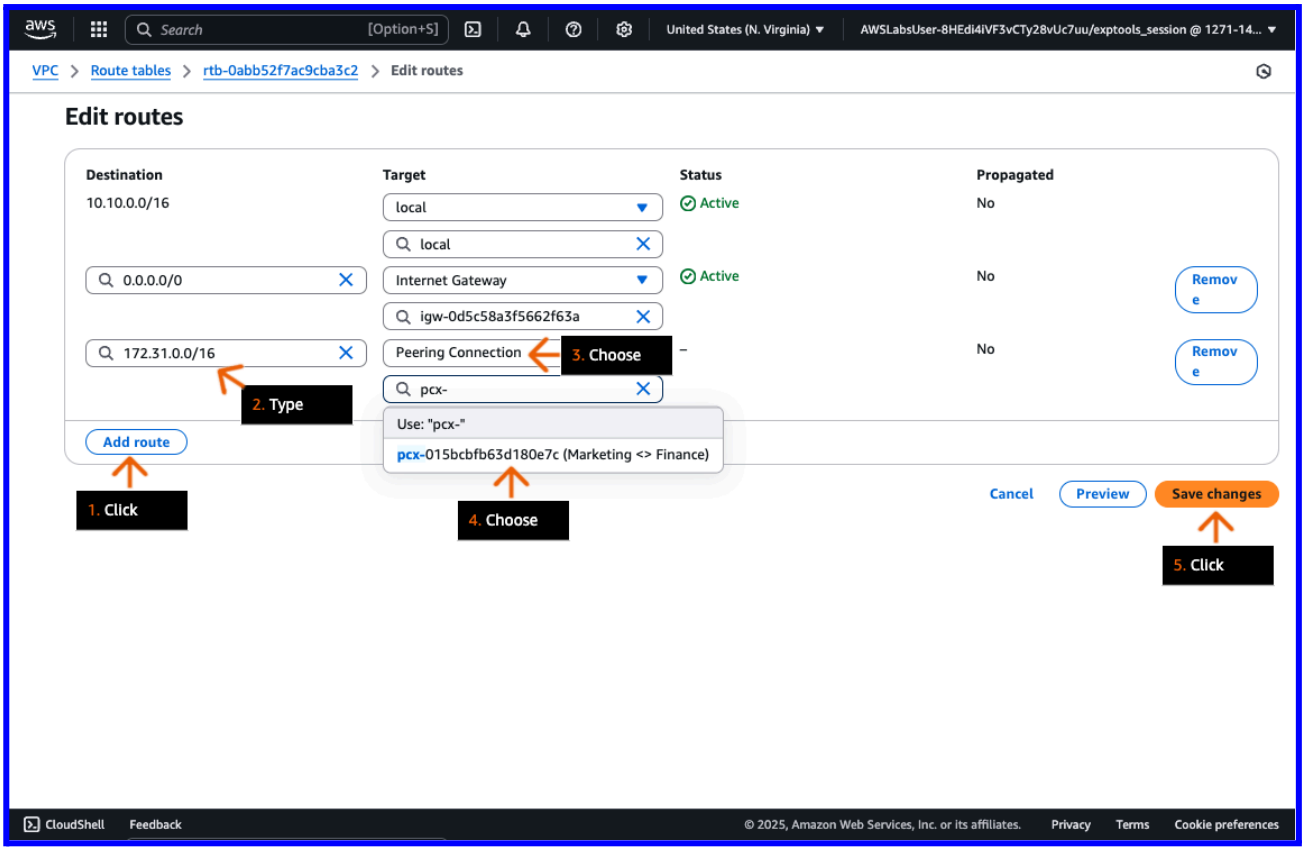
5. Go to the next step.



1. In the pop-up box, click Accept request.

2. Go to the next step.




VPC > Route tables > rtb-0abb52f7ac9cba3c2 > Edit routes
Edit routes
Destination
Target
Status
Propagated
10.10.0.0/16
local
Active
No
0.0.0.0/0
Internet Gateway
Active
No
Remove
igw-0d5c58a3f5662f63a
172.31.0.0/16
Peering Connection
3. Choose
No
Remove
2. Type
pcx-
Use: "pcx-"
pcx-015bcbfb63d180e7c (Marketing <> Finance)
Add route
1. Click
4. Choose
Cancel
Preview
Save changes
5. Click
CloudShell
Feedback
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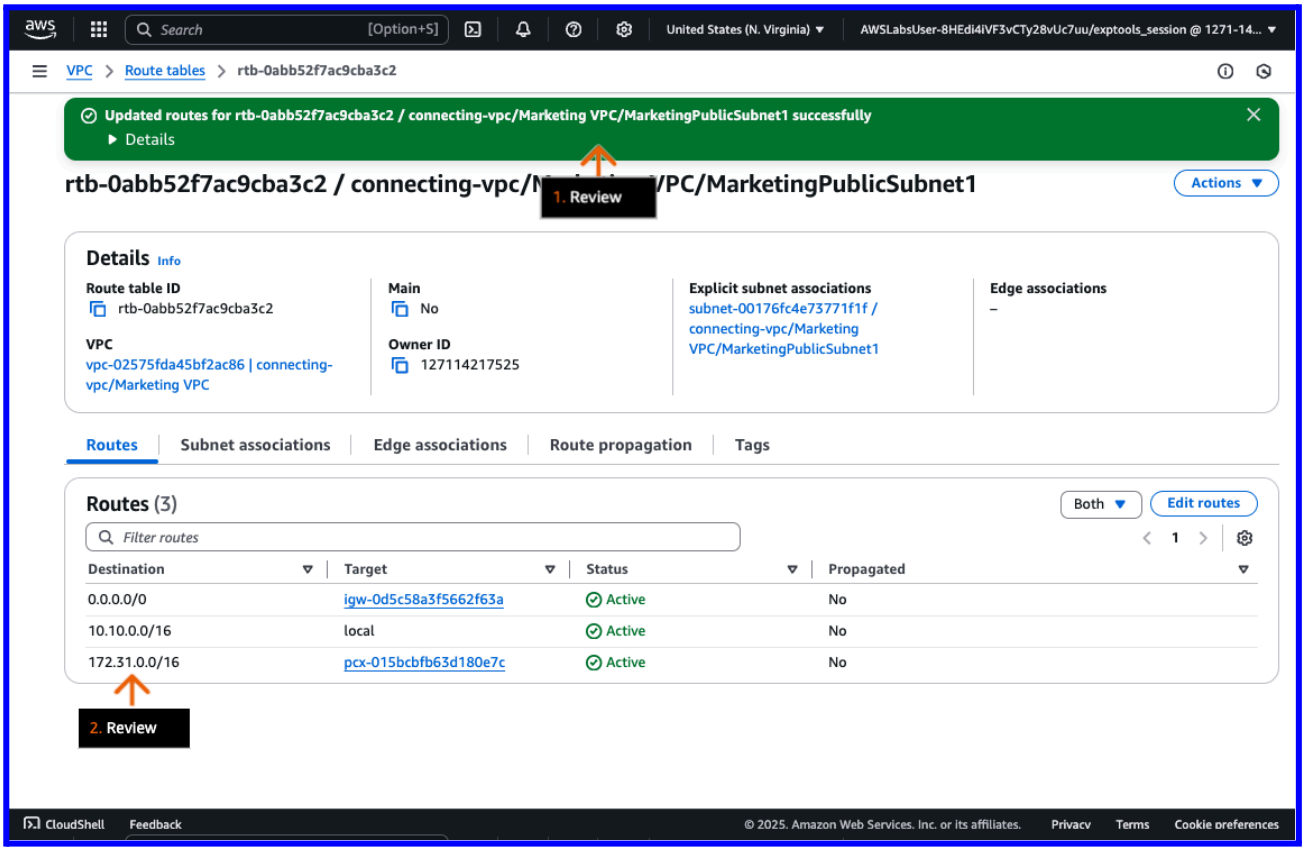
Cookie preferences


VPC > Route tables > rtb-0abb52f7ac9cba3c2
Updated routes for rtb-0abb52f7ac9cba3c2 / connecting-vpc/Marketing VPC/MarketingPublicSubnet1 successfully
Details
1. Review
Actions
Details Info
Route table ID
rtb-0abb52f7ac9cba3c2
Main
No
Explicit subnet associations
subnet-00176fc4e73771f1f / connecting-vpc/Marketing VPC/MarketingPublicSubnet1
Edge associations
VPC
vpc-02575fda45bf2ac86 | connecting-vpc/Marketing VPC
Owner ID
127114217525
Routes
Subnet associations
Edge associations
Route propagation
Tags
Routes (3)
Both
Edit routes
Filter routes
Destination
Target
Status
Propagated
0.0.0.0/0
igw-0d5c58a3f5662f63a
Active
No
10.10.0.0/16
local
Active
No
172.31.0.0/16
pcx-015bcbfb63d180e7c
Active
No
2. Review
CloudShell
Feedback
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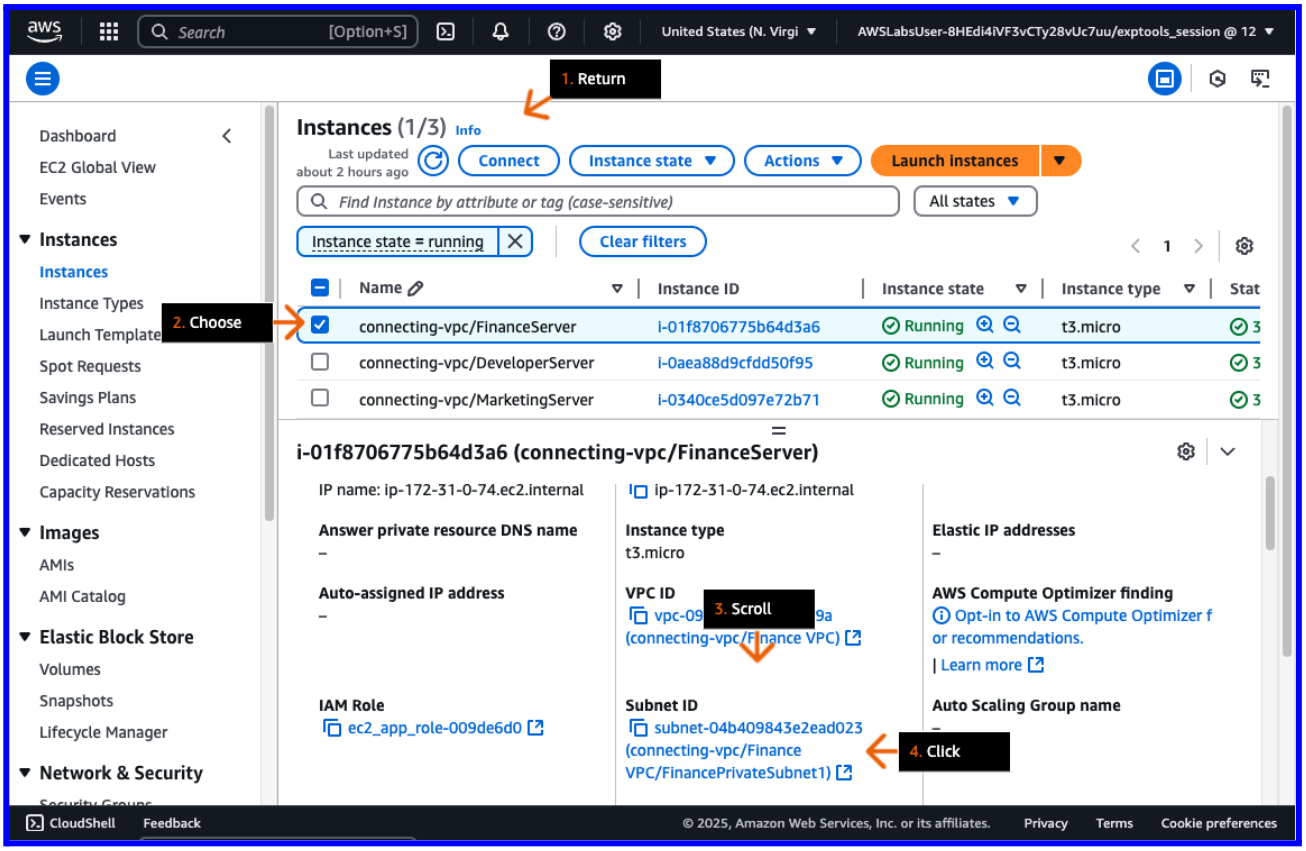
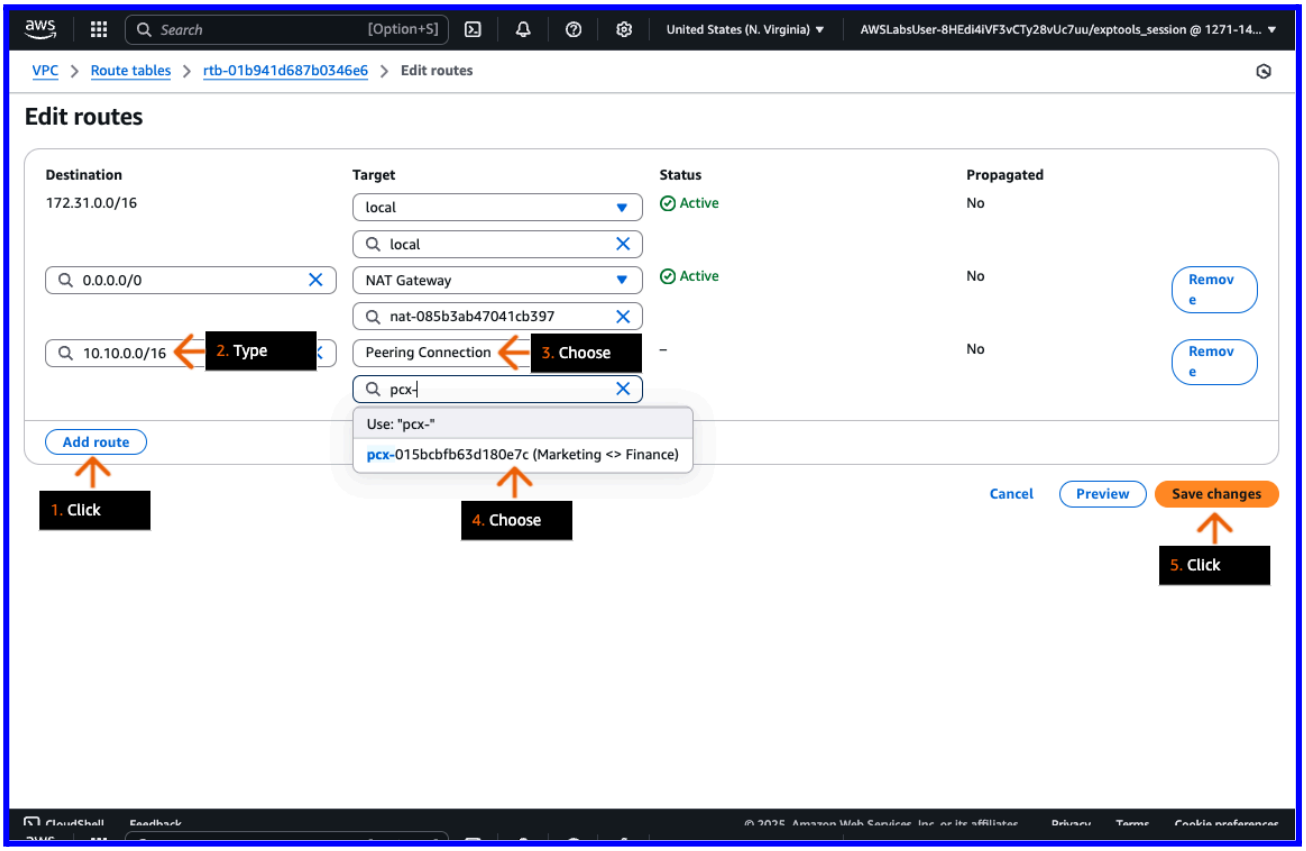
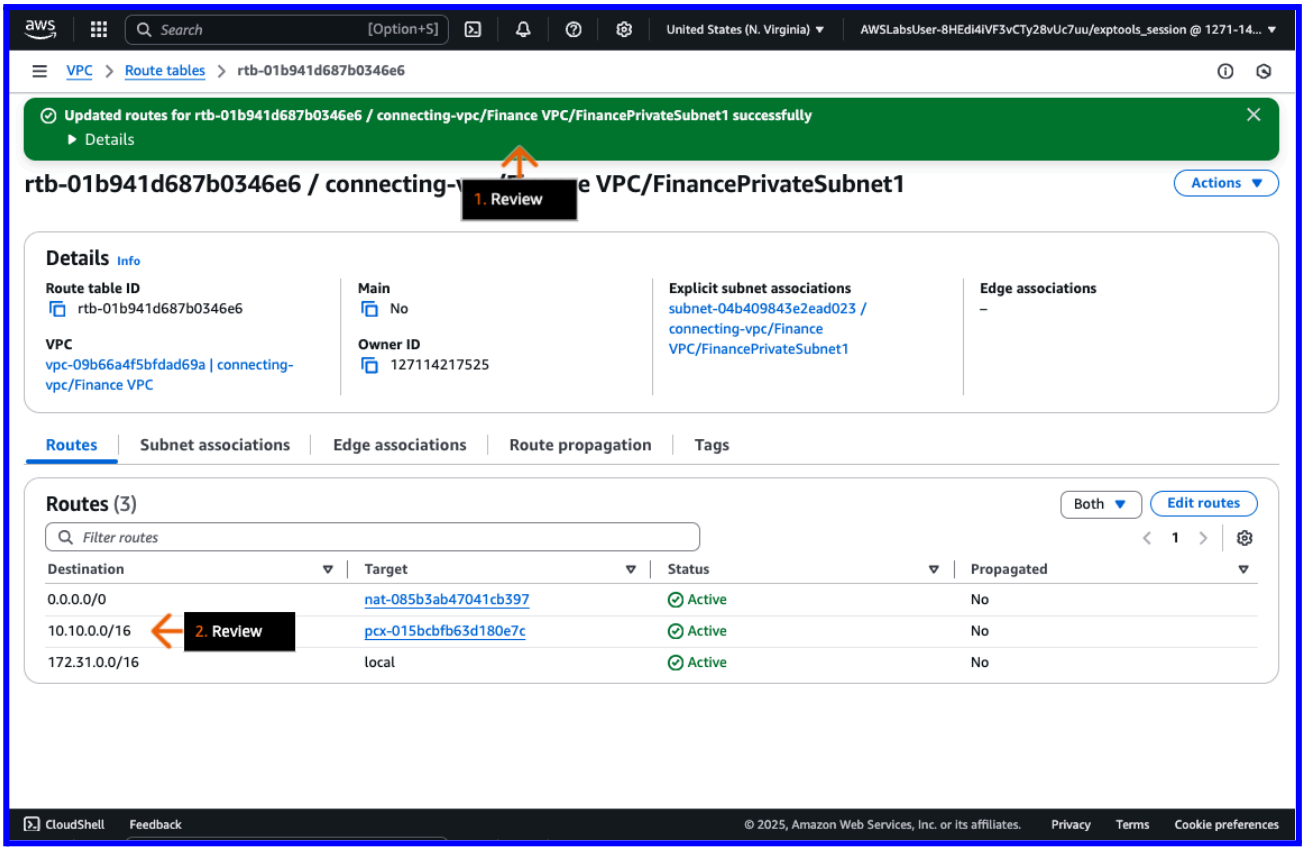
Terms
Cookie preferences


1. Return
2. Choose
3. Scroll
4. Click
Instances (1/3)
Connect
Instance state
Actions
Launch instances
Instance state = running
Clear filters
connecting-vpc/FinanceServer
connecting-vpc/DeveloperServer
connecting-vpc/MarketingServer
i-01f8706775b64d3a6 (connecting-vpc/FinanceServer)

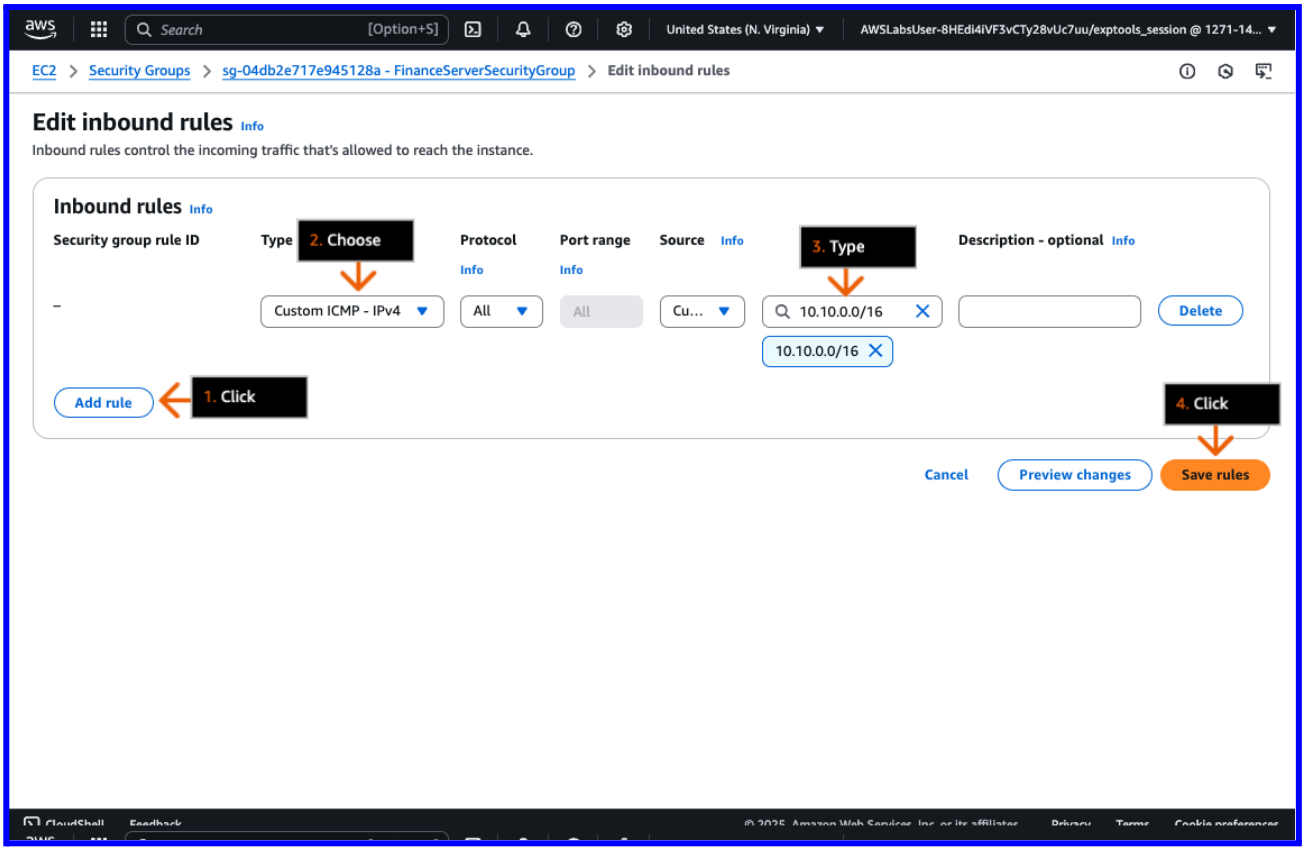

Edit routes
Destination
Target
Status
Propagated
172.31.0.0/16
local
Active
No
0.0.0.0/0
NAT Gateway
nat-085b3ab47041cb397
10.10.0.0/16
Peering Connection
pcx-
Use: "pcx-"
pcx-015bcbfb63d180e7c (Marketing <> Finance)
Add route
Cancel
Preview
Save changes
1. Click
2. Type
3. Choose
4. Choose
5. Click



Probamos nuevamente la conexión:

```
sh-5.2$ ping 172.31.0.22
PING 172.31.0.22 (172.31.0.22) 56(84) bytes of data.
^C
--- 172.31.0.22 ping statistics ---
5 packets transmitted, 0 received, 100% packet loss, time 4136ms
```

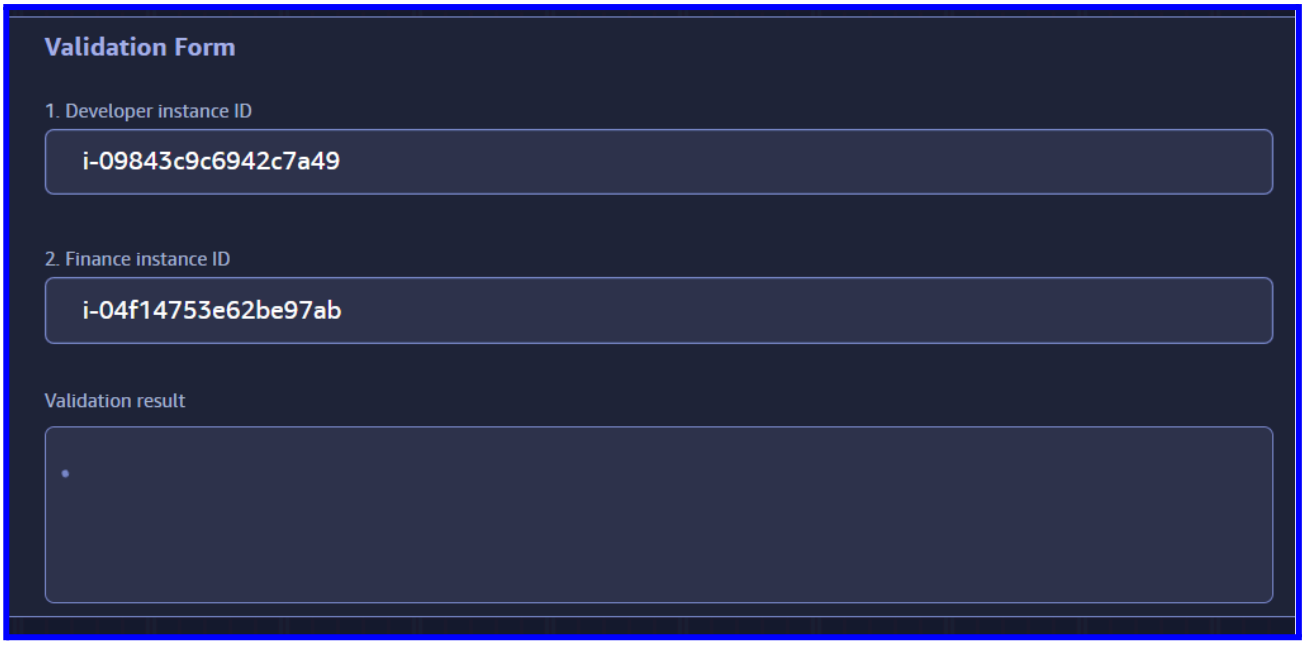
Security Group



Probamos:

```
sh-5.2$ ping -c3 172.31.0.22
PING 172.31.0.22 (172.31.0.22) 56(84) bytes of data.
64 bytes from 172.31.0.22: icmp_seq=1 ttl=127 time=0.358 ms
64 bytes from 172.31.0.22: icmp_seq=2 ttl=127 time=0.343 ms
64 bytes from 172.31.0.22: icmp_seq=3 ttl=127 time=0.350 ms

--- 172.31.0.22 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2082ms
rtt min/avg/max/mdev = 0.343/0.350/0.358/0.006 ms
sh-5.2$
```



Titol 3

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Títol 4

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Evaluación de la Actividad

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imperdiet, tellus mattis mi dui est rutrum.

Títol 2

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Titol 3

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Títol 4

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Referencias

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