

## Capstone Project 5: Configure Cloud Peering

Sayan Kelley Jr

### Step 1:

a. How much does peering cost?

- AWS VPC Peering itself is free — you are not charged for creating or maintaining the peering connection.
- However, data transfer fees are applied when traffic moves between peered VPCs.

b. Can you peer with a virtual network in another account?

- Yes, you can peer VPCs across different AWS accounts, as long as they are in the same region or configured correctly for inter-region peering.

c. Is peering transitive?

- No, VPC peering in AWS is not transitive.
- If VPC A is peered with VPC B, and VPC B is peered with VPC C, A cannot automatically communicate with C.

d. Where is peering configured in the cloud platform?

- In the AWS Management Console, under VPC Dashboard > Peering Connections.

e. What resources must already exist before peering can be established?

- You must have two VPCs already created with non-overlapping CIDR blocks.

f. What are the basic steps to create the peering connection?

1. Go to VPC Dashboard.
2. Select Peering Connections and Create Peering Connection.
3. Choose a requester VPC and acceptor VPC (can be in the same or different account).
4. Accept the peering request on the other side.
5. Update the route tables in each VPC to allow traffic to flow between them.

g. What significant limitations exist on the peering service for this platform?

- No transitive peering.
- No overlapping CIDR blocks allowed.
- Cannot use VPC peering to connect to VPCs in unsupported regions.
- Cannot use VPC peering across AWS China regions and AWS GovCloud regions.

Step 2:

Go to the VPC Dashboard.

The screenshot displays the AWS VPC Dashboard for the us-east-2 region. The interface includes a top navigation bar with the AWS logo, a search bar, and a user profile. The left sidebar contains a 'VPC dashboard' section with a 'Filter by VPC' dropdown and a list of resources under 'Virtual private cloud', 'Security', and 'PrivateLink and Lattice'. The main content area features a 'Resources by Region' section for the United States, listing various VPC resources with counts and links to 'See all regions'. The right sidebar contains sections for 'Service Health', 'Settings', 'Additional Information', and 'AWS Network Manager'.

**VPC dashboard**

EC2 Global View [↗](#)

Filter by VPC [▼](#)

▼ **Virtual private cloud**

- Your VPCs
- Subnets
- Route tables
- Internet gateways
- Egress-only Internet gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists
- NAT gateways
- Peering connections
- Route servers [New](#)

▼ **Security**

- Network ACLs
- Security groups

▼ **PrivateLink and Lattice**

- Getting started [Updated](#)
- Endpoints [Updated](#)
- Endpoint services

**Create VPC** **Launch EC2 Instances**

Note: Your Instances will launch in the United States region.

**Resources by Region** [Refresh Resources](#)

You are using the following Amazon VPC resources

Resource	United States
<a href="#">VPCs</a> ▶ See all regions	4
<a href="#">Subnets</a> ▶ See all regions	0
<a href="#">Route Tables</a> ▶ See all regions	8
<a href="#">Internet Gateways</a> ▶ See all regions	4
<a href="#">Egress-only Internet Gateways</a> ▶ See all regions	0
<a href="#">DHCP option sets</a> ▶ See all regions	1
<a href="#">NAT Gateways</a> ▶ See all regions	0
<a href="#">VPC Peering Connections</a> ▶ See all regions	0
<a href="#">Network ACLs</a> ▶ See all regions	4
<a href="#">Security Groups</a> ▶ See all regions	8
<a href="#">Customer Gateways</a> ▶ See all regions	0
<a href="#">Virtual Private Gateways</a> ▶ See all regions	0

**Service Health**  
[View complete service health details](#) [↗](#)

**Settings**  
[Block Public Access](#)  
[Zones](#)  
[Console Experiments](#)

**Additional Information** [↗](#)  
[VPC Documentation](#)  
[All VPC Resources](#)  
[Forums](#)  
[Report an Issue](#)

**AWS Network Manager**  
AWS Network Manager provides tools and features to help you manage and monitor your network on AWS. Network Manager makes it

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## Create vpc's 1 and 2

us-east-2.console.aws.amazon.com/vpcconsole/home?region=us-east-2#CreateVpc:createMode=vpcWithResources

Search [Option+S]

United States (Ohio) KELLEY.SAVAN @ tftech

VPC > Your VPCs > Create VPC

Create VPC

Resources to create

Create only the VPC resource or the VPC and other networking resources.

VPC only

VPC and more

Name tag auto-generation

Enter a value for the Name tag. This value will be used to auto-generate Name tags for all resources in the VPC.

Auto-generate

project

IPv4 CIDR block

Determine the starting IP and the size of your VPC using CIDR notation.

10.0.0.0/16

65,536 IPs

CIDR block size must be between /16 and /28.

IPv6 CIDR block

No IPv6 CIDR block

Amazon-provided IPv6 CIDR block

Tenancy

Default

Number of Availability Zones (AZs)

Preview

VPC

Show details

Your AWS virtual network

project-vpc

Subnets (4)

Subnets within this VPC

us-east-2a

project-subnet-public1-us-east-2a

project-subnet-private1-us-east-2a

us-east-2b

project-subnet-public2-us-east-2b

project-subnet-private2-us-east-2b

Route 1

Route net

project-r

project-r

project-r

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us-east-2.console.aws.amazon.com/vpcconsole/home?region=us-east-2#CreateVpc:createMode=vpcOnly

Search [Option+S]

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VPC > Your VPCs > Create VPC

Create VPC

Resources to create

Create only the VPC resource or the VPC and other networking resources.

VPC only

VPC and more

Name tag - optional

Creates a tag with a key of 'Name' and a value that you specify.

vpc-1

IPv4 CIDR block

IPv4 CIDR manual input

IPAM-allocated IPv4 CIDR block

IPv4 CIDR

192.168.0.0/24

CIDR block size must be between /16 and /28.

IPv6 CIDR block

No IPv6 CIDR block

IPAM-allocated IPv6 CIDR block

Amazon-provided IPv6 CIDR block

IPv6 CIDR owned by me

Tenancy

Default

Content

MindTap - Cengage Learning

IP Address Subnetting Explai

CreateVpc | VPC Console

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us-east-2.console.aws.amazon.com/vpcconsole/home?region=us-east-2#CreateVpc:createMode=vpcOnly

Search [Option+S]

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VPC > Your VPCs > Create VPC

### VPC settings

**Resources to create** [Info](#)  
Create only the VPC resource or the VPC and other networking resources.

☒ VPC only ☐ VPC and more

**Name tag - optional**  
Creates a tag with a key of 'Name' and a value that you specify.

vpc-02

**IPv4 CIDR block** [Info](#)  
☒ IPv4 CIDR manual input  
☐ IPAM-allocated IPv4 CIDR block

**IPv4 CIDR**  
192.168.1.0/24  
CIDR block size must be between /16 and /28.

**IPv6 CIDR block** [Info](#)  
☒ No IPv6 CIDR block  
☐ IPAM-allocated IPv6 CIDR block  
☐ Amazon-provided IPv6 CIDR block  
☐ IPv6 CIDR owned by me

**Tenancy** [Info](#)  
Default

### Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

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## Create peering connection

Content

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IP Address Subnetting Explai

VPC | us-east-2

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us-east-2.console.aws.amazon.com/vpcconsole/home?region=us-east-2#CreatePeeringConnection:

Search [Option+S]

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VPC > Peering connections > Create peering connection

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.

pc01

**Select a local VPC to peer with**

**VPC ID (Requester)**  
vpc-0cf630db8cd4c0785 (vpc-1)

**VPC CIDRs for vpc-0cf630db8cd4c0785 (vpc-1)**

CIDR	Status	Status reason
192.168.0.0/24	Associated	-

**Select another VPC to peer with**

**Account**  
☒ My account  
☐ Another account

**Region**  
☒ This Region (us-east-2)  
☐ Another Region

**VPC ID (Acceptor)**  
vpc-0c0c6eff45c73bccb (vpc-02)

**VPC CIDRs for vpc-0c0c6eff45c73bccb (vpc-02)**

CIDR	Status	Status reason
192.168.1.0/24	Associated	-

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us-east-2.console.aws.amazon.com/vpccconsole/home?region=us-east-2#PeeringConnections:

Search [Option+S]

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### VPC dashboard

EC2 Global View

Filter by VPC

- Virtual private cloud
  - Your VPCs
  - Subnets
  - Route tables
  - Internet gateways
  - Egress-only internet gateways
  - DHCP option sets
  - Elastic IPs
  - Managed prefix lists
  - NAT gateways
  - Peering connections
  - Route servers
- Security
  - Network ACLs
  - Security groups
- PrivateLink and Lattice
  - Getting started
  - Endpoints
  - Endpoint services

### Peering connections

Find resources by attribute or tag

Name	Peering connection ID	Status	Requester VPC	Accepter VPC
No peering connection found				

Select a peering connection above

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us-east-2.console.aws.amazon.com/vpccconsole/home?region=us-east-2#PeeringConnections:

Search [Option+S]

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### VPC dashboard

EC2 Global View

Filter by VPC

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### Peering connections (1/1)

Find resources by attribute or tag

Name	Peering connection ID	Status	Requester VPC	Accepter VPC
pc01	pcx-0c80ed83bdeaba8a5	Pending acceptance	vpc-0cf630db8cd4c0785	vpc-0c0c6eff45c73bc

**A VPC peering connection pcx-0c80ed83bdeaba8a5 / pc01 has been requested.**

**Requester owner ID**  
523224772484

**Peering connection ID**  
pcx-0c80ed83bdeaba8a5

**Status**  
Pending Acceptance by 523224772484

**Expiration time**  
Sunday, May 4, 2025 at 18:26:42 EDT

**Accepter owner ID**  
523224772484

**Requester VPC**  
vpc-0cf630db8cd4c0785 / vpc-1

**Requester CIDRs**  
192.168.0.0/24

**Requester Region**  
Ohio (us-east-2)

**VPC Peering connection ARN**  
arn:aws:ec2:us-east-2:523224772484:vpc-peering-connection/pcx-0c80ed83bdeaba8a5

**Accepter VPC**  
vpc-0c0c6eff45c73bccb / vpc-02

**Accepter CIDRs**  
-

**Accepter Region**  
Ohio (us-east-2)

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us-east-2.console.aws.amazon.com/vpccconsole/home?region=us-east-2#EditRoutes:RouteTableId=rtb-0711fb3e3f9d877df

VPC > Route tables > rtb-0711fb3e3f9d877df > Edit routes

### Edit routes

Destination	Target	Status	Propagated
192.168.0.0/24	local	Active	No
192.168.1.0/24	local		
	Peering Connection	-	No
	pcx-		

[Add route](#)

[Cancel](#) [Preview](#) [Save changes](#)

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us-east-2.console.aws.amazon.com/vpccconsole/home?region=us-east-2#EditRoutes:RouteTableId=rtb-0a3072f16309bdc87

VPC > Route tables > rtb-0a3072f16309bdc87 > Edit routes

### Edit routes

Destination	Target	Status	Propagated
192.168.1.0/24	local	Active	No
	local		
192.168.0.0/24	Peering Connection	-	No
	pcx-0c80ed83bdeaba8a5		

[Add route](#)

[Cancel](#) [Preview](#) [Save changes](#)

Show active peer connection

us-east-2.console.aws.amazon.com/vpcconsole/home?region=us-east-2#PeeringConnections:

Search [Option+S]

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VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

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Security

- Network ACLs
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PrivateLink and Lattice

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Peering connections (1/1) Info

Find resources by attribute or tag

Actions Create peering connection

Name	Peering connection ID	Status	Requester VPC	Accepter VPC
pc01	pcx-0c80ed83bdeaba8a5	Active	vpc-0cf630db8cd4c0785 / vpc-1	vpc-0c0c6eff45c73bc

pcx-0c80ed83bdeaba8a5 / pc01

Details DNS Route tables Tags

Details

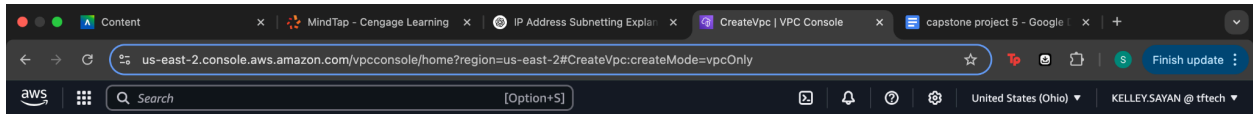
Requester owner ID 523224772484	Accepter owner ID 523224772484	VPC Peering connection ARN arn:aws:ec2:us-east-2:523224772484:vpc-peering-connection/pcx-0c80ed83bdeaba8a5
Peering connection ID pcx-0c80ed83bdeaba8a5	Requester VPC vpc-0cf630db8cd4c0785 / vpc-1	Accepter VPC vpc-0c0c6eff45c73bccb / vpc-02
Status Active	Requester CIDRs 192.168.0.0/24	Accepter CIDRs

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Step 4:  
Create vpc's 1 and 2





## Create VPC [Info](#)

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

### VPC settings

#### Resources to create [Info](#)

Create only the VPC resource or the VPC and other networking resources.

☒ VPC only ☐ VPC and more

#### Name tag - optional

Creates a tag with a key of 'Name' and a value that you specify.

VPC-Overlap-1

#### IPv4 CIDR block [Info](#)

- ☒ IPv4 CIDR manual input  
☐ IPAM-allocated IPv4 CIDR block

#### IPv4 CIDR

192.168.0.0/24

CIDR block size must be between /16 and /28.

#### IPv6 CIDR block [Info](#)

- ☒ No IPv6 CIDR block  
☐ IPAM-allocated IPv6 CIDR block  
☐ Amazon-provided IPv6 CIDR block  
☐ IPv6 CIDR owned by me

#### Tenancy [Info](#)

Default



A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

### VPC settings

#### Resources to create [Info](#)

Create only the VPC resource or the VPC and other networking resources.

☒ VPC only ☐ VPC and more

#### Name tag - optional

Creates a tag with a key of 'Name' and a value that you specify.

VPC-Overlap-2

#### IPv4 CIDR block [Info](#)

- ☒ IPv4 CIDR manual input  
☐ IPAM-allocated IPv4 CIDR block

#### IPv4 CIDR

192.168.0.128/24

CIDR block size must be between /16 and /28.

#### IPv6 CIDR block [Info](#)

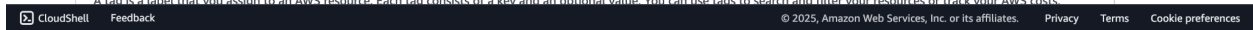
- ☒ No IPv6 CIDR block  
☐ IPAM-allocated IPv6 CIDR block  
☐ Amazon-provided IPv6 CIDR block  
☐ IPv6 CIDR owned by me

#### Tenancy [Info](#)

Default

### Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.



When trying to set up the second vpc it says "must be valid ipv4"

1. Suppose you wanted to peer three virtual networks in a mesh network. List three /24 CIDR blocks that would work for this scenario.

Three non-overlapping CIDR blocks that would work:

- 192.168.10.0/24
- 192.168.20.0/24
- 192.168.30.0/24