

VPC

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Background

Amazon VPC lets you provision a logically isolated section of the Amazon Web Services (AWS) cloud where you can launch AWS resources in a virtual network that you define.

With VPC you control your virtual networking environment, including selection of your own IP address ranges, creation of subnets, and configuration of route tables and network gateways.

Prerequisite

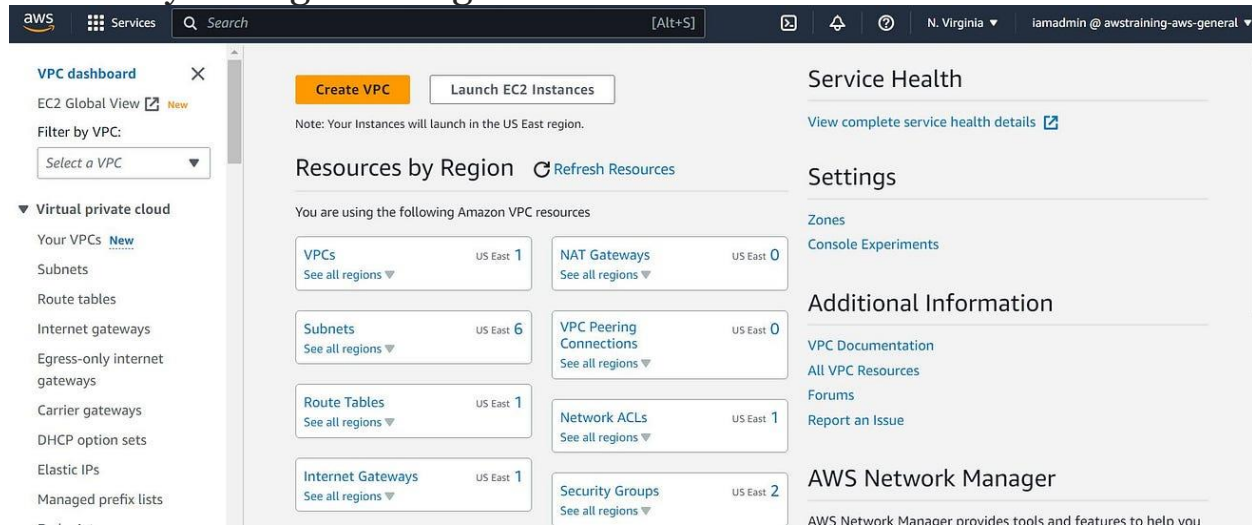
For this project, you need an AWS account. Set up a Free-Tier account www.aws.amazon.com/free

Project Outline

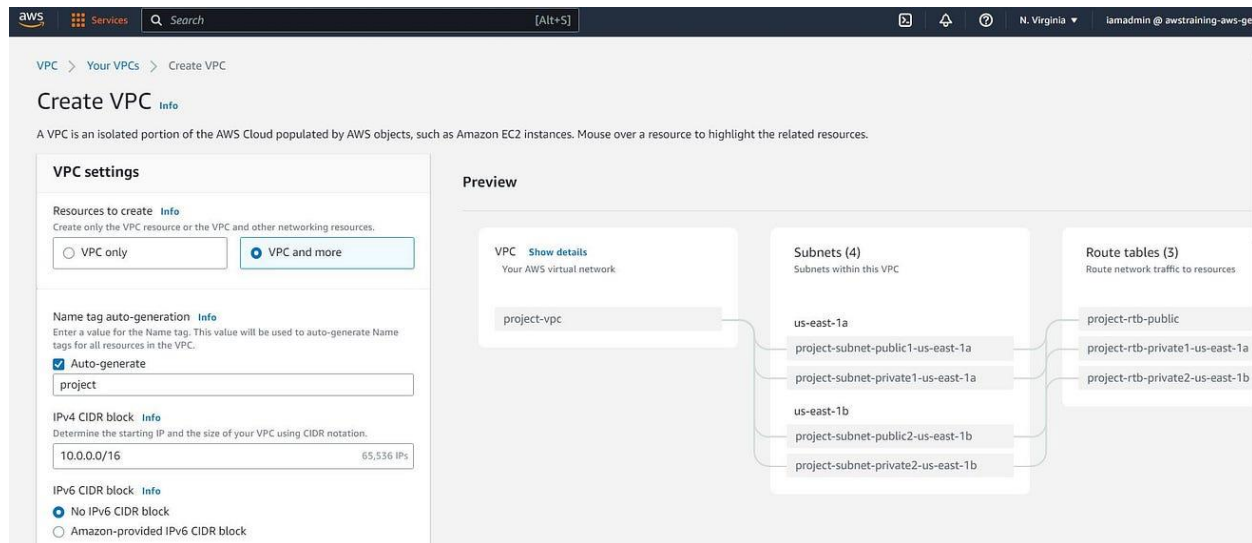
Build a VPC with 3 subnets named “Web”, “App”, and “Data”. The “Web” subnet should contain half the available IPV4 addresses while the other two contain one quarter each. Each subnet should be in a separate Availability Zone within the same AWS region. VPC CIDR: 10.1.1.0/24.

Now let's have fun

- Log in to your AWS console, select Us-east-1 (N. Virginia) as your region and go to the VPC dashboard.



- Then click on “Create VPC”.



- Select **VPC and more** for resources to create.
- Leave “auto-generate” checked. You can change the name or leave it as default.

Cheat Sheet: the names that you specify for the VPC and the other VPC resources are used to create Name tags. If you use the name tag auto-generation feature in the console, the tag values have the format `name-resource`.

- For **IPv4 CIDR block**, Enter “10.1.1.0/24” as the CIDR block for your VPC
- For **IPv6 CIDR block**, check “no IPv6 CIDR block”
- For **Tenancy**, Choose the default option “**default**”

Name tag auto-generation [Info](#)

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

djvpcnew

IPv4 CIDR block [Info](#)

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

10.1.1.0/24

256 IPs

IPv6 CIDR block [Info](#)

☒ No IPv6 CIDR block

☐ Amazon-provided IPv6 CIDR block

Tenancy [Info](#)

Default

*Cheat Sheet: A VPC must have an IPv4 address range. To support IPv6 traffic, you can select **IPv6 CIDR block, Amazon-provided IPv6 CIDR block**.*

- For availability zone, choose 3.
- For public/private subnet, click on zero (0). You will create subnets associate them to this vpc later in the process.
- For everything else (or the following options), leave the “default” version.

Number of Availability Zones (AZs) [Info](#)

Choose the number of AZs in which to provision subnets. We recommend at least two AZs for high availability.

1	2	3
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► Customize AZs

Number of public subnets [Info](#)

The number of public subnets to add to your VPC. Use public subnets for web applications that need to be publicly accessible over the internet.

0	2
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Number of private subnets [Info](#)

The number of private subnets to add to your VPC. Use private subnets to secure backend resources that don't need public access.

0	2	4
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NAT gateways (\$) [Info](#)

Choose the number of Availability Zones (AZs) in which to create NAT gateways. Note that there is a charge for each NAT gateway.

None	In 1 AZ	1 per AZ
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VPC endpoints [Info](#)

Endpoints can help reduce NAT gateway charges and improve security by accessing S3 directly from the VPC. By default, full access policy is used. You can customize this policy at any time.

None	S3 Gateway
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- Then click on “Create VPC”.

VPC > Your VPCs > Create VPC > Create VPC resources

Create VPC workflow

Success

Details

- ✓ Create VPC: [vpc-0125e0d121c000341](#)
- ✓ Enable DNS hostnames
- ✓ Enable DNS resolution
- ✓ Verifying VPC creation: [vpc-0125e0d121c000341](#)
- ✓ Create S3 endpoint: [vpce-0511c62d4f01f9e27](#)

View VPC

aws Services Search [Alt+S] N. Virginia iamadmin @ awstraining-aws-genera

VPC dashboard EC2 Global View Filter by VPC: Select a VPC

Virtual private cloud

Your VPCs New

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

vpc-0125e0d121c000341 / djproject-vpc

Details Info

VPC ID vpc-0125e0d121c000341	State Available	DNS hostnames Enabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-01d61745711ec0854	Main route table rtb-0c5f784a32f3094af	Main network ACL acl-0b4345bcaae4fafa7
Default VPC No	IPv4 CIDR 10.1.1.0/24	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 736368256393	

Resource map New CIDRs Flow logs Tags

Resource map Info

VPC Show details Your AWS virtual network djproject-vpc	Subnets (0) Subnets within this VPC	Route tables (1) Route network traffic to resources rtb-0c5f784a32f3094af	Network connections (0) Connections to other VPCs djproject-vpc
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- After your VPC is created, click on “**Create Subnet**” on the left side of your dashboard to create your first subnet named “Web”.
- Click on “**create subnet**” again and follow the wizard.

- Select the VPC ID you just created a moment ago.
- In subnet settings, enter the “Web” as the name of your subnet. Then, choose the VPC you just created from the dropdown menu. Choose an available Availability Zone from the dropdown menu. Now, enter “**10.1.1.0/25**” as the **CIDR block** for your Web subnet. Finally, click on “**Create**” to create your Web subnet.

VPC

VPC ID

Create subnets in this VPC.

vpc-0125e0d121c000341 (djproject-vpc) ▼

Associated VPC CIDRs

IPv4 CIDRs

10.1.1.0/24

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

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

my-subnet-01

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

US East (N. Virginia) / us-east-1a ▼

IPv4 CIDR block [Info](#)

10.1.1.0/25 ✕

- **Repeat the same steps to create your second subnet named “App”.** In subnet settings, enter the “Web” as the name of your subnet. Then, choose the VPC you just created

from the dropdown menu. **Choose a different Availability Zone from the one you selected for your App subnet.** Enter “**10.1.1.128/26**” as the **CIDR block** for your App subnet. Finally, click on “Create” to create your App subnet.

VPC ID
Create subnets in this VPC:

vpc-0125e0d121c000341 (djproject-vpc) ▼

Associated VPC CIDRs

IPv4 CIDRs
10.1.1.0/24

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.

App

The name can be up to 256 characters long.

Availability Zone [Info](#)
Choose the zone in which your subnet will reside, or let Amazon choose one for you.

US East (N. Virginia) / us-east-1b ▼

IPv4 CIDR block [Info](#)

Q 10.1.1.128/26 X

▼ Tags - optional

Key	Value - optional	
Q Name X	Q App X	Remove

- **Repeat the same steps to create your third subnet named “Data”.** In subnet settings, enter the “Data” as the name of your subnet. Then, choose the VPC you just created from the dropdown menu. **Choose a different Availability**

Zone from the ones you selected for your Web and App subnets. Now, enter “10.1.1.192/26” as the CIDR block for your Data subnet. Finally, click on “Create” to create your Data subnet..

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

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

The name can be up to 256 characters long.

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

IPv4 CIDR block [Info](#)

▼ Tags - optional

Key

Value - optional

- Your VPC with 3 subnets named “Web”, “App”, and “Data” is ready to use.

Subnets (3) Info								
<input type="text" value="Filter subnets"/>						<input type="button" value="Refresh"/>	<input type="button" value="Actions ▼"/>	<input type="button" value="Create subnet"/>
<div>< 1 > ⚙</div>								
<input type="checkbox"/>	Name ▼	Subnet ID ▼	State ▼	VPC ▼	IPv4 CIDR ▼	IPv6 C		
<input type="checkbox"/>	Data	subnet-0471148f70d9823a4	Available	vpc-0125e0d121c000341 djp...	10.1.1.192/26	–		
<input type="checkbox"/>	Web	subnet-085b4ae2a44b004ea	Available	vpc-0125e0d121c000341 djp...	10.1.1.0/25	–		
<input type="checkbox"/>	App	subnet-03966ee8c0c02910a	Available	vpc-0125e0d121c000341 djp...	10.1.1.128/26	–		



Cheat Sheet: Each subnet must reside entirely within one Availability Zone and cannot span zones.

Voilà! you have built a VPC with 3 subnets (and IPV4 addresses, separate Availability Zones within the same AWS region, and VPC CIDR: 10.1.1.0/24).

Thank you for reading and/or following along! Please stay tuned for all my upcoming projects, and feel free to check out the rest of my articles.