

# Subnets, VPC Routers, and Route Tables Part 1

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**Brock Tubre**

TECHNICAL INSTRUCTOR



# Subnets

Separates a specified CIDR range within an AZ.

A segment of a VPC that lives entirely within a single Availability Zone. Subnets cannot span more than one AZ. Subnets can be public, private, or VPN only.





# VPC, Subnets, CIDR Blocks



VPC



## Choosing a Private Addressing Space

- 192.168.0.0 - 192.168.255.255 (offers 1 /16 range)
- 172.16.0.0 - 172.31.255.255 (offers 16 /16 ranges)
- 10.0.0.0 - 10.255.255.255 (offers 256 /16 ranges)



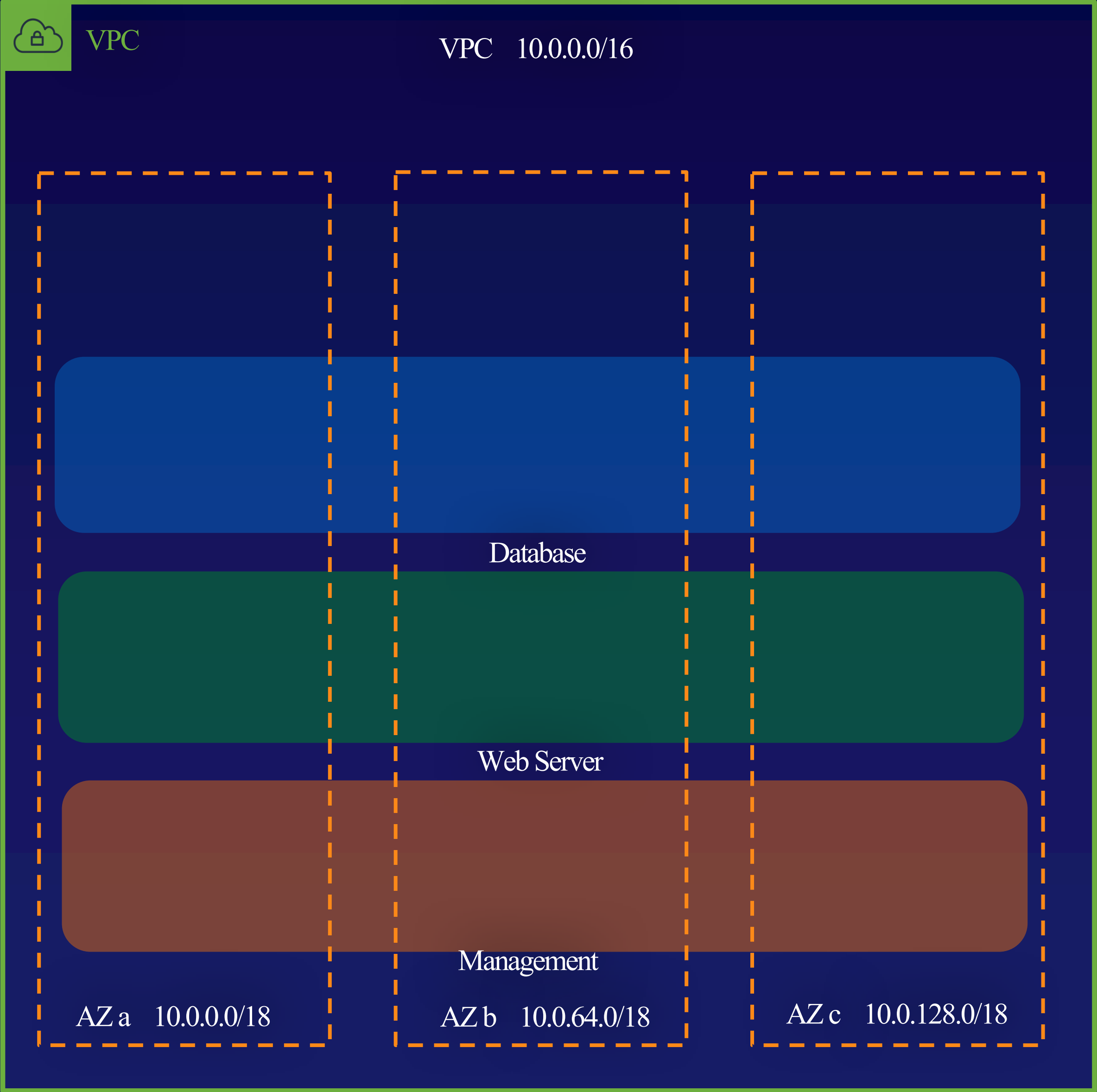
VPC



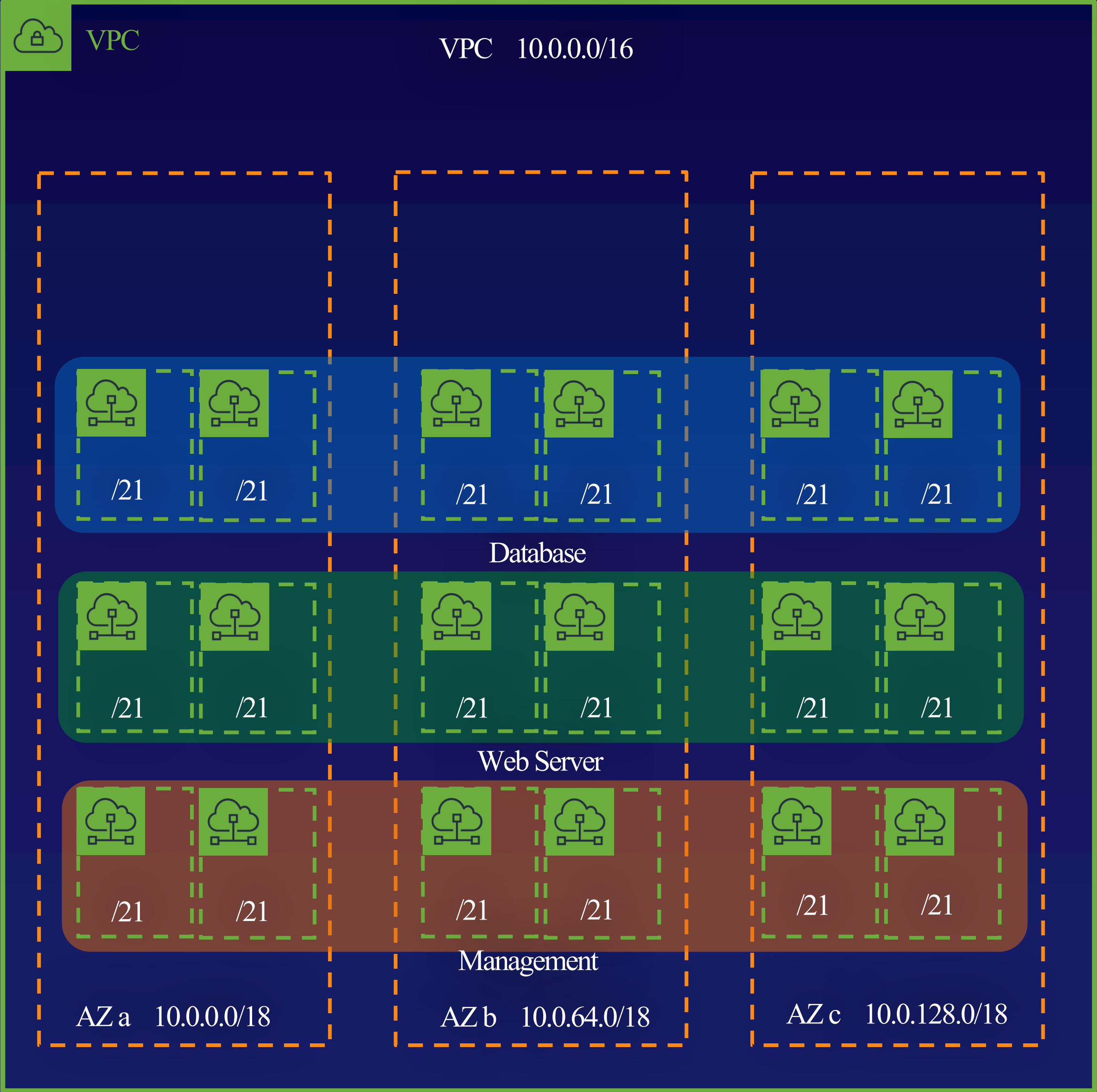
## Choosing VPC CIDR Block

- 1 Integration with other VPCs
- 2 Integration with on-premise networks
- 3 Plans for subnetting

# VPC, Subnets, CIDR Blocks



# VPC, Subnets, CIDR Blocks



# VPC, Subnets, CIDR Blocks



# AWS Subnet Addressing

1

## Specify Target AZ

You can create zero, one, or more subnets in an AZ. When creating a subnet you must specify the target AZ.

2

## Determine CIDR Range

When creating a subnet, the smallest CIDR range you can allocate is /28 netmask and the largest is /16 netmask. That's 16 IPv4 address and 65,536 IPv4 addresses respectively.

3

## AWS Reserved Addresses

AWS reserves the first four IPv4 addresses and the last IPv4 address of every subnet for internal networking purposes. So five addresses are always reserved by AWS.



# Default Subnets

Subnets | VPC Management Center

console.aws.amazon.com/vpc/home?region=us-east-1#subnets:sort=desc:SubnetId

aws

Services

Resource Groups

ACGAdminConsoleUser @ acgb...

N. Virginia

Support

VPC Dashboard

Filter by VPC:  
Select a VPC

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

Security

Network ACLs

Security Groups

Create subnet

Actions

Filter by tags and attributes or search by keyword

1 to 6 of 6

	Name	Subnet ID	State	VPC	IPv4 CIDR	Available IP
<input checked="" type="checkbox"/>		subnet-f4781cbe	available	vpc-ee150895	172.31.16.0/20	4091
<input type="checkbox"/>		subnet-d1c113b6	available	vpc-ee150895	172.31.0.0/20	4091
<input type="checkbox"/>		subnet-ba68b9e6	available	vpc-ee150895	172.31.32.0/20	4091
<input type="checkbox"/>		subnet-b89c4e96	available	vpc-ee150895	172.31.80.0/20	4091
<input type="checkbox"/>		subnet-6aa24154	available	vpc-ee150895	172.31.48.0/20	4091
<input type="checkbox"/>		subnet-2627b829	available	vpc-ee150895	172.31.64.0/20	4091

Subnet: subnet-f4781cbe

Description

Flow Logs

Route Table

Network ACL

Tags

Sharing

Subnet ID

Subnet ID

VPC

Available IPv4 Addresses

Availability Zone

Network ACL

Auto-assign public IPv4 address

Owner

subnet-f4781cbe

vpc-ee150895

4091

us-east-1b (use1-az4)

acl-6f4c3315

Yes

442771530490

State

IPv4 CIDR

IPv6 CIDR

Route Table

Default subnet

Auto-assign IPv6 address

available

172.31.16.0/20

-

rtb-c262acbd

Yes

No

Feedback

English (US)

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# Default Subnets

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Subnet: subnet-f4781cbe

Description

Flow Logs

Route Table

Network ACL

Tags

Sharing

Subnet ID

subnet-f4781cbe

VPC

vpc-ee150895

Available IPv4 Addresses

4091

Availability Zone

us-east-1b (use1-az4)

Network ACL

acl-6f4c3315

Auto-assign public IPv4 address

Yes

Owner

442771530490

State

available

IPv4 CIDR

172.31.16.0/20

IPv6 CIDR

-

Route Table

rtb-c262acbd

Default subnet

Yes

Auto-assign IPv6 address

No

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