

# 19th Oct 2023

## AWS Subnetting

### Subnet

- A subnet is a range of IP addresses in the VPC. You can divide a VPC into multiple subnets for better organising.

### CIDR

- Classless Inter Domain Routing
- Scale
  - Weight : mg - gms - kgs etc
  - Distance : mm - cms - mts etc
  - Networking : CIDR

## VPC Subnetting

- The practice of dividing a network(VPC) into two or more networks(Subnets) is called subnetting.
- When you create a VPC & Subnets, you must specify a **CIDR block (Classless Inter Domain Routing) (Determine size of VPC & Subnets)** for the VPC.
- The allowed CIDR block size is between a **/16 netmask** (65,536 IP addresses) and **/28 netmask** (16 IP addresses).

- An IP Address is in following Format
  - 10.0.0.0
- An IP Address is a **32 Bit Number**.
  - It has 4 Octets, **each octet is 8 Bits**.

- Consider **A.B.C.D** as an IP Address
  - A - 1st Octet ( 8 Bits )
  - B - 2nd Octet ( 8 Bits )
  - C - 3rd Octet ( 8 Bits )
  - D - 4th Octet ( 8 Bits )

- Total Bits - 32 Bits
- Netmask - X [ 16 to 28 ]
- Result = Total Bits - Netmask
- No Of IP's / Devices =  $2^{\text{Result}}$

If Netmask

/16 → Result = 16 → No Of IP's / Devices =  $2^{16} = 65536$

/17 → Result = 15 → No Of IP's / Devices =  $2^{15} = 32768$

/18 → Result = 14 → No Of IP's / Devices =  $2^{14} = 16384$

/19 → Result = 13 → No Of IP's / Devices =  $2^{13} = 8192$

/20 → Result = 12 → No Of IP's / Devices =  $2^{12} = 4096$

/21 → Result = 11 → No Of IP's / Devices =  $2^{11} = 2048$

/22 → Result = 10 → No Of IP's / Devices =  $2^{10} = 1024$

/23 → Result = 9 → No Of IP's / Devices =  $2^9 = 512$

/24 → Result = 8 → No Of IP's / Devices =  $2^8 = 256$

/25 → Result = 7 → No Of IP's / Devices =  $2^7 = 128$

/26 → Result = 6 → No Of IP's / Devices =  $2^6 = 64$

/27 → Result = 5 → No Of IP's / Devices =  $2^5 = 32$

/28 → Result = 4 → No Of IP's / Devices =  $2^4 = 16$

TCS VPC - 10.0.0.0/16 { Max Capacity }

TCS WEB SUBNET - 10.0.0.0/20 [ 10.0.0.0 - 10.0.15.255 ]

10.0.0.0

10.0.0.1

10.0.0.2

10.0.0.3

10.0.0.4

.

.

.

10.0.0.255

10.0.1.0

10.0.1.1

10.0.1.2

.

.

10.0.1.255

10.0.2.0

.

10.0.2.255

10.0.3.255

10.0.4.255

.

.

10.0.15.255

TCS DATABASE SUBNET - 10.0.16.0/20 [ 10.0.16.0 - 10.0.31.255 ]

TCS APPLICATION SUBNET - 10.0.32.0/21 [ 10.0.32.0 - 10.0.39.255 ]

10.0.0.0 - 256	10.0.4.0 - 256	10.0.8.0 - 256	10.0.12.0 - 256
10.0.1.0 - 256	10.0.5.0 - 256	10.0.9.0 - 256	10.0.13.0 - 256
10.0.2.0 - 256	10.0.6.0 - 256	10.0.10.0 - 256	10.0.14.0 - 256
10.0.3.0 - 256	10.0.7.0 - 256	10.0.11.0 - 256	10.0.15.0 - 256

4K

10.0.16.0 - 256
10.0.31.0 - 256

4K

10.0.32.0 - 256	10.0.34.0 - 256	10.0.36.0 - 256	10.0.38.0 - 256
10.0.33.0 - 256	10.0.35.0 - 256	10.0.37.0 - 256	10.0.39.0 - 256

2K