* CIDR - Tells how many bits are reserved. | * CIDR NOTATION

*   VPC 1 - 10.0.0.0/22

Starting IP Address.

→ CIDR

Classless Inter Domain Routing

→ 22 bits allotted to VPC 1

• Total no. of bits in IPv4 = 32

• Bits in CIDR IP Address = 22

$$32 - 22 = 10 , 2^{10} = \boxed{1024} \text{ IP Address}$$

↳ Are ~~allotted to~~ available VPC 1

$/22 = 32-22 = 10 , 2^{10} = 1024$

$/23 = 32 - 23 = 9 , 2^9 = 512$

$/24 = 32 - 24 = 8 , 2^8 = 256$

$/25 = 32 - 25 = 7 , 2^7 = 128$

$/26 = 32 - 26 = 6 , 2^6 = 64$

$/27 = 32 - 27 = 5 , 2^5 = 32$

$/28 = 32 - 28 = 4 , 2^4 = 16$

$/21 = 32 - 21 = 11 , 2^{11} = 2048$

$/20 = 32 - 20 = 12 , 2^{12} = 4096$

$/19 = 32 - 19 = 13 , 2^{13} = 8192$

$/18 = 32 - 18 = 14 , 2^{14} = 16,384$

$/17 = 32 - 17 = 15 , 2^{15} = 32,769$

$/16 = 32 - 16 = 16 , 2^{16} = 65,536$

Ex-1   VPC 1 = 10.0.0.0/24 — 256 IP Address.

Total no. of bits in IPv4 = 32

Bits in CIDR IP Address = 24

$32 - 24 = 8 , 2^8 = 256$ IP Address

10.0.0.0 , 10.0.0.1, 10.0.0.2, ... 10.0.0.255

Ex-2   VPC 2 = 10.0.0.0/23 — 512 IP Address

Total bits in IPv4 = 32

Bits in CIDR = 23

$32 - 23 = 9 , 2^9 = 512$

∴ 10.0.0.1 ... 10.0.0.255, 10.0.0.1.1, ... 10.0.0.1.255

- VPC 4 - 10.0.0.0/25 $\Rightarrow$ /25 = 32 - 25 = 7, 2^7 = 128 IP Add

$\therefore$ 10.0.0.0 , 10.0.0.1 , --- $\left[\begin{array}{c} 24 \\ . \end{array}\right]$ 10.0.0.128

- VPC 5 - 10.0.0.0/26 $\Rightarrow$ /26 = 32 - 26 = 6 , 2^6 = 64

$\therefore$ 10.0.0.0 ---- 10.0.0.64

- VPC 6 - 10.0.0.0/27 $\Rightarrow$ ------ 10.0.0.32

- VPC 7 - 10.0.0.0/28 $\Rightarrow$ ----- 10.0.0.16

- VPC 9 - 10.0.0.0/21 $\Rightarrow$ /21 = 32 - 21 = 11 , 2^{11} = 2048 /256 = 8

$\therefore$ 10.0.0.0 - 10.0.0.255 , 10.0.0.1 - 10.0.0.255 , 10.0.2.0 - 10.0.2.0

10.---- 10.0.0.7.255

- VPC 10 - 10.0.0.0/20 $\Rightarrow$ /20 = 32 - 20 = 12 , 2^{12} = 4096 /256 = 16

$\therefore$ $\Rightarrow$ 10.0.0.0 ----- 10.0.16.0.15.255 .

- VPC 11 - 10.0.0.0/19 $\Rightarrow$ ----- 10.0.31.255

- VPC 12 - 10.0.0.0/18 $\Rightarrow$ ----- 10.0.63.255

- VPC 13 - 10.0.0.0/17 $\Rightarrow$ ----- 10.0.127.255

- VPC 14 - 10.0.0.0/16 $\Rightarrow$ ----- 10.0.255.255

DAY - 6

30/12/24

VPC 2 - 20.15.0.0/23 - 512 IP Addus

Total bits in IPv4 = 32

CIDR bits = 23

$\therefore$ 32 - 23 = 9 , 2^9 = 512 /256 = 2

$\therefore$ 20.15.0.0 - 20.15.1.255

- VPC 3 - 20.15.0.0/24 - 256 IP addres.
  - => 20.15.0.0 - 20.15.0.255.

- VPC 4 - 20.15.0.0/25 => 128 IP Addres.
  - => 20.15.0.0 - 20.15.0.128

- VPC 5 - 20.15.0.0/26 =) .... ~ 20.15.0.64
- VPC 6 - 20.15.0.0/27 =) ... ~ 20.15.0.32
- VPC 7 - 20.15.0.0/28 => -- ~ 20.15.0.16

- VPC 8 - 20.15.0.0/22   = 32-22 = 10, 2^{10} = $\dfrac{1024}{256}$ = [4] Subnets
  - => 20.15.0.0 - 20.15.3.255.

- VPC 9 - 20.15.0.0/21 =) .... ~ 20.15.7.255
- VPC 10 - 20.15.0.0/20 =) -- ~ 20.15.15.255
- VPC 11 - 20.15.0.0/19 =) ... ~ 20.15.31.255
- VPC 12 - 20.15.0.0/18 =) 20.15.63.255
- VPC 13 - 20.15.0.0/17 =) ~ ...20.15.127.255
- VPC 14 - 20.15.0.0/16 =) .... -20.15.255.255

SUBNET :-

Ex.-1   VPC 1 - 20.15.0.0/22 -
          SUBNET 1 - [256 IP's]   = 20.15.0.0/24   changed coz
                                                       subnetting for
                                                       256 IP's

          Subnet 2 - 256 IP's   = 20.15.1.1/24 ...
          Subnet 3 - 256 IP's   = 20.15.2.0/24
          Subnet 4 - 256 IP's   = 20.15.3.0/24

* Ex - 2   VPC 2 - $\boxed{20.15.0.0/21}$ $\longrightarrow$ 1st Subnet is reserved.

   Subnet 1 - ~~1024~~ 512 IP's = $\boxed{20.15.0.0/23}$

   Subnet 2 - ~~1024~~ 512 IP's = 20.15.2.0/23

   Subnet 3 - 512 IP's = 20.15.4.0/23

   Subnet 4 - 512 IP's = 20.15.6.0/23

---

* Ex - 3   VPC 3 - 20.15.0.0/20 -

               $\dfrac{1024}{256} = \boxed{4}$

   Subnet 1 - 1024 IP's = 20.15.0.0/22

   Subnet 2 - 1024 IP's = 20.15.$\boxed{4}$.0/22

   SN 3 - 1024 IP's = 20.15.8.0/22

   SN 4 - 1024 IP's = 20.15.12.0/22

---

* Ex - 4   VPC 4 - 20.15.0.0/$\boxed{19}$ 8/0/$\boxed{21}$ $1942 = \boxed{21}$

   SN 1 = 2048 IP's = 20.15.0.0/$\boxed{21}$

   SN 2 =   "   = 20.15.8.0/21

   SN 3 =   "   = 20.15.16.0/21

   SN 4 =   "   = 20.15.32.0/21

---

* Ex - 5   VPC - 20.15.0.0/18

   SN 1 = 4096 IP's = 20.15.0.0/20

   SN 2 = 4096 IP'1 = 20.15.16.0/20

   SN 3   "   = 20:15.32.0/20

   SN 4 =   "   = 20.15.48.0/20

○ Ex - 6   VPC 6 - 20.15.0.0/17

     SN1 - 8192 IP's   = 20.15.0.0/19
     SN2 -   "   = 20.15.32.0/19
     SN3 -   "   = 20.15.64.0/19
     SN4 -   "   = 20.15.96-0.0/19

● Ex - 7   VPC 7 - 20.15.0.0/16

     SN1 - 16384 IP's   = 20.15.0.0/16
     SN2 -   "   = 20.15.64.0/16
     SN3 -   "   = 20.15.128.0/16
     SN4 -   "   = ~~20.15.0.0/16~~
                           20.15.192.0/16

★ Ex - 8   VPC 8 - 20.15.0.0/18

     SN1 - 4096 IP's = 20.15.0.0/20
     SN2 - 2048 IP's = 20.15.16.0/21
     SN3 - 1024 IP's = 20.15.24.0/22
     SN4 - 2048 IP's = 20.15.28.0/21
     SN5 - 1024 IP's = 20.15.32.0/22
     SN8 - 2048 IP's = 20.15.40.0/21
     SN7 - 4096 IP's = 20.15.98.0/20

     Ex - 9   VPC 9 - 20.15.0.0/16

★
     ● SN-1 = 4096 IP's = 20.15.0.0/20   ● SN 7 = 4096 IP's
     ● SN-2 = 16384 IP's = 20.15.16.0/16   = 20.15.140.0
     ● SN 3 = 4096 IP's = 20.15.80.0/20   /20
     ○ SN 4 = 2048 IP's = 20.15.96.0/21
     ● SN 5 = 1024 IP's = 20.15.104.0/22
     - SN 6 = 8192 IP's = 20.15.108.0/19

Ex-9   VPC 10 - 20.15.0.0/17

SN1 - 2048 IP's = 20.15.0.0/21

SN2 - 8192 IP's = 20.15.8.0/19

SN3 - 2048 IP's = 20.15.40.0/21

SN4 - 1024 IP's = 20.15.48.0/22

SN5 - 512 IP's = 20.15.52.0/23

SN6 - 4096 IP's = 20.15.54.0/20

SN7 - 512 IP's = 20.15.70.0/23

SN8 - 2048 IP's = 20.15.72.0/21

Ex10 - VPC 10 - 20.15.0.0/19

SN1 - 2048 IP's = 20.15.0.0/21

SN2 - 4096 IP's = 20.15.8.0/20

SN3 - 512 IP's = 20.15.24.0/23

SN4 - 1024 IP's = 20.15.26.0/22

SN5 - 512 IP's = 20.15.30.0/23

SN6 - 4096 IP's = 20.15.32.0/20

SN7 - 1024 IP's = 20.15.48.0/22

SN8 - 2048 IP's = 20.15.52.0/21

Ex.10   VPC 10 - 10.0.0.0/16 -

SN1 - 4096 IP's - 10.0.6.0/20

SN2 - 7024 IP's - 10.0.16.0/21

SN3 - 8192 IP's - 10.0.20.0/19

SN4 - 4096 IP's - 10.0.52.0/20

SN5 - 2048 IP's - 10.0.68.0/21

SN6 - 4096 IP's - 10.0.76.0/20

512 =	2	= /23
1024 =	4	= /22
2048 =	8	= /21
4096 =	16	= /20
8192 =	32	= /19

Sand foundry.