Rules for Assigning Host ID

Host ID are used to identify a host within a network the host IDs is assigned based on following rules.

* within any network host ID must be unique to the network.
* A host ID in which all bits are set to 1 cannot be assigned bcz this host ID is used to represent the network ID of IP address.

Host ID in which all bits are set to 0 Cannot be assigned bcz the host ID is reserved as a broadcast address to send packet to all host present on particular network.

Rules for Assigning Network ID.

Host that are located on the same physical network are identified by network ID as all host on same physical network is assigned the same network ID the network ID is assigned based on following rules.

The network ID cannot start with 127 because 127 belong to class A

3. CIDR Block C classless INTerdomain Routing)

/16 /17 /18 /19 /20 /21 /22 /23 /24 /25 /26 /27 /28

EG1: VP C1-10.000/22-1024 IP Address

Total No of Bits in IPV4 - 32

Bits IN CIDR IP Address - 22

32-22-10 2^{10} = 1024 IP Address

32-23 = 9 $\Rightarrow 2^9$ = 512 IP address

32-24 - 8 $\Rightarrow 2^8$ → 256 IP address

32-25 - 7 $\Rightarrow 2^7$ → 128 IP address

32-26 - 6 = 2^6 → 64 IP address

32-27 - 5 $\Rightarrow 2^5$ → 32 IP address

32-28 — 4 $\Rightarrow 2^4$ → 16 IP address

16 → 16 → 65536 address

17 - 15 → 32768

18 - 14 → 16384

19 - 13 → 8192

20 - 12 → 4096

21 - 11 → 2048

Eg1: VPC2 - 10.0.0.0/24 - 256 IP address

Total no of IPV2 - 32

Bits in CIDR IP Address - 24

32 - 24 = 8 => 2^8 => 256

10.0.0.0 .... 10.0.0.255

VPC3 - 10.0.0.0/23

32 - 23 = 9 => 2^9 => 512 IP address

10.0.0.0 .... 10.0.0.255 ...

10.0.1.0 ... 10.0.1.255

10.0.0/22 $024

10.0.0.0 ... 10.0.0.255 to

10.0.1.0 ... 10.0.1.255 to

10.0.2.0 ... 10.0.2.255 to

10.0.3.0 ... 10.0.3.255

10.0.0.0/25 ⑦ → 128

10.0.0.0 ... 10.0.0.0 to

10.0.1.0 ... 10.0.1.255 to

10.0.0.0 ... 10.0.0.127

10.0.0.0/26 ⑥ → 64

2^6

10.0.0.0 ... 10.0.0.63

10.0.0.0/27 5 → 32

10.0.0.0 ... 10.0.0.31

10.0.0.0/28 4 → 16

10.0.0.0 .... 10.0.0.15

VPC8 : 10.0.0.0/21

$2^{11} = 2048$

10.0.0.0 . . . 10.0.7.255

VPC a = 10.0.00/20

$2^{12} = 4096$

10.0.15.0 . . . . 10.0.15.255

VPC 10 => 10.0.0.0/19

$2^{13} = 8192$

10.0.31.0 . . . 10.0.31.255

VPC 11 => 10.0.0.0/18 => 16384

10.0.63.255

67
67
126

127
127
154

10.0.0.0/17 => 32768

10.0.127.255

10.0.0.0/16 => 65536/256

10.0.255.255

255.0 255

VPC2 - 20.15.0.0/23 => 29 => 512 address

→ 20.15.0.0 . . . 20.15.1.255

VPC3 - 20.15.0.0/24 → 256 Address

- 20.15.0.255

VPC4 → 20.15.0.0/25 → 128 address

→ 20.15.0.128

VPC 5 → 20.15.0.0/26 → 64

→ 20.15.0.65

VPC 6 → 20.15.0.0/27 → 32

→ 20.15.0.31

VPC 7 → 20.15.0.0/28 → 16

→ 20.15.0.15

VPC 8 → 20.15.0.0/22 - 32 - 10 = 1024

→ 20.15.3.255

VPC 9 → 20.15.0.0/21 - 32 = 11 → 2048

→ 20.15.7.255

VPC 10 - 20.15.0.0/20 → 4096

20.15.15.255

VPC 11 → 20.15.0.0/19 → 8192

20.15.31.255

VPC 12 → 20.15.0.0/18 → 16384

20.15.63.255

VPC 13 → 20.15.0.0/17 → 32768

20.15.127.255

VPC 14 → 20.15.0.0/16 → 65536

20.15.255.255

EG1 VPC 20.15.0.0/22

Subnet 1 - 256 IP's - 20.15.0.0/24
Subnet 2 - 256 IP's - 20.15.1.0/24
Subnet 3 - 256 IP's - 20.15.2.0/24
Subnet 4 - 256 IP's - 20.15.3.0/24

EG2 VPC2 - 20.15.0.0/21 -

Subnet 1 - 512 IP's - 20.15.0.0/23
Subnet 2 - 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

EG3 VPC3 - 20.15.0.0/20 -

Subnet 1 - 1024 IP's - 20.15.0.0/22
Subnet 2 - 1024 IP's - 20.15.40/22
Subnet 3 - 1024 IP's - 20.15.8.0/22
Subnet 4 - 1024 IP's - 20.15.12.0/22

EG4 VPC 4 - 20.15.0.0/19

Subnet 1 - 2048 IP's - 20.15.0.0/21
Subnet 2 - 2048 IP's - 20.15.8.0/21
Subnet 3 - 2048 IP's - 20.15.16.0/21
Subnet 3 - 2048 IP's - 20.15.24.0/21

VPC 5 - 20.15.0.0/18

Subnet 1 - 4096 IP's - 20.15.0.0/20
Subnet 2 - 4096 IP's - 20.15.16.0/20
Subnet 3 - 4096 IPS - 20.15.32.0/20
Subnet 4 - 4096 IPS - 20.15.48.0/20

VPC 6 - 20.15.0.0/17
Subnet 1 - 8192 IP's - 20.15.0.0/19
Subnet 2 - 8192 IP's - 2015.32.0/19
Subnet 3 - 8192 IP's - 20.15.64.0/19
Subnet 4 - 8192 IP's - 20.15.96.0/19

256 | 16384

128 128
64 128
192 256

EG7 - VPC7 - 20.15.0.0/16

Subnet 1 - 16384 IP's - 20.15.0.0/16
Subnet 2 - 16384 IP's - 20.15.64.0/16
Subnet 3 - 16384 IP's - 20.15.128/16
Subnet 4 - 16384 IP's - ~~20.15.128.0/16~~
20.15.192.0/16

EG8 - VPC8 - 20.15.0.0/18

Subnet 1 - 4096 IP's - 20.15.0.0/20
Subnet 2 - 2048 IP's - 20.15.16.0/21
Subnet 3 - 1024 IP's - 20.15.24.0/22
Subnet 4 - 2048 IP's - 20.15.28.0/21
Subnet 5 - 1024 IP's - 20.15.36.0/22
Subnet 6 - 2048 IP's - 20.15.40.0/21
Subnet 7 - 4096 IP's - 20.15.48.0/20

EG9 VPC 9 - 20.15.0.0/16

Subnet 1 - 4096 IP's - 20.15.0.0/20
Subnet 2 - 16384 IP's - 20.15.16.0/18
Subnet 3 - 4096 IP's - 20.15.80.0/20
Subnet 4 - 2048 IP's - 20.15.96.0/21
Subnet 5 - 1024 IP's - 20.15.104.0/22
Subnet 6 - 8192 IP's - 20.15.108.0/19
Subnet 7 - 4096 IP's - 20.15.140.0/20

EG9 VPC 10 - 20.15.0.0/17

Subnet 1 - 2048 IP's - 20.15.0.0/21
Subnet 2 - 8192 IP's - 20.15.8.0/19
Subnet 3 - 2048 IP's - 20.15.40.0/21
Subnet 4 - 1024 IP's - 20.15.48.0/22
Subnet 5 - 512 IP's - 20.15.52.0/23
Subnet 6 - 4096 IP's - 20.15.64.0/20
Subnet 7 - 512 IP's - 20.15.70.0/23
Subnet 8 - 2048 IP's - 20.15.72.0/21

EG 1.0 VPC 10 - 20.15.0.0/18

Subnet 1 - 2048 IP's - 20.15.0.0/21
Subnet 2 - 4096 IP's - 20.15.8.0/20
Subnet 3 - 512 IP's - 20.15.24.0/23
Subnet 4 - 1024 IP's - 20.15.26.0/22
Subnet 5 - 512 IP's - 20.15.30.0/23
Subnet 6 - 4096 IP's - 20.15.32.0/20
Subnet 7 - 1024 IP's - 20.15.48.0/22
Subnet 8 - 2048 IP's - 20.15.56.0/21

EG 1.0

Eg 10 VPC 10 - 10.0.0.0/16 (31/12/2024)

Subnet 1 - 4096 IP's - 10.0.0.0/20

Subnet 2 - 1024 IP's - 10.0.16.0/22

Subnet 3 - 8192 IP's - 10.0.20.0/19

Subnet 4 - 4096 IP's - 10.0.52.0/20

Subnet 5 - 2048 IP's - 10.0.68.0/21

Subnet 6 - 4096 IP's - 10.0.76.0/20

Data Centre

* A data centre is a facility of one or more buildings that house a centralized computing infrastructure typically servers storage and networking equipment.

* In this world of apps big data and digital everything you can't stay on top of your industry without cutting edge computing infrastructure