IP4 "classful" Addressing-Scheme (classes A through C)

IP4 consists of 4 octets (8 binary characters). This is 2^{32} - i.e. 4,294,967,296 addresses representable.

binary 2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0

decimal   128 64 32 16 8 4 2 1   128 64 32 16 8 4 2 1   128 64 32 16 8 4 2 1   128 64 32 16 8 4 2 1

counter for mask   1 2 3 4 5 6 7 8   9 10 11 12 13 14 15 16   17 18 19 20 21 22 23 24   25 26 27 28 29 30 31 32

Class A

0 - - - - - - -   network-fraction

1.0.0.0 through 126.0.0.0   thereof "private"   10.0.0.0 through 10.255.255.255

subnet-mask: **255**.0.0.0   each network may contain up to 16,777,214 hosts   *example-host: 10.0.0.130* **/8**

Class B

1 0 - - - - - -   - - - - - - - -   network-fraction

128.1.0.0 through 191.254.0.0   thereof "private"   172.16.0.0 through 172.31.255.255

subnet-mask: **255. 255.**0.0   each network may contain up to 65,534 hosts   *example-host: 172.18.215.30* **/16**

Class C

1 1 0 - - - - -   - - - - - - - -   - - - - - - - -   network-fraction

192.0.1.0 through 223.255.254.0 thereof "private"   192.168.0.0 through 192.168.255.255

subnet-mask: **255. 255. 255.**0   each network may contain up to 254 hosts   *example-host: 192.168.0.130* **/24**