

# Subnetting Block Sizes

128 Mask - Block size of 128

Class A - **11111111.1**0000000.00000000.00000000 (Bit in bold black represents the default mask)

Class B - **11111111.11111111.1**0000000.00000000 (Bit in bold red represents the new mask)

Class C - **11111111.11111111.11111111.1**0000000

2 subnets - **0, 128** (Commit these values to memory!!)

192 Mask - Block size of 64

Class A - **11111111.11**000000.00000000.00000000

Class B - **11111111.11111111.11**000000.00000000

Class C - **11111111.11111111.11111111.11**000000

4 subnets - **0, 64, 128, 192**

224 Mask - Block size of 32

Class A - **11111111.111**00000.00000000.00000000

Class B - **11111111.11111111.111**00000.00000000

Class C - **11111111.11111111.11111111.111**00000

8 subnets - **0, 32, 64, 96, 128, 160, 192, 224**

240 Mask - Block size of 16

Class A - **11111111.1111**0000.00000000.00000000

Class B - **11111111.11111111.1111**0000.00000000

Class C - **11111111.11111111.11111111.1111**0000

16 subnets - **0, 16, 32, 48, 64, 80, 96, 112, 128, 144, 160, 176, 192, 208, 224, 240**

248 Mask - Block size of 8

Class A - **11111111.11111**000.00000000.00000000

Class B - **11111111.11111111.11111**000.00000000

Class C - **11111111.11111111.11111111.11111**000

32 subnets - **0, 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, 128, 136, 144, 152, 160, 168, 176, 184, 192, 200, 208, 216, 224, 232, 240, 248**

252 Mask - Block size of 4

Class A - **11111111.111111**00.00000000.00000000

Class B - **11111111.11111111.111111**00.00000000

Class C - **11111111.11111111.11111111.111111**00

64 subnets - Count by four's (0, 4, 8, 12, 16, 20, etc...)

254 Mask - Block size of 2

Class A - **11111111.1111111**0.00000000.00000000

Class B - **11111111.11111111.1111111**0.00000000

Class C - 254 mask cannot be used in Class C

128 subnets - Count by two's (0, 2, 4, 6, 8, 10, etc...)

255 Mask - Block size of 1

Class A - **11111111.11111111**.00000000.00000000

Class B - **11111111.11111111.11111111**.00000000

Class C - 255 mask cannot be used in Class C

256 subnets - Count in one's (1, 2, 3, 4, etc...)

# Subnetting examples

## 128 Mask

Class A – 10.0.0.0; 10.128.0.0

255.128.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B – 172.16.0.0; 172.16.128.0

255.255.128.0

This mask can also be used in the fourth octet. Block size will remain the same.

Class C – 192.168.0.0; 192.168.0.128

255.255.255.128

This mask can only be used in the fourth octet.

## 192 Mask

Class A – 10.0.0.0; 10.64.0.0; 10.128.0.0; 10.192.0.0

255.192.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B – 172.16.0.0; 172.16.64.0; 172.16.128.0; 172.16.192.0

255.255.192.0

This mask can also be used in the fourth octet. Block size will remain the same.

Class C – 192.168.0.0; 192.168.0.64; 192.168.0.128; 192.168.0.192

255.255.255.192

This mask can only be used in the fourth octet.

## 224 Mask

Class A – 10.0.0.0; 10.32.0.0; 10.64.0.0; 10.96.0.0; 10.128.0.0; 10.160.0.0; 10.192.0.0; 10.224.0.0

255.224.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B – 172.16.0.0; 172.16.32.0; 172.16.64.0; 172.16.96.0; 172.16.128.0; 172.16.160.0;

172.16.192.0; 172.16.224.0

255.255.224.0

This mask can also be used in the fourth octet. Block size will remain the same.

Class C – 192.168.0.0; 192.168.0.32; 192.168.0.64; 192.168.0.96; 192.168.0.128; 192.168.0.160;

192.168.0.192; 192.168.0.224

255.255.255.224

This mask can only be used in the fourth octet.

## 240 Mask

Class A – 10.0.0.0; 10.16.0.0; 10.32.0.0; 10.48.0.0; 10.64.0.0; 10.80.0.0; 10.96.0.0; 10.112.0.0; 10.128.0.0; 10.144.0.0; 10.160.0.0; 10.176.0.0; 10.192.0.0; 10.208.0.0; 10.224.0.0; 10.240.0.0  
255.240.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B – 172.16.0.0; 172.16.16.0; 172.16.32.0; 172.16.48.0; 172.16.64.0; 172.16.80.0; 172.16.96.0; 172.16.112.0; 172.16.128.0; 172.16.144.0; 172.16.160.0; 172.16.176.0; 172.16.192.0; 172.16.208.0; 172.16.224.0; 172.16.240.0  
255.255.240.0

This mask can also be used in the fourth octet. Block size will remain the same.

Class C – 192.168.0.0; 192.168.0.16; 192.168.0.32; 192.168.0.48; 192.168.0.64; 192.168.0.80; 192.168.0.96; 192.168.0.112; 192.168.0.128; 192.168.0.144; 192.168.0.160; 192.168.0.176; 192.168.0.192; 192.168.0.208; 192.168.0.224; 192.168.0.240  
255.255.255.240

This mask can only be used in the fourth octet.

## 248 Mask

Class A - 10.0.0.0; 10.8.0.0; 10.16.0.0; 10.24.0.0; 10.32.0.0; 10.40.0.0; 10.48.0.0; 10.56.0.0; 10.64.0.0; 10.72.0.0; 10.80.0.0; 10.88.0.0; 10.96.0.0; 10.104.0.0; 10.112.0.0; 10.120.0.0; 10.128.0.0; 10.136.0.0; 10.144.0.0; 10.152.0.0; 10.160.0.0; 10.168.0.0; 10.176.0.0; 10.184.0.0; 10.192.0.0; 10.200.0.0; 10.208.0.0; 10.216.0.0; 10.224.0.0; 10.232.0.0; 10.240.0.0; 10.248.0.0  
255.248.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B - 172.16.0.0; 172.16.8.0; 172.16.16.0; 172.16.24.0; 172.16.32.0; 172.16.40.0; 172.16.48.0; 172.16.56.0; 172.16.64.0; 172.16.72.0; 172.16.80.0; 172.16.88.0; 172.16.96.0; 172.16.104.0; 172.16.112.0; 172.16.120.0; 172.16.128.0; 172.16.136.0; 172.16.144.0; 172.16.152.0; 172.16.160.0; 172.16.168.0; 172.16.176.0; 172.16.184.0; 172.16.192.0; 172.16.200.0; 172.16.208.0; 172.16.216.0; 172.16.224.0; 172.16.232.0; 172.16.240.0; 172.16.248.0  
255.255.248.0

This mask can also be used in the fourth octet. Block size will remain the same.

Class C - 192.168.0.0; 192.168.0.8; 192.168.0.16; 192.168.0.24; 192.168.0.32; 192.168.0.40; 192.168.0.48; 192.168.0.56; 192.168.0.64; 192.168.0.72; 192.168.0.80; 192.168.0.88; 192.168.0.96; 192.168.0.104; 192.168.0.112; 192.168.0.120; 192.168.0.128; 192.168.0.136; 192.168.0.144; 192.168.0.152; 192.168.0.160; 192.168.0.168; 192.168.0.176; 192.168.0.184; 192.168.0.192; 192.168.0.200; 192.168.0.208; 192.168.0.216; 192.168.0.224; 192.168.0.232; 192.168.0.240; 192.168.0.248  
255.255.255.248

This mask can only be used in the fourth octet.

## 252 Mask

Class A - 10.0.0.0; 10.4.0.0; 10.8.0.0; 10.12.0.0; 10.16.0.0.

Subnets will continue to increment by four in the second octet.

255.252.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B - 172.16.0.0; 172.16.4.0; 172.16.8.0; 172.16.12.0; 172.16.16.0; 172.16.20.0.

Subnets will continue to increment by four in the third octet.

255.255.252.0

This mask can also be used in the fourth octet. Block size will remain the same.

Class C - 192.168.0.0; 192.168.0.4; 192.168.0.8; 192.168.0.12; 192.168.0.16; 192.168.0.20; 192.168.0.24. Subnets will continue to increment by four in the fourth octet.

255.255.255.252

This mask can only be used in the fourth octet.

## 254 Mask

Class A - 10.0.0.0; 10.2.0.0; 10.4.0.0; 10.6.0.0; 10.8.0.0; 10.10.0.0; 10.12.0.0.

Subnets will continue to increment by two in the second octet.

255.254.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B - 172.16.0.0; 172.16.2.0; 172.16.4.0; 172.16.6.0; 172.16.8.0; 172.16.10.0; 172.16.12.0.

Subnets will continue to increment by two in the third octet.

255.255.255.254

Class C - 254 mask cannot be used in Class C.

## 255 Mask

Class A - 10.0.0.0; 10.1.0.0; 10.2.0.0; 10.3.0.0; 10.4.0.0; 10.5.0.0; 10.6.0.0; 10.7.0.0; 10.8.0.0.

Subnets will continue to increment by one in the second octet.

255.255.0.0

This mask can also be used in the third or fourth octet. Block size will remain the same.

Class B - 172.16.0.0; 172.16.1.0; 172.16.2.0; 172.16.3.0; 172.16.4.0; 172.16.5.0; 172.16.6.0; 172.16.7.0; 172.16.8.0.

Subnets will continue to increment by one in the third octet.

255.255.255.0

Class C - 255 mask cannot be used in Class C.