

# IP SUBNETTING Ankit kumar.

## A) 194.168.0.10/24

Class – C  
Default Subnet Mask – 255.255.255.0  
Subnet Mask – 255.255.255.0  
Extra-on-bits – 0  
No. of groups – 1  
Total No. of IPs – 256  
Total No. of IPs in a group – 256  
Valid IPs – 254  
Network IP – 194.168.0.0/24  
Broadcast IP – 194.168.0.255/24  
Type of IP – Unique/Unicast

## B) 194.168.0.10/25

Class – C  
Default Subnet Mask – 255.255.255.0  
Subnet Mask – 255.255.255.128  
Extra-on-bits – 1  
No. of groups – 2  
Total No. of IPs – 256  
Total No. of IPs in a group – 128  
Valid IPs – 252  
Network IPs – Group 1 - 194.168.0.0/25  
                                Group 2 - 194.168.0.128/25  
Broadcast IPs – Group 1 - 194.168.0.127/25  
                                Group 2 - 194.168.0.255/25  
Type of IP – Unique/Unicast

## C) 194.168.0.10/26

Class – C  
Default Subnet Mask – 255.255.255.0  
Subnet Mask – 255.255.255.192  
Extra-on-bits – 2  
No. of groups – 4  
Total No. of IPs – 256  
Total No. of IPs in a group – 64  
Valid IPs – 248  
Network IPs – Group 1 - 194.168.0.0/26  
                                Group 2 - 194.168.0.64/26  
                                Group 3 - 194.168.0.128/26  
                                Group 4 - 194.168.0.192/26  
Broadcast IPs - Group 1 - 194.168.0.63/26  
                                Group 2 - 194.168.0.127/26  
                                Group 3 - 194.168.0.191/26  
                                Group 4 - 194.168.0.255/26  
Type of IP – Unique/Unicast

**D) 194.168.0.10/27**

Class – C

Default Subnet Mask – 255.255.255.0

Subnet Mask – 255.255.255.224

Extra-on-bits – 3

No. of groups – 8

Total No. of IPs – 256

Total No. of IPs in a group – 32

Valid IPs – 240

Network IPs – Group 1 - 194.168.0.0/27

Group 2 - 194.168.0.32/27

Group 3 - 194.168.0.64/27

Group 4 - 194.168.0.96/27

Group 5 - 194.168.0.128/27

Group 6 - 194.168.0.160/27

Group 7 - 194.168.0.192/27

Group 8 - 194.168.0.224/27

Broadcast IPs - Group 1 - 194.168.0.31/27

Group 2 - 194.168.0.63/27

Group 3 - 194.168.0.95/27

Group 4 - 194.168.0.127/27

Group 5 - 194.168.0.159/27

Group 6 - 194.168.0.191/27

Group 7 - 194.168.0.223/27

Group 8 - 194.168.0.255/27

Type of IP – Unique/Unicast

**E) 194.168.0.10/28**

Class – C

Default Subnet Mask – 255.255.255.0

Subnet Mask – 255.255.255.240

Extra-on-bits – 4

No. of groups – 16

Total No. of IPs – 256

Total No. of IPs in a group – 16

Valid IPs – 224

Network IPs – Group 1 - 194.168.0.0/28

Group 2 - 194.168.0.16/28

Group 3 - 194.168.0.32/28

Group 4 - 194.168.0.48/28

Group 5 - 194.168.0.64/28

Group 6 - 194.168.0.80/28

Group 7 - 194.168.0.96/28

Group 8 - 194.168.0.112/28

Group 9 - 194.168.0.128/28

Group 10 - 194.168.0.144/28

Group 11 - 194.168.0.160/28

Group 12 - 194.168.0.176/28

Group 13 - 194.168.0.192/28

Group 14 - 194.168.0.208/28

Group 15 - 194.168.0.224/28

Group 16 - 194.168.0.240/28

Broadcast IPs – Group 1 - 194.168.0.15/28

Group 2 - 194.168.0.31/28  
Group 3 - 194.168.0.47/28  
Group 4 - 194.168.0.63/28  
Group 5 - 194.168.0.79/28  
Group 6 - 194.168.0.95/28  
Group 7 - 194.168.0.111/28  
Group 8 - 194.168.0.127/28  
Group 9 - 194.168.0.143/28  
Group 10 - 194.168.0.159/28  
Group 11 - 194.168.0.175/28  
Group 12 - 194.168.0.191/28  
Group 13 - 194.168.0.207/28  
Group 14 - 194.168.0.223/28  
Group 15 - 194.168.0.239/28  
Group 16 - 194.168.0.255/28

Type of IP - Unique/Unicast

**F) 194.168.0.10/29**

Class - C

Default Subnet Mask - 255.255.255.0

Subnet Mask - 255.255.255.248

Extra-on-bits - 5

No. of groups - 32

Total No. of IPs - 256

Total No. of IPs in a group - 8

Valid IPs - 192

Network IPs - Group 1 - 194.168.0.0/29

Group 2 - 194.168.0.8/29

Group 3 - 194.168.0.16/29

Group 4 - 194.168.0.24/29

Group 5 - 194.168.0.32/29

Group 6 - 194.168.0.40/29

Group 7 - 194.168.0.48/29

Group 8 - 194.168.0.56/29

Group 9 - 194.168.0.64/29

Group 10 - 194.168.0.72/29

Group 11 - 194.168.0.80/29

Group 12 - 194.168.0.88/29

Group 13 - 194.168.0.96/29

Group 14 - 194.168.0.104/29

Group 15 - 194.168.0.112/29

Group 16 - 194.168.0.120/29

Group 17 - 194.168.0.128/29

Group 18 - 194.168.0.136/29

Group 19 - 194.168.0.144/29

Group 20 - 194.168.0.152/29

Group 21 - 194.168.0.160/29

Group 22 - 194.168.0.168/29

Group 23 - 194.168.0.176/29

Group 24 - 194.168.0.184/29

Group 25 - 194.168.0.192/29

Group 26 - 194.168.0.200/29

Group 27 - 194.168.0.208/29

Group 28 - 194.168.0.216/29

Group 29 - 194.168.0.224/29

Group 30 - 194.168.0.232/29  
Group 31 - 194.168.0.240/29  
Group 32 - 194.168.0.248/29  
Broadcast IPs – Group 1 - 194.168.0.7/29  
Group 2 - 194.168.0.15/29  
Group 3 - 194.168.0.23/29  
Group 4 - 194.168.0.31/29  
Group 5 - 194.168.0.39/29  
Group 6 - 194.168.0.47/29  
Group 7 - 194.168.0.55/29  
Group 8 - 194.168.0.63/29  
Group 9 - 194.168.0.71/29  
Group 10 - 194.168.0.79/29  
Group 11 - 194.168.0.87/29  
Group 12 - 194.168.0.95/29  
Group 13 - 194.168.0.103/29  
Group 14 - 194.168.0.111/29  
Group 15 - 194.168.0.119/29  
Group 16 - 194.168.0.127/29  
Group 17 - 194.168.0.135/29  
Group 18 - 194.168.0.143/29  
Group 19 - 194.168.0.151/29  
Group 20 - 194.168.0.159/29  
Group 21 - 194.168.0.167/29  
Group 22 - 194.168.0.175/29  
Group 23 - 194.168.0.183/29  
Group 24 - 194.168.0.191/29  
Group 25 - 194.168.0.199/29  
Group 26 - 194.168.0.207/29  
Group 27 - 194.168.0.215/29  
Group 28 - 194.168.0.223/29  
Group 29 - 194.168.0.231/29  
Group 30 - 194.168.0.239/29  
Group 31 - 194.168.0.247/29  
Group 32 - 194.168.0.255/29

Type of IP – Unique/Unicast

**G) 194.168.0.10/30**

Class – C

Default Subnet Mask – 255.255.255.0

Subnet Mask – 255.255.255.252

Extra-on-bits – 6

No. of groups – 64

Total No. of IPs – 256

Total No. of IPs in a group – 4

Valid IPs – 128

Network IPs – Group 1 - 194.168.0.0/30

Group 2 - 194.168.0.4/30

Group 3 - 194.168.0.8/30

Group 4 - 194.168.0.12/30

Group 5 - 194.168.0.16/30

Group 6 - 194.168.0.20/30

Group 7 - 194.168.0.24/30

Group 8 - 194.168.0.28/30

Group 9 - 194.168.0.32/30

Group 10 - 194.168.0.36/30  
Group 11 - 194.168.0.40/30  
Group 12 - 194.168.0.44/30  
Group 13 - 194.168.0.48/30  
Group 14 - 194.168.0.52/30  
Group 15 - 194.168.0.56/30  
Group 16 - 194.168.0.60/30  
Group 17 - 194.168.0.64/30  
Group 18 - 194.168.0.68/30  
Group 19 - 194.168.0.72/30  
Group 20 - 194.168.0.76/30  
Group 21 - 194.168.0.80/30  
Group 22 - 194.168.0.84/30  
Group 23 - 194.168.0.88/30  
Group 24 - 194.168.0.92/30  
Group 25 - 194.168.0.96/30  
Group 26 - 194.168.0.100/30  
Group 27 - 194.168.0.104/30  
Group 28 - 194.168.0.108/30  
Group 29 - 194.168.0.112/30  
Group 30 - 194.168.0.116/30  
Group 31 - 194.168.0.120/30  
Group 32 - 194.168.0.124/30  
Group 33 - 194.168.0.128/30  
Group 34 - 194.168.0.132/30  
Group 35 - 194.168.0.136/30  
Group 36 - 194.168.0.140/30  
Group 37 - 194.168.0.144/30  
Group 38 - 194.168.0.148/30  
Group 39 - 194.168.0.152/30  
Group 40 - 194.168.0.156/30  
Group 41 - 194.168.0.160/30  
Group 42 - 194.168.0.164/30  
Group 43 - 194.168.0.168/30  
Group 44 - 194.168.0.172/30  
Group 45 - 194.168.0.176/30  
Group 46 - 194.168.0.180/30  
Group 47 - 194.168.0.184/30  
Group 48 - 194.168.0.188/30  
Group 49 - 194.168.0.192/30  
Group 50 - 194.168.0.196/30  
Group 51 - 194.168.0.200/30  
Group 52 - 194.168.0.204/30  
Group 53 - 194.168.0.208/30  
Group 54 - 194.168.0.212/30  
Group 55 - 194.168.0.216/30  
Group 56 - 194.168.0.220/30  
Group 57 - 194.168.0.224/30  
Group 58 - 194.168.0.228/30  
Group 59 - 194.168.0.232/30  
Group 60 - 194.168.0.236/30  
Group 61 - 194.168.0.240/30  
Group 62 - 194.168.0.244/30  
Group 63 - 194.168.0.248/30  
Group 64 - 194.168.0.252/30

Broadcast IPs - Group 1 - 194.168.0.3/30  
Group 2 - 194.168.0.7/30  
Group 3 - 194.168.0.11/30  
Group 4 - 194.168.0.15/30  
Group 5 - 194.168.0.19/30  
Group 6 - 194.168.0.23/30  
Group 7 - 194.168.0.27/30  
Group 8 - 194.168.0.31/30  
Group 9 - 194.168.0.35/30  
Group 10 - 194.168.0.39/30  
Group 11 - 194.168.0.43/30  
Group 12 - 194.168.0.47/30  
Group 13 - 194.168.0.51/30  
Group 14 - 194.168.0.55/30  
Group 15 - 194.168.0.59/30  
Group 16 - 194.168.0.63/30  
Group 17 - 194.168.0.67/30  
Group 18 - 194.168.0.71/30  
Group 19 - 194.168.0.75/30  
Group 20 - 194.168.0.79/30  
Group 21 - 194.168.0.83/30  
Group 22 - 194.168.0.87/30  
Group 23 - 194.168.0.91/30  
Group 24 - 194.168.0.95/30  
Group 25 - 194.168.0.99/30  
Group 26 - 194.168.0.103/30  
Group 27 - 194.168.0.107/30  
Group 28 - 194.168.0.111/30  
Group 29 - 194.168.0.115/30  
Group 30 - 194.168.0.119/30  
Group 31 - 194.168.0.123/30  
Group 32 - 194.168.0.127/30  
Group 33 - 194.168.0.131/30  
Group 34 - 194.168.0.135/30  
Group 35 - 194.168.0.139/30  
Group 36 - 194.168.0.143/30  
Group 37 - 194.168.0.147/30  
Group 38 - 194.168.0.151/30  
Group 39 - 194.168.0.155/30  
Group 40 - 194.168.0.159/30  
Group 41 - 194.168.0.163/30  
Group 42 - 194.168.0.167/30  
Group 43 - 194.168.0.171/30  
Group 44 - 194.168.0.175/30  
Group 45 - 194.168.0.179/30  
Group 46 - 194.168.0.183/30  
Group 47 - 194.168.0.187/30  
Group 48 - 194.168.0.191/30  
Group 49 - 194.168.0.195/30  
Group 50 - 194.168.0.199/30  
Group 51 - 194.168.0.203/30  
Group 52 - 194.168.0.207/30  
Group 53 - 194.168.0.211/30  
Group 54 - 194.168.0.215/30  
Group 55 - 194.168.0.219/30

Group 56 – 194.168.0.223/30  
Group 57 - 194.168.0.227/30  
Group 58 - 194.168.0.231/30  
Group 59 – 194.168.0.235/30  
Group 60 – 194.168.0.239/30  
Group 61 - 194.168.0.243/30  
Group 62 - 194.168.0.247/30  
Group 63 – 194.168.0.251/30  
Group 64 – 194.168.0.255/30

Type of IP – Unique/Unicast

**H) 172.168.0.0/16**

Class – B

Default Subnet Mask – 255.255.0.0

Subnet Mask – 255.255.0.0

Extra-on-bits – 0

No. of groups – 1

Total No. of IPs – 65536

Total No. of IPs in a group – 65536

Valid IPs – 65534

No. of Network IPs – 1

No. of Broadcast IPs – 1

Type of IP – Network IP

**I) 172.168.0.0/17**

Class – B

Default Subnet Mask – 255.255.0.0

Subnet Mask – 255.255.128.0

Extra-on-bits – 1

No. of groups – 2

Total No. of IPs – 65536

Total No. of IPs in a group – 32768

Valid IPs – 65532

No. of Network IPs – 2

No. of Broadcast IPs – 2

Type of IP – Network IP

**J) 172.168.0.0/18**

Class – B

Default Subnet Mask – 255.255.0.0

Subnet Mask – 255.255.192.0

Extra-on-bits – 2

No. of groups – 4

Total No. of IPs – 65536

Total No. of IPs in a group – 16384

Valid IPs – 65528

No. of Network IPs – 4

No. of Broadcast IPs – 4

Type of IP – Network IP

**K) 172.168.0.0/19**

Class – B

Default Subnet Mask – 255.255.0.0

Subnet Mask – 255.255.224.0

Extra-on-bits – 3  
No. of groups – 8  
Total No. of IPs – 65536  
Total No. of IPs in a group – 8192  
Valid IPs – 65520  
No. of Network IPs – 8  
No. of Broadcast IPs – 8  
Type of IP – Network IP

**L) 172.168.0.0/20**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.240.0  
Extra-on-bits – 4  
No. of groups – 16  
Total No. of IPs – 65536  
Total No. of IPs in a group – 4096  
Valid IPs – 65504  
No. of Network IPs – 16  
No. of Broadcast IPs – 16  
Type of IP – Network IP

**M) 172.168.0.0/21**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.248.0  
Extra-on-bits – 5  
No. of groups – 32  
Total No. of IPs – 65536  
Total No. of IPs in a group – 2048  
Valid IPs – 65472  
No. of Network IPs – 32  
No. of Broadcast IPs – 32  
Type of IP – Network IP

**N) 172.168.0.0/22**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.252.0  
Extra-on-bits – 6  
No. of groups – 64  
Total No. of IPs – 65536  
Total No. of IPs in a group – 1024  
Valid IPs – 65408  
No. of Network IPs – 64  
No. of Broadcast IPs – 64  
Type of IP – Network IP

**O) 172.168.0.0/23**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.254.0  
Extra-on-bits – 7  
No. of groups – 128



Total No. of IPs – 65536  
Total No. of IPs in a group – 512  
Valid IPs – 65280  
No. of Network IPs – 128  
No. of Broadcast IPs – 128  
Type of IP – Network IP

**P) 172.168.0.0/24**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.0  
Extra-on-bits – 8  
No. of groups – 256  
Total No. of IPs – 65536  
Total No. of IPs in a group – 256  
Valid IPs – 65024  
No. of Network IPs – 256  
No. of Broadcast IPs – 256  
Type of IP – Network IP

**Q) 172.168.0.0/25**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.128  
Extra-on-bits – 9  
No. of groups – 512  
Total No. of IPs – 65536  
Total No. of IPs in a group – 128  
Valid IPs – 64512  
No. of Network IPs – 512  
No. of Broadcast IPs – 512  
Type of IP – Network IP

**R) 172.168.0.0/26**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.192  
Extra-on-bits – 10  
No. of groups – 1024  
Total No. of IPs – 65536  
Total No. of IPs in a group – 64  
Valid IPs – 63488  
No. of Network IPs – 1024  
No. of Broadcast IPs – 1024  
Type of IP – Network IP

**S) 172.168.0.0/27**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.224  
Extra-on-bits – 11  
No. of groups – 2048  
Total No. of IPs – 65536  
Total No. of IPs in a group – 32

Valid IPs – 61440  
No. of Network IPs – 2048  
No. of Broadcast IPs – 2048  
Type of IP – Network IP

**T) 172.168.0.0/28**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.240  
Extra-on-bits – 12  
No. of groups – 4096  
Total No. of IPs – 65536  
Total No. of IPs in a group – 16  
Valid IPs – 57344  
No. of Network IPs – 4096  
No. of Broadcast IPs – 4096  
Type of IP – Network IP

**U) 172.168.0.0/29**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.248  
Extra-on-bits – 13  
No. of groups – 8192  
Total No. of IPs – 65536  
Total No. of IPs in a group – 8  
Valid IPs – 49152  
No. of Network IPs – 8192  
No. of Broadcast IPs – 8192  
Type of IP – Network IP

**V) 172.168.0.0/30**

Class – B  
Default Subnet Mask – 255.255.0.0  
Subnet Mask – 255.255.255.252  
Extra-on-bits – 14  
No. of groups – 16384  
Total No. of IPs – 65536  
Total No. of IPs in a group – 4  
Valid IPs – 32768  
No. of Network IPs – 16384  
No. of Broadcast IPs – 16384  
Type of IP – Network IP

The end.....

