**IP SUBNETTING Ankit kumar.**

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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

1. **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……………………………