

Classes of IP address in networking

Class A	0 - 127	For internetwork communication
Class B	128 - 191	For internetwork communication
Class C	192 - 223	For internetwork communication
Class D	224 - 239	Reserved for multicasting
Class E	240 - 254	Reserved for research and experiments

Class	Private Address Ranges
Class A	10.0.0.0 – 10.255.255.255
Class B	172.16.0.0 – 172.31.255.255
Class C	192.168.0.0 – 192.168.255.255
Loopback	127.0.0.0 – 127.255.255.255 (127.0.0.1)

Total		2 ⁷	2 ⁶	2 ⁵	2 ⁴	2 ³	2 ²	2 ¹	2 ⁰
255		128	64	32	16	8	4	2	1

Class A - 0NNNNNNN.HHHHHHHH.HHHHHHHH.HHHHHHHH

Class B - 10NNNNNNN.NNNNNNNN.HHHHHHHH.HHHHHHHH

Class C - 110NNNNNN.NNNNNNNN.NNNNNNNN.HHHHHHHH

Class A - NNNNNNNN.HHHHHHHH.HHHHHHHH.HHHHHHHH

Class B - NNNNNNNN.NNNNNNNN.HHHHHHHH.HHHHHHHH

Class C - NNNNNNNN.NNNNNNNN.NNNNNNNN.HHHHHHHH

Class A - 11111111.00000000.00000000.00000000

Class B - 11111111.11111111.00000000.00000000

Class C - 11111111.11111111.11111111.00000000

<http://www.calculator.net/ip-subnet-calculator.html>

Subnetting Scenario 1

Required Number of Physical Segments:	$100 \sim 2^7 = 128$
Maximum Number of Hosts/Physical Segment:	88000
Network Address:	39.0.0.0
	11111111. 11111110. 00000000.00000000
Proposed Custom Subnet Mask:	255.254.0.0
Number of Subnets Supported:	128
Maximum Number of Host ID per Subnet:	$131072 - 2 = 131070$

Subnetting Scenario 2

Required Number of Physical Segments:	$5 \sim 2^3 = 8$
Maximum Number of Hosts/Physical Segment:	5000
Network Address:	153.61.0.0
	11111111.11111111.11100000.00000000
Proposed Custom Subnet Mask:	255.255.224.0
Number of Subnets Supported:	8
Maximum Number of Host ID per Subnet:	$8192 - 2 = 8190$

Subnetting Scenario 3

Required Number of Physical Segments:	$250 \sim 2^8 = 256$
Maximum Number of Hosts/Physical Segment:	100
Network Address:	191.254.0.0
	11111111.11111111.11111111.00000000
Proposed Custom Subnet Mask:	255.255.255.0
Number of Subnets Supported:	256
Maximum Number of Host ID per Subnet:	$256 - 2 = 254$

Subnetting Scenario 4

Required Number of Physical Segments:	$1 \sim 2^0 = 1$
Maximum Number of Hosts/Physical Segment:	220
Network Address:	192.177.4.0
	11111111.11111111.11111111.00000000
Proposed Custom Subnet Mask:	255.255.255.0
Number of Subnets Supported:	1
Maximum Number of Host ID per Subnet:	$256 - 2 = 254$