

210.23.67.102  
 66.23.148.0  
 158.23.251.33  
 144.23.117.254  
 192.254.23.123  
 144.207.78.1  
 63.125.23.211  
 192.25.128.36  
 128.12.254.98  
 134.223.156.89  
 127.0.0.1  
 223.78.27.144  
 77.123.28.167  
 191.249.222.234

<b>Scenario 1</b>	Class B
Required Number of Physical Segments:	5 → $5+2=7 \sim 2^3$
Maximum Number of Hosts/Physical Segment:	5000 → $(2^{13})-2=8190$
Network Address:	153.61.0.0/16
	11111111.11111111.11100000.00000000
Proposed Custom Subnet Mask:	255.255.224.0
Number of Subnets Supported:	8
Maximum Number of Host ID per Subnet:	8190

<b>Scenario 2</b>	
Required Number of Physical Segments:	100
Maximum Number of Hosts/Physical Segment:	88,000
Network Address:	39.0.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 3</b>	
Required Number of Physical Segments:	100
Maximum Number of Hosts/Physical Segment:	350
Network Address:	177.133.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 4</b>	
Required Number of Physical Segments:	4
Maximum Number of Hosts/Physical Segment:	1,500,000
Network Address:	120.0.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 5</b>	
Required Number of Physical Segments:	16
Maximum Number of Hosts/Physical Segment:	1,500
Network Address:	128.199.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 6</b>	
Required Number of Physical Segments:	250
Maximum Number of Hosts/Physical Segment:	100
Network Address:	191.254.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 7</b>	
Required Number of Physical Segments:	12
Maximum Number of Hosts/Physical Segment:	12
Network Address:	216.122.44.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 8</b>	
Required Number of Physical Segments:	10
Maximum Number of Hosts/Physical Segment:	750,000
Network Address:	12.0.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 9</b>	
Required Number of Physical Segments:	50
Maximum Number of Hosts/Physical Segment:	600
Network Address:	134.119.0.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

<b>Scenario 10</b>	
Required Number of Physical Segments:	5
Maximum Number of Hosts/Physical Segment:	25
Network Address:	192.177.4.0
Proposed Custom Subnet Mask:	
Number of Subnets Supported:	
Maximum Number of Host ID per Subnet:	

- $2^0 = 1$
- $2^1 = 2$
- $2^2 = 4$
- $2^3 = 8$
- $2^4 = 16$
- $2^5 = 32$
- $2^6 = 64$
- $2^7 = 128$
- $2^8 = 256$
- $2^9 = 512$
- $2^{10} = 1024$
- $2^{11} = 2048$
- $2^{12} = 4096$
- $2^{13} = 8192$
- $2^{14} = 16384$

$$2^{15} = 32768$$

## Summary of IP Address Classes

Class A - 0nnnnnnn hhhhhhhh hhhhhhhh hhhhhhhh

- First bit 0; 7 network bits; 24 host bits
- Initial byte: 0 - 127
- 126 Class As exist (0 and 127 are reserved)
- 16,777,214 hosts on each Class A

Class B - 10nnnnnn nnnnnnnn hhhhhhhh hhhhhhhh

- First two bits 10; 14 network bits; 16 host bits
- Initial byte: 128 - 191
- 16,384 Class Bs exist
- 65,532 hosts on each Class B

Class C - 110nnnnn nnnnnnnn nnnnnnnn hhhhhhhh

- First three bits 110; 21 network bits; 8 host bits
- Initial byte: 192 - 223
- 2,097,152 Class Cs exist
- 254 hosts on each Class C