

DigiP's Sub Netting Cheat Sheet

Octet Bit Values: all 1's = 255 ex: 11111111								Binary Bit Value 2 to the power of Subnet Mask
128	64	32	16	8	4	2	1	
2 ⁷	2 ⁶	2 ⁵	2 ⁴	2 ³	2 ²	2 ¹	2 ⁰	
128	192	224	240	248	252	254	255	

For every borrowed bit(Starting Left to right) you add the Binary Bit values to get the Subnet Mask. The Binary value in row 3 is the divider you use for your Base Network ID.

N = Number of Borrowed Bits

2^N = Total Subnets

32 total bits, 8 in each octet. Number of Borrowed bits

H = Number of Remaining Bits

2^H - 2 = Total Hosts

plus default mask, subtracted from 32 gives you the value of H.

1-126 = A 128-191 = B 192-223 = C The First OCTET in an IP address determines the Class and Default Subnet Mask.

IP address:	192.168.1.0-255	IP Address Given to work with.		
Mask:	255.255.255.0	Default Mask	Number of Bits Borrowed (N):	2
CIDR Value:	/24	Default CIDR	Number of Remaining Bits (H):	6
New Mask:	255.255.255.192	Need 3 subnets, divide accordingly		
New CIDR:	/26	2^N = Total Subnets: 4		
Divider:	64	2^H – 2 = Total Hosts: 62		
		Ex:192.168.1.1/27 Divider is 32, Subnet Mask is 255.255.255.224		

	Base ID / Subnet	Host Start Range	Host End Range	Broadcast	
1	192.168.1.0	192.168.1.1	192.168.1.62	192.168.1.63	s
2	192.168.1.64	192.168.1.64	192.168.1.126	192.168.1.127	u
3	192.168.1.128	192.168.1.128	192.168.1.190	192.168.1.191	b
4	192.168.1.192	192.168.1.192	192.168.1.254	192.168.1.255	n
5	Cant go past 255, value is 256 when divider is added to 192, subtract 1,				e
6	gives you last Host address broadcast octet.				t
7					s
8					
9					s
10					u
11					b
12					n
13					e
14					t
15					s
16					
17					s
18					u
19					b
20					n
21					e
22					t
23					s
24					
25					

First determine your IP Class. Then determine the DEFAULT subnet mask. For every borrowed bit, you add the Binary bit value, and this determines your new Subnet mask value. The ending octet you borrow from is where you begin sub netting your network.

Borrowed Bits + Default Subnet Mask Bits = CIDR Value.

Example: 11111111 11111111 11000000 00000000

Mask 255 255 192 0

CIDR Value: /18