Details & Requirements

- Network Address: 192.168.1.0
- Default Subnet Mask: 255.255.255.0 or /24
- Requires 22 hosts / Subnet

How many host bit do we need to borrow?

- 3 host bits, $2^3 = 8$ Subnets

How many addresses hosts per subnet?

- 5 host bits left, $2^5 = 32$ Addresses / Subnet
- $2^5 - 2 = 30$ Addresses / Subnet

What are the valid subnets?

- .0, .32, .64, .96..... .224

New Subnet Mask?

- 11111111.11111111.11111111.11100000
- 255.255.255.224 or /27

CLASS C POSSIBLE SUBNET MASKS

Binary (N.N.N.H)	Decimal	CIDR	# Subnets (2^x)	Block Size (2^y)	# Hosts (2^y - 2)
N.N.N.00000000	255.255.255.0	/24	$2^0 = 1$	$2^8 = 256$	$2^8 - 2 = 254$
N.N.N.10000000	255.255.255.128	/25	$2^1 = 2$	$2^7 = 128$	$2^7 - 2 = 126$
N.N.N.11000000	255.255.255.192	/26	$2^2 = 4$	$2^6 = 64$	$2^6 - 2 = 62$
N.N.N.11100000	255.255.255.224	/27	$2^3 = 8$	$2^5 = 32$	$2^5 - 2 = 30$
N.N.N.11110000	255.255.255.240	/28	$2^4 = 16$	$2^4 = 16$	$2^4 - 2 = 14$
N.N.N.11111000	255.255.255.248	/29	$2^5 = 32$	$2^3 = 8$	$2^3 - 2 = 6$
N.N.N.11111100	255.255.255.252	/30	$2^6 = 64$	$2^2 = 4$	$2^2 - 2 = 2$

Subnet	Network Address	Host IP Addresses	Broadcast Address
1	192.168.1.0	1 thru 30	192.168.1.31
2	192.168.1.32	33 thru 62	192.168.1.63
3	192.168.1.64	65 thru 94	192.168.1.95
4	192.168.1.96	97 thru 126	192.168.1.127
5	192.168.1.128	129 thru 128	192.168.1.159
6	192.168.1.160	161 thru 190	192.168.1.191
7	192.168.1.192	193 thru 222	192.168.1.223
8	192.168.1.224	225 thru 254	192.168.1.255

Default Class C Network (8 Host Bits)

3 Host Bits Borrowed = 2^3 = Subnetted into 8 Subnets

1	2	3	4	5	6	7	8