

1.5. Understanding CIDR Subnet Mask Notation

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1.5. Understanding CIDR Subnet Mask Notation

m0n0wall uses a subnet mask format that you may not be familiar with. Rather than the common 255.x.x.x, it uses CIDR (Classless InterDomain Routing) notation.

1.5.1. CIDR Table

You can refer to the following table to find the CIDR equivalent of your subnet mask.

Table 1.1. CIDR Subnet Table

Subnet Mask	CIDR Prefix	Total IP's	Usable IP's	Number of Class C networks
255.255.255.255	/32	1	1	1/256th
255.255.255.254	/31	2	0	1/128th
255.255.255.252	/30	4	2	1/64th
255.255.255.248	/29	8	6	1/32nd
255.255.255.240	/28	16	14	1/16th
255.255.255.224	/27	32	30	1/8th
255.255.255.192	/26	64	62	1/4th
255.255.255.128	/25	128	126	1 half
255.255.255.0	/24	256	254	1
255.255.254.0	/23	512	510	2
255.255.252.0	/22	1024	1022	4
255.255.248.0	/21	2048	2046	8
255.255.240.0	/20	4096	4094	16
255.255.224.0	/19	8192	8190	32
255.255.192.0	/18	16,384	16,382	64
255.255.128.0	/17	32,768	32,766	128
255.255.0.0	/16	65,536	65,534	256
255.254.0.0	/15	131,072	131,070	512
255.252.0.0	/14	262,144	262,142	1024
255.248.0.0	/13	524,288	524,286	2048

255.240.0.0	/12	1,048,576	1,048,574	4096
255.224.0.0	/11	2,097,152	2,097,150	8192
255.192.0.0	/10	4,194,304	4,194,302	16,384
255.128.0.0	/9	8,388,608	8,388,606	32,768
255.0.0.0	/8	16,777,216	16,777,214	65,536
254.0.0.0	/7	33,554,432	33,554,430	131,072
252.0.0.0	/6	67,108,864	67,108,862	262,144
248.0.0.0	/5	134,217,728	134,217,726	1,048,576
240.0.0.0	/4	268,435,456	268,435,454	2,097,152
224.0.0.0	/3	536,870,912	536,870,910	4,194,304
192.0.0.0	/2	1,073,741,824	1,073,741,822	8,388,608
128.0.0.0	/1	2,147,483,648	2,147,483,646	16,777,216
0.0.0.0	/0	4,294,967,296	4,294,967,294	33,554,432

1.5.2. So where do these CIDR numbers come from anyway?

The CIDR number comes from the number of 1's in the subnet mask when converted to binary.

The common subnet mask 255.255.255.0 is 11111111.11111111.11111111.00000000 in binary. This adds up to 24 1's, or /24 (pronounced 'slash twenty four').

A subnet mask of 255.255.255.192 is 11111111.11111111.11111111.11000000 in binary, or 26 1's, hence a /26.

And so on...

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