**SUBNETTING packetlife.net**

**Subnet Chart**

**Decimal to Binary**

**CIDR Subnet Mask Addresses Wildcard /32** 255.255.255.255 1 0.0.0.0 **/31** 255.255.255.254 2 0.0.0.1 **/30** 255.255.255.252 4 0.0.0.3 **/29** 255.255.255.248 8 0.0.0.7

**/28** 255.255.255.240 16 0.0.0.15 **/27** 255.255.255.224 32 0.0.0.31 **/26** 255.255.255.192 64 0.0.0.63 **/25** 255.255.255.128 128 0.0.0.127

**/24** 255.255.255.0 256 0.0.0.255

**Subnet Mask 255** 1111 1111 **254** 1111 1110 **252** 1111 1100 **248** 1111 1000 **240** 1111 0000 **224** 1110 0000 **192** 1100 0000 **128** 1000 0000 **0** 0000 0000

**Wildcard**

**0** 0000 0000 **1** 0000 0001 **3** 0000 0011 **7** 0000 0111

**15** 0000 1111 **31** 0001 1111 **63** 0011 1111

**127** 0111 1111 **255** 1111 1111

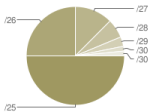
**/23** 255.255.254.0 512 0.0.1.255 **/22** 255.255.252.0 1,024 0.0.3.255 **/21** 255.255.248.0 2,048 0.0.7.255 **/20** 255.255.240.0 4,096 0.0.15.255

**/19** 255.255.224.0 8,192 0.0.31.255 **/18** 255.255.192.0 16,384 0.0.63.255 **/17** 255.255.128.0 32,768 0.0.127.255 **/16** 255.255.0.0 65,536 0.0.255.255 **/15** 255.254.0.0 131,072 0.1.255.255 **/14** 255.252.0.0 262,144 0.3.255.255 **/13** 255.248.0.0 524,288 0.7.255.255 **/12** 255.240.0.0 1,048,576 0.15.255.255 **/11** 255.224.0.0 2,097,152 0.31.255.255 **/10** 255.192.0.0 4,194,304 0.63.255.255

**/9** 255.128.0.0 8,388,608 0.127.255.255 **/8** 255.0.0.0 16,777,216 0.255.255.255 **/7** 254.0.0.0 33,554,432 1.255.255.255 **/6** 252.0.0.0 67,108,864 3.255.255.255 **/5** 248.0.0.0 134,217,728 7.255.255.255 **/4** 240.0.0.0 268,435,456 15.255.255.255

**/3** 224.0.0.0 536,870,912 31.255.255.255

**Subnet Proportion**

****

**Classful Ranges**

**A** 0.0.0.0 - 127.255.255.255

**B** 128.0.0.0 - 191.255.255.255

**C** 192.0.0.0 - 223.255.255.255

**D** 224.0.0.0 - 239.255.255.255

**E** 240.0.0.0 - 255.255.255.255

**Reserved Ranges**

**RFC1918** 10.0.0.0 - 10.255.255.255 **Localhost** 127.0.0.0 - 127.255.255.255 **RFC1918** 172.16.0.0 - 172.31.255.255 **RFC1918** 192.168.0.0 - 192.168.255.255

**Determine Usable Hosts**

**/2** 192.0.0.0 1,073,741,824 63.255.255.255 **/1** 128.0.0.0 2,147,483,648 127.255.255.255 **/0** 0.0.0.0 4,294,967,296 255.255.255.255

**Terminology**

Total Addresses

- Subnet ID - Broadcast Address **Usable hosts**

256

- 1 - 1 **254**

**CIDR** · Classless interdomain routing was developed to provide more granularity than legacy classful addressing; masks expressed in the form /XX are in CIDR notation

**VLSM** · Variable length subnet masks are an arbitrary length between 0 and 32 bits; CIDR relies on VLSMs to define routes

**by Jeremy Stretch v1.0**