Wildcard Mask Cheat Sheet

Prefix → wildcard

CIDR	Subnet mask	Wildcard
/16	255.255.0.0	0.0.255.255
/17	255.255.128.0	0.0.127.255
/18	255.255.192.0	0.0.63.255
/19	255.255.224.0	0.0.31.255
/20	255.255.240.0	0.0.15.255
/21	255.255.248.0	0.0.7.255
/22	255.255.252.0	0.0.3.255
/23	255.255.254.0	0.0.1.255
/24	255.255.255.0	0.0.0.255
/25	255.255.255.128	0.0.0.127
/26	255.255.255.192	0.0.0.63
/27	255.255.255.224	0.0.0.31
/28	255.255.255.240	0.0.0.15
/29	255.255.255.248	0.0.0.7
/30	255.255.255.252	0.0.0.3
/31	255.255.255.254	0.0.0.1
/32	255.255.255.255	0.0.0.0

The trick

wildcard = 255 − mask, octet by octet

255.255.**248**.0 → 0.0.**7**.255

(or: block size − 1)

Worked example

Permit **10.1.8.0/21** in an ACL:

1. /21 → mask 255.255.248.0
2. 255 − 248 = **7** · 255 − 0 = **255**
3. wildcard **0.0.7.255**

permit ip 10.1.8.0 0.0.7.255 any

matches 10.1.8.0 → 10.1.15.255

Shortcuts

host 10.0.0.5 = 10.0.0.5 0.0.0.0

any = 0.0.0.0 255.255.255.255

/30 link = x.x.x.x **0.0.0.3**

OSPF

```
router ospf 1
 network 10.0.12.0 0.0.0.255 area 0
```

wildcard here too, not the mask!

Odd one out

0.0.0.**254** → only even hosts

(non-contiguous: ACLs only)

0 = must match · 1 = don't care ✎

subnetcalculator.dev