

🎯 What is a Wildcard Mask in Networking?

A **Wildcard Mask** is used in **Cisco devices** (especially in routing protocols like EIGRP, OSPF, and Access Control Lists) to **specify a range of IP addresses**.

It tells the router:

👉 Which bits to ignore when matching IP addresses.

💡 Wildcard Mask vs Subnet Mask

Subnet Mask	Wildcard Mask	Meaning
255.255.255.0	0.0.0.255	Match first 3 octets, ignore last
255.255.0.0	0.0.255.255	Match first 2 octets only
255.255.255.255	0.0.0.0	Match the exact IP

📌 Formula to calculate Wildcard Mask:

Wildcard Mask = 255.255.255.255 – Subnet Mask

🔍 Example:

► You want to match 192.168.1.0/24

- Subnet Mask = 255.255.255.0
- Wildcard Mask = 0.0.0.255

✓ Means: Match **192.168.1.0** to **192.168.1.255**

🛠️ Where is Wildcard Mask Used?

1. Routing Protocols (EIGRP/OSPF):

R1(config-router)# network 192.168.1.0 0.0.0.255

This tells the router to enable EIGRP on all interfaces in 192.168.1.x

🧠 Real-Life Analogy

Think of **Subnet Mask** like saying:

“I want these exact numbers.”

While **Wildcard Mask** says:

“I don’t care about these parts — allow a group.”



Summary Table

Wildcard Mask	Matches
0.0.0.0	Exact IP match

0.0.0.255 Last octet varies (0–255)

0.255.255 Last 2 octets vary

255.255.255.255 Matches **any IP**



Wildcard Mask Conversion Practice Table

CIDR	Subnet Mask	Wildcard Mask	Explanation
/32	255.255.255.255	0.0.0.0	Exact host (no bits ignored)
/31	255.255.255.254	0.0.0.1	Match 2 IPs (for point-to-point links)
/30	255.255.255.252	0.0.0.3	Matches 4 IPs
/29	255.255.255.248	0.0.0.7	Matches 8 IPs
/28	255.255.255.240	0.0.0.15	Matches 16 IPs
/27	255.255.255.224	0.0.0.31	Matches 32 IPs
/26	255.255.255.192	0.0.0.63	Matches 64 IPs
/25	255.255.255.128	0.0.0.127	Matches 128 IPs
/24	255.255.255.0	0.0.0.255	One full Class C network
/23	255.255.254.0	0.0.1.255	2 Class C networks
/22	255.255.252.0	0.0.3.255	4 Class C networks
/21	255.255.248.0	0.0.7.255	8 Class C networks
/20	255.255.240.0	0.0.15.255	16 Class C networks
/16	255.255.0.0	0.0.255.255	Full Class B network
/8	255.0.0.0	0.255.255.255	Full Class A network



Formula Reminder:

Wildcard = 255.255.255.255 - Subnet Mask