IPv6 Cheat Sheet

Anatomy of an address

2001:0db8:abcd : 0012 : 0000:0000:0000:0001

48 bits: site prefix · 16: subnet · 64: interface ID

Shorten in 2 steps

2001:0db8:0000:0000:0000:ff00:0042:8329

1. drop leading 0s in each group

2001:db8:0:0:0:ff00:42:8329

2. longest run of 0 groups → ::

2001:db8::ff00:42:8329

:: only ONCE · lower case · one 0 group stays "0"

Prefix sizes

Prefix	For	Holds
/32	ISP / LIR	65,536 × /48
/48	a site	65,536 × /64
/56	a home	256 × /64
/64	one LAN	2^64 hosts
/127	p2p link	2 addresses
/128	one host	1 address

count /64s = 2^(64 − prefix)

Golden rule

every LAN is a **/64**
SLAAC needs it. Don't go smaller.

Subnet a /48

Site: **2001:db8:abcd::/48**

4th group = subnet ID (0–ffff)

VLAN 18 → hex **0012** →

2001:db8:abcd:12::/64

Ranges to know

::1 loopback · **::** unspecified
fe80::/10 link-local
fc00::/7 unique local (fd…)
ff00::/8 multicast · **ff02::1** all
2000::/3 global unicast
2001:db8::/32 docs only
::ffff:0:0/96 IPv4-mapped

no broadcast in IPv6, only multicast ✎

subnetcalculator.dev