

IPv6 Cheat Sheet

Address Notation (RFC5952)

- **Leading zeros must be compressed**
 - 0000 → 0
 - 0010 → 10
- **Double-colons must shorten as much as possible**
 - 2001:db8::2:1 *is fine!*
 - 2001:db8::0:1 *is wrong!*
- **Double-colons must not shorten one block only**
 - 2001:db8:0:1:1:1:1:1 *is fine!*
 - 2001:db8::1:1:1:1:1 *is wrong!*
- **Place double-colons as soon as possible**
 - 2001:db8::1:0:0:1 *is fine!*
 - 2001:db8:0:0:1::1 *is wrong!*
- **All characters must be lowercase**
 - 2001:db8::1 *is fine!*
 - 2001:DB8::1 *is wrong!*

Cheat Table

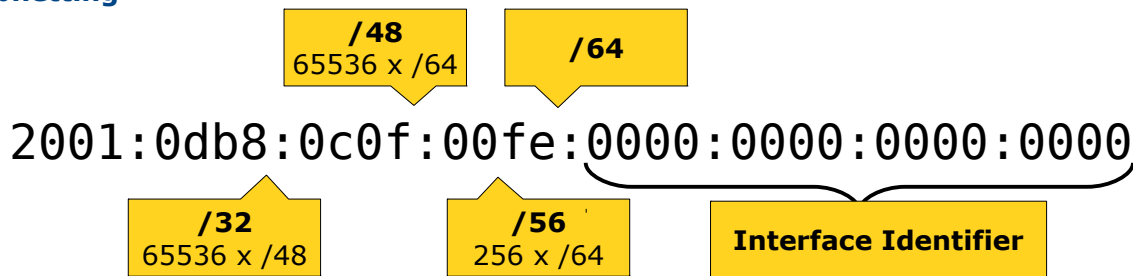
Bin	Hex	Bin	Hex
0000	0	1000	8
0001	1	1001	9
0010	2	1010	a
0011	3	1011	b
0100	4	1100	c
0101	5	1101	d
0110	6	1110	e
0111	7	1111	f

Scopes

interface
link-local
global

never leaves host
never leaves local subnet
goes around the world

IPv6 Subnetting



Stateless Autoconfiguration

MAC address: 00:1f:16:0a:29:ae

IPv6 Address: 2001:db8:c0f:fe:021f:16ff:fe0a:29ae network prefix, fixed, MAC address

Privacy Extension

IPv6 Address: 2001:db8:c0f:fe:123:4567:89ab:cdef network prefix, random

Windows Commands

ipconfig /all

ping ::1

netsh interface ipv6 ?

netsh interface ipv6 show interface

netsh interface ipv6 show address

netsh interface ipv6 show neighbors

netsh interface ipv6 show route

netsh interface ipv6 add address "Local Area Connection 1" 2001:db8:c0f:fe::5

add address to interface

netsh interface ipv6 delete address "Local Area Connection 1" 2001:db8:c0f:fe::5

remove address from interface

netsh interface ipv6 reset

reset IPv6 settings after reboot

Linux Commands

ifconfig

ping6 ::1

ip -6 addr add 2001:db8:c0f:fe::5/64 dev eth0

ip -6 addr del 2001:db8:c0f:fe::5/64 dev eth0

ip -6 neigh show

ip -6 route show

show interfaces

test local IPv6 stack

add address to interface

remove address from interface

display discovered neighbors

display IPv6 routing table