IPv6 Addressing

fe80::5d18:652:cffd:8f52

fe80:0000:0000:0000:5d18:0652:cffd:8f52

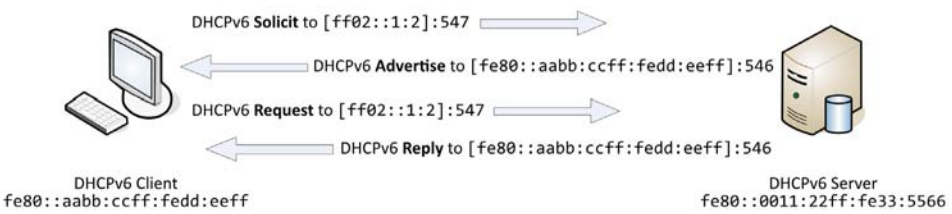
fe80	:	0000	:	0000	:	0000	:	5d18	:	0652	:	cffd	:	8f52
1111111010000000:		0000000000000000:		0000000000000000:		0000000000000000:		0101110100011000:		0000011001010010:		1100111111111101:		1000111101010010

16 bits = 2 bytes = 2 octets

128 bits = 16 bytes

DHCPv6

Very similar process to DHCPv4 - udp/546 (client) and udp/547 (server)



Subnet Classes

Class	Leading Bits	Network Bits	Remaining Bits	Number of Networks	Hosts per Network	Default Subnet Mask
Class A	0xxx (1-126)	8	24	128	16,777,214	255.0.0.0
Class B	10xx (128-191)	16	16	16,384	65,534	255.255.0.0
Class C	110x (192-223)	24	8	2,097,152	254	255.255.255.0
Class D (multicast)	1110 (224-239)	Not defined	Not defined	Not defined	Not defined	Not defined
Class E (reserved)	1111 (240-254)	Not defined	Not defined	Not defined	Not defined	Not defined

RFC 1918 Private Addresses

IP address range	Number of addresses	Classful description	Largest CIDR block (subnet mask)	Host ID size
10.0.0.0 – 10.255.255.255	16,777,216	single class A	10.0.0.0/8 (255.0.0.0)	24 bits
172.16.0.0 – 172.31.255.255	1,048,576	16 contiguous class Bs	172.16.0.0/12 (255.240.0.0)	20 bits
192.168.0.0 – 192.168.255.255	65,536	256 contiguous class Cs	192.168.0.0/16 (255.255.0.0)	16 bits

CIDR (Classless Inter-Domain Routing

CIDR	Mask	Classful		IPv4 Addresses	
/0	0.0.0.0			2^32	4,294,967,296
/1	128.0.0.0			2^31	2,147,483,648
/2	192.0.0.0			2^30	1,073,741,824
/3	224.0.0.0			2^29	536,870,912
/4	240.0.0.0			2^28	268,435,456
/5	248.0.0.0			2^27	134,217,728
/6	252.0.0.0			2^26	67,108,864
/7	254.0.0.0			2^25	33,554,432
/8	255.0.0.0	A	16,777,216	2^24	16,777,216
/9	255.128.0.0			2^23	8,388,608
/10	255.192.0.0			2^22	4,194,304
/11	255.224.0.0			2^21	2,097,152
/12	255.240.0.0			2^20	1,048,576
/13	255.248.0.0			2^19	524,288
/14	255.252.0.0			2^18	262,144
/15	255.254.0.0			2^17	131,072
/16	255.255.0.0	B	65,536	2^16	65,536
/17	255.255.128.0			2^15	32,768
/18	255.255.192.0			2^14	16,384
/19	255.255.224.0			2^13	8,192
/20	255.255.240.0			2^12	4,096
/21	255.255.248.0			2^11	2,048
/22	255.255.252.0			2^10	1,024
/23	255.255.254.0			2^9	512
/24	255.255.255.0	C	256	2^8	256
/25	255.255.255.128			2^7	128
/26	255.255.255.192			2^6	64
/27	255.255.255.224			2^5	32
/28	255.255.255.240			2^4	16
/29	255.255.255.248			2^3	8
/30	255.255.255.252			2^2	4
/31	255.255.255.254			2^1	2
/32	255.255.255.255			2^0	1

APIPA (Automatic Private IP Addressing)

- 169.254.0.1 through 169.254.255.254
- First and last 256 addresses are reserved, making the functional block 169.254.1.0 through 169.254.254.255

Network Communication