

99 Number Systems & IP Ranges

number systems

Base10	Base16	Base2
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
(10)	A	1010
(11)	B	1011
(12)	C	1100
(13)	D	1101
(14)	E	1110
(15)	F	1111

decimal - binary - hexadecimal

	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	
Base10	128	64	32	16	8	4	2	1	
	128	192	224	240	248	252	254	255	
	8	4	2	1	8	4	2	1	Base16
255	1	1	1	1	1	1	1	1	0xFF
231	1	1	1	0	0	1	1	1	0xE7
188	1	0	1	1	1	1	0	0	0xBC
30	0	0	0	1	1	1	1	0	0x1E
202	1	1	0	0	1	0	1	0	0xCA
247	1	1	1	1	0	1	1	1	0xF7
223	1	1	0	1	1	1	1	1	0xDF

IPv4 32-bit Addresses
(4,294,967,296 - 2) Hosts

	IP Range		Private IP (RRC 1918)			
A	0.0.0.0	127.255.255.255	10.0.0.0	10..255.255.255	/8	(16,777,216 - 2) hosts
B	128.0.0.0	191.255.255.255	172.16.0.0	172.31.255.255	/12	(4194304 - 2) hosts
C	192.0.0.0	223.255.255.255	192.168.0.0	192.168.255.255	/16	(65,536 - 2) hosts
D	224.0.0.0	239.255.255.255	Multicast			
E	240.0.0.0	255.255.255.255	Experimental			
	127.0.0.0	127.255.255.255	loopback (127.0.0.1)			
	169.254.0.0	169.254.255.255	Automatic Private IP Addressing (APIPA)			