IPv4 Addresses and IPv4 Subnetting

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CIDR	SUBNET MASK	ADDRESSES	WILDCARD MASK
/32	255.255.255. 255	1	0.0.0.0
/31	255.255.255. 254	2	0.0.0.1
/30	255.255.255. 252	4	0.0.0.3
/29	255.255.255. 248	8	0.0.0.7
/28	255.255.255. 240	16	0.0.0.15
/27	255.255.255. 224	32	0.0.0.31
/26	255.255.255. 192	64	0.0.0.63
/25	255.255.255. 128	128	0.0.0.127
/24	255.255.255.0	256	0.0.0.255
/23	255.255.254.0	512	0.0.1.255
/22	255.255.252.0	1024	0.0.3.255
/21	255.255.248.0	2048	0.0.7.255
/20	255.255.240.0	4096	0.0.15.255
/19	255.255.224.0	8192	0.0.31.255
/18	255.255.192.0	16384	0.0.63.255
/17	255.255.128.0	32768	0.0.127.255
/16	255.255.0.0	65536	0.0.255.255
/15	255.254.0.0	131072	0.1.255.255
/14	255.252.0.0	262144	0.3.255.255
/13	255.248.0.0	524288	0.7.255.255
/12	255.240.0.0	1048576	0.15.255.255
/11	255.224.0.0	2097152	0.31.255.255
/10	255.192.0.0	4194304	0.63.255.255
/9	255.128.0.0	8388608	0.127.255.255
/8	255.0.0.0	16777216	0.255.255.255
/7	254.0.0.0	33554432	1 .255.255.255
/6	252.0.0.0	67108864	3 .255.255.255
/5	248.0.0.0	134217728	7 .255.255.255
/4	240.0.0.0	268435456	15. 255.255.255
/3	224.0.0.0	536870912	31. 255.255.255
/2	192.0.0.0	1073741824	63. 255.255.255
/1	128.0.0.0	2147483648	127. 255.255.255
/0	0.0.0.0	4294967296	255. 255.255.255

Classful IPv4 Addresses

Class A	0.0.0.0 - 127.255.255.255
Class B	128.0.0.0 - 191.255.255.255
Class C	192.0.0.0 - 223.255.255.255
Class D	224.0.0.0 - 239.255.255.255
Class E	240.0.0.0 - 255.255.255.255

Private IPv4 Addresses

10.0.0.0 - 10.255.255.255
172.16.0.0 - 172.31.255.255
192.168.0.0 - 192.168.255.255

Special IPv4 Addresses

Local Host	127.0.0.0 - 127.255.255.255
APIPA	169.254.0.0 - 169.254.255.255

Bogon IPv4 Addresses

0.0.0.0/8	This network
10.0.0.0/8	Private IPv4 Address Block
100.64.0.0/10	Carrier-grade NAT
127.0.0.0/8	Loopback
127.0.53.53	Name collision occurrence
169.254.0.0/16	Link local
172.16.0.0/12	Private IPv4 Address Block
192.0.0.0/24	IETF protocol assignments
192.0.2.0/24	TEST-NET-1
192.168.0.0/16	Private IPv4 Address Block
198.18.0.0/15	Network benchmark testing
198.51.100.0/24	TEST-NET-2
203.0.113.0/24	TEST-NET-3
224.0.0.0/4	Multicast
240.0.0.0/4	Reserved
255.255.255.255/32	Limited broadcast

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Decimal to Binary Table

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DEC	BİN	DEC	BİN	DEC	BİN	DEC	BİN	DEC	BİN	DEC	BİN	DEC	BİN	DEC	BİN
1	1	33	100001	65	1000001	97	1100001	129	10000001	161	10100001	193	11000001	225	11100001
2	10	34	100010	66	1000010	98	1100010	130	10000010	162	10100010	194	11000010	226	11100010
3	11	35	100011	67	1000011	99	1100011	131	10000011	163	10100011	195	11000011	227	11100011
4	100	36	100100	68	1000100	100	1100100	132	10000100	164	10100100	196	11000100	228	11100100
5	101	37	100101	69	1000101	101	1100101	133	10000101	165	10100101	197	11000101	229	11100101
6	110	38	100110	70	1000110	102	1100110	134	10000110	166	10100110	198	11000110	230	11100110
7	111	39	100111	71	1000111	103	1100111	135	10000111	167	10100111	199	11000111	231	11100111
8	1000	40	101000	72	1001000	104	1101000	136	10001000	168	10101000	200	11001000	232	11101000
9	1001	41	101001	73	1001001	105	1101001	137	10001001	169	10101001	201	11001001	233	11101001
10	1010	42	101010	74	1001010	106	1101010	138	10001010	170	10101010	202	11001010	234	11101010
11	1011	43	101011	75	1001011	107	1101011	139	10001011	171	10101011	203	11001011	235	11101011
12	1100	44	101100	76	1001100	108	1101100	140	10001100	172	10101100	204	11001100	236	11101100
13	1101	45	101101	77	1001101	109	1101101	141	10001101	173	10101101	205	11001101	237	11101101
14	1110	46	101110	78	1001110	110	1101110	142	10001110	174	10101110	206	11001110	238	11101110
15	1111	47	101111	79	1001111	111	1101111	143	10001111	175	10101111	207	11001111	239	11101111
16	10000	48	110000	80	1010000	112	1110000	144	10010000	176	10110000	208	11010000	240	11110000
17	10001	49	110001	81	1010001	113	1110001	145	10010001	177	10110001	209	11010001	241	11110001
18	10010	50	110010	82	1010010	114	1110010	146	10010010	178	10110010	210	11010010	242	11110010
19	10011	51	110011	83	1010011	115	1110011	147	10010011	179	10110011	211	11010011	243	11110011
20	10100	52	110100	84	1010100	116	1110100	148	10010100	180	10110100	212	11010100	244	11110100
21	10101	53	110101	85	1010101	117	1110101	149	10010101	181	10110101	213	11010101	245	11110101
22	10110	54	110110	86	1010110	118	1110110	150	10010110	182	10110110	214	11010110	246	11110110
23	10111	55	110111	87	1010111	119	1110111	151	10010111	183	10110111	215	11010111	247	11110111
24	11000	56	111000	88	1011000	120	1111000	152	10011000	184	10111000	216	11011000	248	11111000
25	11001	57	111001	89	1011001	121	1111001	153	10011001	185	10111001	217	11011001	249	11111001
26	11010	58	111010	90	1011010	122	1111010	154	10011010	186	10111010	218	11011010	250	11111010
27	11011	59	111011	91	1011011	123	1111011	155	10011011	187	10111011	219	11011011	251	11111011
28	11100	60	111100	92	1011100	124	1111100	156	10011100	188	10111100	220	11011100	252	11111100
29	11101	61	111101	93	1011101	125	1111101	157	10011101	189	10111101	221	11011101	253	11111101
30	11110	62	111110	94	1011110	126	1111110	158	10011110	190	10111110	222	11011110	254	11111110
31	11111	63	111111	95	1011111	127	1111111	159	10011111	191	10111111	223	11011111	255	11111111
32	100000	64	1000000	96	1100000	128	10000000	160	10100000	192	11000000	224	11100000	256	

To determine the 8 bits Octet value, add 0s in front of the binary value.
For example: For Decimal 5, the Binary value is 101. 8 bits value is 00000101.