



IP Address and Subnetting – Part 1

Amazon Web Services

IPv4 Address

An IPv4 Address needs to belong to a given network and devices in the network can communicate with each other as they share a common network. An IPv4 Address is a 32-Bit Addressing System

N.N.N.N



$(0 - 255)_{10}$



Binary



$(00000000 - 11111111)_2$

IPv4 Addresses – 32Bit Addressing System

Converting Decimal to Binary

$(0 - 255)_{10}$

192	168	1	0
X X X X X X X X	X X X X X X X X	X X X X X X X X	X X X X X X X X
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1

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X X X X X X X X	X X X X X X X X	X X X X X X X X	X X X X X X X X
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1

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2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1
128+64 = 192			

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X X X X X X X X	X X X X X X X X	X X X X X X X X	X X X X X X X X
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1
128+64 = 192	128+32+8 = 168		

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X X X X X X X X	X X X X X X X X	X X X X X X X X	X X X X X X X X
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1
128+64 = 192	128+32+8 = 168	1	

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X X X X X X X X	X X X X X X X X	X X X X X X X X	X X X X X X X X
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1
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192	168	1	0
X X X X X X X X	X X X X X X X X	X X X X X X X X	X X X X X X X X
2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1	2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0 128 64 32 16 8 4 2 1
128+64 = 192	128+32+8 = 168	1	0
1 1 0 0 0 0 0 0	1 0 1 0 1 0 0 0	0 0 0 0 0 0 0 1	0 0 0 0 0 0 0 0

Next Video

IP Addresses and Subnetting – Part 2