18.0.0.0/23

Default mask is 255.0.0.0 since it’s in class A

11111111.00000000.00000000.00000000

11111111.11111111.11111110.00000000

We borrow 15 bits

2n = 2

215 is 32768 networs

Number of hosts from 9 bits

29  = 512 hosts

215 – 2 = 32764 valid hosts

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
|  | 128 | 192 | 224 | 240 | 248 | 252 | 254 | 255 |
| A/8 | /9 | /10 | /11 | /12 | /13 | /14 | /15 | /16 |
| B/16 | /17 | /18 | /16 | /20 | /21 | /22 | /23 | /24 |
| C/24 | /25 | /26 | /27 | /28 | /29 | /30 | /31 | /32 |

128+64+32+16+8+4+2

Subnet mask is 255.255.254.0

|  |  |  |  |
| --- | --- | --- | --- |
| Network ID | First valid ip address | Last valid ip address | Broadcast id |
| 18.0.0.0 | 18.0.0.1 | 18.0.1.254 | 18.0.1.255 |
| 18.0.2.0 | 18.0.2.1 | 18.0.3.254 | 18.0.3.255 |
| 18.0.4.0 | 18.0.4.1 | 18.0.5.254 | 18.0.5.255 |
| 18.0.6.0 | 18.0.6.1 | 18.0.7.254 | 18.0.7.255 |
| 18.0.8.0 | 18.0.8.1 | 18.0.9.254 | 18.0.9.255 |
| 18.0.10.0 | 18.0.10.1 | 18.0.11.254 | 18.0.12.255 |