

Alamat khusus dalam jaringan

Selain IPv4 address yang dipergunakan untuk pengenalan host, ada beberapa jenis address yang digunakan untuk keperluan khusus dan tidak boleh digunakan untuk pengenalan host. Address tersebut adalah :

1. **Network Address.** Address ini digunakan untuk mengenali suatu network pada jaringan Internet. Misalkan untuk host dengan IP Address kelas B 192.168.9.35, network address dari host ini adalah 192.168.0.0.

Address ini didapat dengan membuat seluruh bit host pada 2 segmen terakhir menjadi 0. Tujuannya adalah untuk menyederhanakan informasi routing pada Internet.

2. **Broadcast Address.** Address ini digunakan untuk mengirim/menerima informasi yang harus diketahui oleh seluruh host yang ada pada suatu network. Host cukup mengirim ke alamat broadcast, maka seluruh host yang ada pada network akan menerima datagram tersebut. Konsekuensinya, seluruh host pada network yang sama harus memiliki broadcast address yang sama dan address tersebut tidak boleh digunakan sebagai IP address untuk host tertentu.

IP address selalu disertai dengan **Subnet Mask** sehingga kita bisa menentukan Network Addressnya.

| High order bits Prefix /24 | | | | Low order bits | | | |
|-------------------------------|----|---|---|----------------|----------|----------|----------|
| 172 | 16 | 4 | 1 | | | | |
| Host | | | | 10101100 | 00010300 | 00000100 | 00000001 |
| Subnet | | | | 255 | 255 | 255 | 0 |
| Network | | | | 11111111 | 11111111 | 11111111 | 00000000 |
| Network | | | | 10101100 | 00010300 | 00000100 | 00000000 |
| Network | | | | 172 | 16 | 4 | 0 |

| High order bits Prefix /24 | | | | Low order bits | | | |
|-------------------------------|----|---|-----|----------------|----------|----------|----------|
| 172 | 16 | 4 | 254 | | | | |
| Host | | | | 10101100 | 00010300 | 00000100 | 11111110 |
| Subnet | | | | 255 | 255 | 255 | 0 |
| Network | | | | 11111111 | 11111111 | 11111111 | 00000000 |
| Network | | | | 10101100 | 00010300 | 00000100 | 00000000 |
| Network | | | | 172 | 16 | 4 | 0 |

Untuk menentukan **Network Address** kita harus melakukan AND operation terhadap tiap-tiap bit data di IP address dan **Subnet Mask**

Host dengan network address yang sama bisa saling berkomunikasi secara langsung melalui switch.

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LANGKAH PRAKTIKUM

1. Isilah Perhitungan biner menjadi desimal berikut ini :

| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 | nilai desimal | Scratch |
|-----|----|----|----|---|---|---|---|---------------|---------|
| 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 146 | 128 |
| 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 119 | 16 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 255 | 2 |
| 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 197 | 146 |
| 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 246 | |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 19 | |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 129 | |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 19 | |
| 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 120 | |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 240 | |
| 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 59 | |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 7 | |

Handwritten calculations for converting binary to decimal using the "Scratch" method (division by powers of 2):

- 146: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 119: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 255: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 197: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 246: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 19: 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 129: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 120: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 240: 128 / 2 = 64, 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 59: 64 / 2 = 32, 32 / 2 = 16, 16 / 2 = 8, 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1
- 7: 8 / 2 = 4, 4 / 2 = 2, 2 / 2 = 1

2. Isilah Perhitungan desimal menjadi biner berikut ini :

| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 | = | 255 | Scratch Area |
|-----|----|----|----|---|---|---|---|---|-----|--------------|
| 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | | 238 | |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | | 34 | |
| 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | | 123 | |
| 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | | 50 | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 255 | |
| 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | | 200 | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | | 10 | |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | | 138 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | 1 | |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | | 13 | |
| 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | | 250 | |

Handwritten calculations for decimal to binary conversion:

- 238: 128, 64, 192, 16, 32, 120, 240
- 34: 32, 2, 34
- 123: 64, 32, 16, 9, 18, 32, 64, 120, 240
- 50: 32, 16, 16, 32, 64, 120, 240
- 200: 128, 64, 192, 16, 32, 120, 240
- 10: 8, 2, 10
- 138: 128, 64, 192, 16, 32, 120, 240
- 1: 1, 1
- 13: 8, 4, 13
- 250: 128, 64, 192, 16, 32, 120, 240

3. Isilah Perhitungan Network Address berikut ini. Untuk nomor 3e-3h bandingkanlah dengan teman anda, apakah mempunyai network address yang sama

| | | | Oktet-3 | Oktet-4 |
|----|-----------------|---------------------|-----------------|-----------------|
| a. | IP | 10.10.48.40 | 0 0 1 1 0 0 0 0 | 0 0 1 0 1 0 0 0 |
| | Subnet Mask | 255.255.255.0 /24 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 |
| | Network Address | 10.10.48.0 | 0 0 1 1 0 0 0 0 | 0 0 0 0 0 0 0 0 |
| b. | IP | 192.149.24.191 | 1 0 0 0 1 1 1 1 | 1 1 0 1 1 1 1 1 |
| | Subnet Mask | 255.255.255.0 /24 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 |
| | Network Address | 192.149.24.0 | 1 0 0 0 1 1 1 1 | 0 0 0 0 0 0 0 0 |
| c. | IP | 150.203.23.19 | 1 0 0 0 1 0 1 1 | 1 0 0 0 1 0 0 1 |
| | Subnet Mask | 255.255.0.0 /16 | 1 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 |
| | Network Address | 150.203.0.0 | 1 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 |
| d. | IP | 10.10.10.10 | 0 0 0 0 1 0 1 0 | 1 0 0 0 0 1 0 1 |
| | Subnet Mask | 255.255.255.128 /25 | 1 1 1 1 1 1 1 1 | 1 0 0 0 0 0 0 0 |
| | Network Address | 10.10.10.0 | 0 0 0 0 1 0 1 0 | 1 0 0 0 0 0 0 0 |
| e. | IP | 192.168.70.125 | 1 0 1 0 0 0 1 1 | 1 0 1 1 1 1 1 0 |
| | Subnet Mask | 255.255.255.240 /28 | 1 1 1 1 1 1 1 1 | 1 1 1 1 1 0 0 0 |
| | Network Address | 192.168.70.112 | 1 0 1 0 0 0 1 1 | 1 0 1 1 1 0 0 0 |
| f. | IP | 10.10.48.23 | 1 0 0 0 1 0 0 0 | 1 0 0 0 1 0 1 1 |
| | Subnet Mask | 255.255.255.252 /30 | 1 1 1 1 1 1 1 1 | 1 1 1 1 1 1 0 0 |
| | Network Address | 10.10.48.20 | 1 0 0 0 1 0 0 0 | 1 0 0 0 1 0 1 1 |
| g. | IP | 192.149.25.100 | 1 0 0 0 1 1 0 1 | 1 0 1 1 0 0 1 0 |
| | Subnet Mask | 255.255.252.0 /22 | 1 1 1 1 1 1 1 0 | 1 0 1 0 0 0 0 0 |
| | Network Address | 192.149.24.0 | 1 0 0 0 1 1 0 1 | 1 0 1 0 0 0 0 0 |
| h. | IP | 150.203.3.10 | 1 0 0 0 0 0 0 1 | 1 0 0 0 0 1 0 1 |
| | Subnet Mask | 255.255.248.0 /21 | 1 1 1 1 1 0 0 0 | 1 0 0 0 0 0 0 0 |
| | Network Address | 150.203.0.0 | 1 0 0 0 0 0 0 1 | 1 0 0 0 0 0 0 0 |

4. Tambahkan IP host-range yang ada di subnet anda, dari perhitungan di nomor 3. Dengan cara melakukan operasi bit dibagian Host-Portion. Network-Portion tidak berubah karena IP yang akan kita cari berada di network yang sama.

| | | Oktet-3 | Oktet-4 |
|-------------------|---|---------------------------|-----------------|
| IP | 10.10.48.40 | 0 0 1 1 0 0 0 0 | 0 1 0 1 0 0 0 0 |
| Subnet Mask | 255.255.255.0 /24 | 1 1 1 1 1 1 1 1 | 0 0 0 0 0 0 0 0 |
| Network Address | 10.10.48.0 | 0 0 1 1 0 0 0 0 | 0 0 0 0 0 0 0 0 |
| Usable IP (start) | 10.10.48.1 | -----Network portion----- | 0 0 0 0 0 0 0 1 |
| Usable IP (end) | 10.10.48.254 (ada 254 host yang bisa digunakan) | -----Network portion----- | 1 1 1 1 1 1 1 0 |

4). b. IP = 192.149.24.191

Subnet Mask = 255.255.255.0

Usable IP (start) = 192.149.24.1

Usable IP (end) = 192.149.24.254

oktet 3

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |

oktet 4

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

c. IP = 150.203.23.19

Subnet mask = 255.255.0.0

Usable IP (start) = 150.203.0.1

Usable IP (end) = 150.203.255.254

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

d. IP = 10.10.10.10

Subnet Mask = 255.255.255.128

Usable IP (start) = 10.10.10.1

Usable IP (end) = 10.10.10.126

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

e. IP = 192.168.70.125

Subnet Mask = 255.255.255.240

Usable IP (start) = 192.168.70.113

Usable IP (end) = 192.168.70.126

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

f. IP = 10.10.48.23

Subnet Mask = 255.255.255.240

Usable IP (start) = 10.10.48.21

Usable IP (end) = 10.10.48.22

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |

g. IP = 192.149.25.100

Subnet Mask = 255.255.252.0

Usable IP (start) = 192.149.24.1

Usable IP (end) = 192.149.27.254

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

h. IP = 150.203.23.100

Subnet mask = 255.255.248.0

Usable IP (start) = 150.203.0.1

Usable IP (end) = 150.203.7.254

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

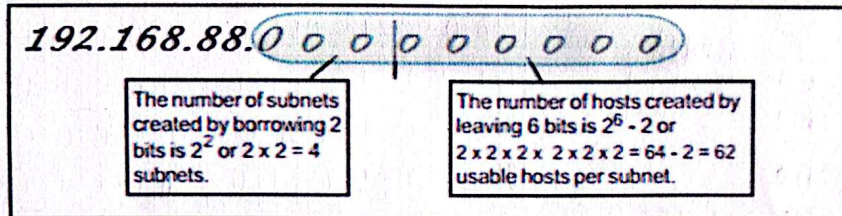
IP 10.10.48.40
 Subnet Mask 255.255.255.128 /25
 Network Address 10.10.48.0
 Network Address 10.10.48.1
 Network Address 10.10.48.126

| | | | | | | | | | | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.10. | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 255.255. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |

Usable IP (start) bisa juga diperoleh dengan menambahkan network address +1

Usable IP (end) bisa juga diperoleh dengan broadcast address -1

5. Misalnya kita akan membagi subnet 192.168.88.0 / 24 menjadi 4 bagian maka cara yang dilakukan adalah



Kita akan menggunakan 2 bit tambahan dari host sebagai subnet id. Untuk mendapatkan 2^2 = 4 subnet baru. Dengan masing-masing mempunyai kapasitas 2^6 = 64 host (dikurangi network & broadcast address)

Network address source : 192.168.88.0 / 24

Jumlah Subnet yang diperlukan 4

Jumlah Host tiap subnet > 8

| | Network Address | Subnet mask | IP host awal | IP host akhir | host |
|---------|---------------------|-----------------|----------------|----------------|------|
| Subnet1 | 192.168.88.0 / 26 | 255.255.255.192 | 192.168.88.1 | 192.168.88.63 | 62 |
| Subnet2 | 192.168.88.64 / 26 | 255.255.255.192 | 192.168.88.65 | 192.168.88.127 | 62 |
| Subnet3 | 192.168.88.128 / 26 | 255.255.255.192 | 192.168.88.129 | 192.168.88.191 | 62 |
| Subnet4 | 192.168.88.192 / 26 | 255.255.255.192 | 192.168.88.193 | 192.168.88.254 | 62 |

| Oktet-3 | Oktet-4 |
|------------|----------|
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |

Lakukan pembagian untuk subnet dibawah ini.

- b. Misalnya subnet 192.168.88.0/24 di mikrotik akan dibagi di dalam satu kelas menjadi 6 subnet dengan masing-masing jumlah usernya adalah 10 PC. Hitunglah network address masing-masing yang bisa digunakan. (Carilah pendekatan dengan 2^n, dengan membiarkan blok subnet tetap kosong)

b. Network address source : 192.168.88.0 / 24

Jumlah Subnet yang diperlukan

Jumlah Host tiap subnet

| | Network Address | Subnet mask | IP host awal | IP host akhir | host |
|---------|------------------|-----------------|---------------|---------------|------|
| Subnet1 | 192.168.88.0/24 | 255.255.255.240 | 192.168.88.1 | 192.168.88.14 | 14 |
| Subnet2 | 192.168.88.16/24 | 255.255.255.240 | 192.168.88.17 | 192.168.88.30 | 14 |
| Subnet3 | 192.168.88.32/24 | 255.255.255.240 | 192.168.88.33 | 192.168.88.46 | 14 |
| Subnet4 | 192.168.88.48/24 | 255.255.255.240 | 192.168.88.49 | 192.168.88.62 | 14 |
| Subnet5 | 192.168.88.64/24 | 255.255.255.240 | 192.168.88.65 | 192.168.88.78 | 14 |
| Subnet6 | 192.168.88.80/24 | 255.255.255.240 | 192.168.88.81 | 192.168.88.94 | 14 |

| Oktet-3 | Oktet-4 |
|------------|----------|
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |
| 0110111000 | 00000000 |

- c. Misalnya subnet 20.20.225.0/22 di kampus akan dibagi menjadi 4 subnet fakultas dengan masing-masing jumlah usernya adalah 200 PC. Hitunglah network address masing-masing yang bisa digunakan

c. Network address source : 20.20.225.0 / 22 → 20.20.225.0 / 22

Jumlah Subnet yang diperlukan

Jumlah Host tiap subnet

| | Network Address | Subnet mask | IP host awal | IP host akhir | host |
|---------|-----------------|---------------|--------------|---------------|------|
| Subnet1 | 20.20.225.0/24 | 255.255.255.0 | 20.20.225.1 | 20.20.225.254 | 254 |
| Subnet2 | 20.20.226.0/24 | 255.255.255.0 | 20.20.226.1 | 20.20.226.254 | 254 |
| Subnet3 | 20.20.227.0/24 | 255.255.255.0 | 20.20.227.1 | 20.20.227.254 | 254 |
| Subnet4 | 20.20.228.0/24 | 255.255.255.0 | 20.20.228.1 | 20.20.228.254 | 254 |

| Oktet-3 | Oktet-4 |
|------------|----------|
| 1111101010 | 00000000 |
| 1111101010 | 00000000 |
| 1111101010 | 00000000 |
| 1111101010 | 00000000 |