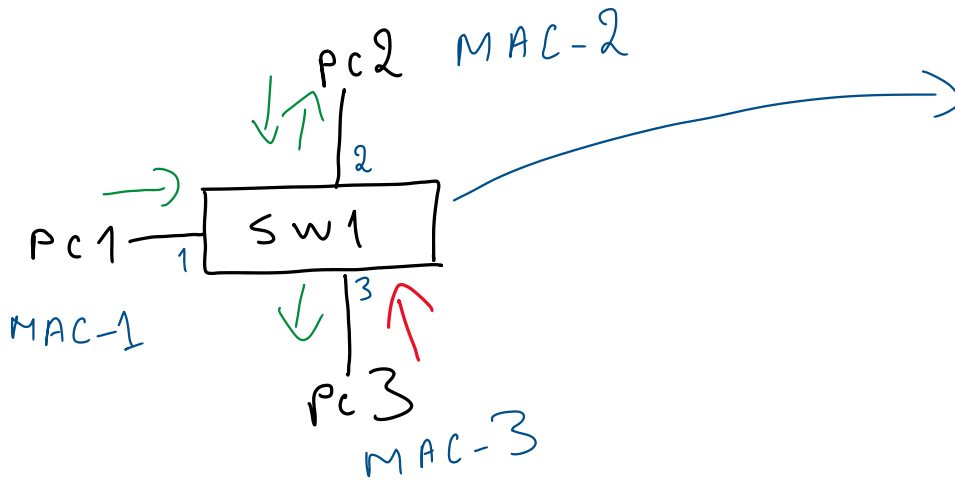


# MAC address table

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Port	MAC
1	MAC-1
2	MAC-2
3	MAC-3

PC 1 → PC 2

## Subnet example 1

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15.137.14.128 /25

- Network → 15.137.14.128
- Broadcast → 15.137.14.255
- First host → 15.137.14.129
- Last host → 15.137.14.254

15.137.14.1		0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	→ 15.137.14.128
		0	0	0	0	0	0	1	→ 15.137.14.129
		1	1	1	1	1	1	1	→ 15.137.14.255
		1	1	1	1	1	0	0	→ 15.137.14.254

## Subnet example 2

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10.0.0.3 /23

- Network → 10.0.0.0
- Broadcast → 10.0.1.255
- First host → 10.0.0.1
- Last host → 10.0.1.254

10.0.00000000 000000011

- 0.00000000 → 10.0.0.0 → NA
- 0.00000001 → 10.0.0.1 → FH
- 1.11111111 → 10.0.1.255 → BA
- 1.11111110 → 10.0.1.254 → LH

### Subnet example 3

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192.168.5.1 /30 → Network → 192.168.5.0  
→ Broadcast → 192.168.5.3  
→ First host → 192.168.5.1  
→ Last host → 192.168.5.2

192.168.5.0 0 0 0 0 0 0 | 0 1  
0 0 → 192.168.5.0  
0 1 → 192.168.5.1  
1 1 → 192.168.5.3  
1 0 → 192.168.5.2

First Byte!

Class A:  $\boxed{0} \times \times \times \times \times \times \times \times \rightarrow 0 \div 127$   $\boxed{18}$  default masks  
 Class B:  $\boxed{10} \times \times \times \times \times \times \times \times \rightarrow 128 \div 191$   $\boxed{16}$   
 Class C:  $\boxed{110} \times \times \times \times \times \times \times \times \rightarrow 192 \div 223$   $\boxed{24}$

$115.24.3.197 (A)$   
 $150.24.3.197 (B)$   
 $193.24.3.197 (C)$

 $15.0.0.0 / 8$ 

↓  
classful ☹️

 $15.0.0.0 / 24$ 

↓  
classless 😊

---

Private addresses:

 $10.0.0.0 \div 10.255.255.255 (A)$ 
 $172.16.0.0 \div 172.31.255.255 (B)$ 
 $192.168.0.0 \div 192.168.255.255 (C)$

$10.0.0.0/8$ 

 $10.1.0.0/16$ 

→  $10.0.0.0/16$   
 $10.2.0.0/16$   
 $10.3.0.0/16$  → others...

8190 hosts per subnet

Requirements:

→ 5 subnets

→ max hosts per subnet

10.1. 000 000000 . 000000 00  
000  
061  
010  
011  
100

→ 10.1.0.0 / 19 → NA  
→ 10.1.32.0 / 19 → BA  
→ 10.1.64.0 / 19 → FH  
→ 10.1.96.0 / 19 → LH