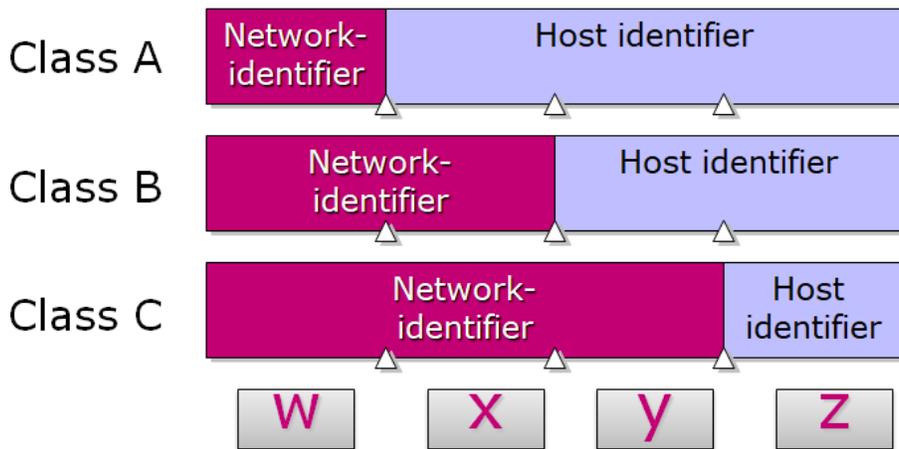


IP address classes

i Even though we are now working with classless so-called CIDR networks, the old classification of the different address classes helps for the daily work with networks.



Address classes are used to assign network identifiers to organizations so that computers can communicate in their networks and on the Internet. Address classes also define the separation between the network and the host identifier. An organization is assigned a range of IP addresses that are referenced by the addressee's network identifier and are based on the size of the organization. For example, an organization with 200 hosts is assigned a **Class C** network identifier, while an organization with 20,000 hosts is assigned a **Class B** network identifier.

Class A

Class A addresses are assigned to networks with a large number of hosts.

This class supports 126 networks by using the first number for the network identifier. The remaining three numbers are used for the host identifier, allowing 16,777,214 hosts per network.

A 1 - 126*

Class B

Class B addresses are assigned to medium to large networks.

This class supports 16,384 networks by using the first two numbers for the network identifier. The remaining two numbers are used for the host identifier, allowing 65,534 hosts per network.

B 128 - 191

Class C

Class C addresses are used for small [LANs \(Local Area Networks\)](#).

This class supports about 2,097,152 networks by using the first three numbers for the network identifier. The remaining number is used for the host identifier, which allows 254 hosts per network.

C 192 - 223

Class D and E

Classes D and E are not assigned to hosts. Class D addresses are used for multicasting, and class E addresses are reserved for future use.

D 224 - 239

E 240 - 255

Determining the address class

Class based IP addressing is based on the structure of the IP address and is a systematic way to distinguish network identifiers from host identifiers. An IP address consists of four numeric sections. An IP address can be represented as w.x.y.z, where w, x, y and z stand for numbers between 0 and 255. Based on the value of the first number, w in the numeric representation, IP addresses are divided into five address classes, A,B,C,D or E.

Private addresses				
10.0.0.0 /8	-	10.255.255.255	Klasse A	255.0.0.0
172.16.0.0 /16	-	172.31.255.255	Klasse B	255.255.0.0
192.168.0.0 /24	-	192.168.255.255	Klasse C	255.255.255.0

Public Addresses			
0.0.0.0 /8	-	127.255.255.255	Class A
128.0.0.0 /16	-	191.255.255.255	Class B
192.0.0.0 /24	-	223.168.255.255	Class C
224.0.0.0 /4	-	239.255.255.255	Class D (Multicast)
240.0.0.0 /4	-	255.255.255.255	Class E (reserviert)

Determining the Network and Host Identifier

- For Class A IP addresses, the network identifier is the first number in the IP address.
- For Class B IP addresses, the network identifier consists of the first two numbers; and
- for Class C IP addresses, the network identifier consists of the first three numbers in the IP address.

The remaining numbers identify the host identifier.

- Like the IP address, the network identifier has a structure consisting of four numbers.
- Therefore, if, for an IP address, the first number, **w**, represents the network identifier, the network identifier structure is **w.0.0.0**, with the remaining three numbers being **0**.
- The structure of the host identifier is **x.y.z**. Note that there is **no 0** in front of the host.



For example, the IP address 172.16.53.46 is a class B address because w=172 and is between 128 and 191. This results in the network identifier 172.16.0.0 and the host identifier 53.46 (without dot at the end).



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