**Class A Network**

This IP address class is used when there are a large number of hosts. In a Class A type of network, the first 8 bits (also called the first octet) identify the network, and the remaining have 24 bits for the host into that network.

An example of a Class A address is 102.168.212.226. Here, “102” helps you identify the network and 168.212.226 identify the host.

Class A addresses 127.0.0.0 to 127.255.255.255 cannot be used and is reserved for loopback and diagnostic functions.

**Class B Network**

In a B class IP address, the binary addresses start with 10. In this IP address, the class decimal number that can be between 128 to 191. The number 127 is reserved for loopback, which is used for internal testing on the local machine. The first 16 bits (known as two octets) help you identify the network. The other remaining 16 bits indicate the host within the network.

An example of Class B IP address is 168.212.226.204, where \*168 212\* identifies the network and \*226.204\* helps you identify the Hut network host.

**Class C Network**

Class C is a type of IP address that is used for the small network. In this class, three octets are used to indent the network. This IP ranges between 192 to 223.

In this type of network addressing method, the first two bits are set to be 1, and the third bit is set to 0, which makes the first 24 bits of the address them and the remaining bit as the host address. Mostly local area network used Class C IP address to connect with the network.

Example for a Class C IP address:

192.168.178.1

**Class D Network**

Class D addresses are only used for multicasting applications. Class D is never used for regular networking operations. This class addresses the first three bits set to “1” and their fourth bit set to use for “0”. Class D addresses are 32-bit network addresses. All the values within the range are used to identify multicast groups uniquely.

Therefore, there is no requirement to extract the host address from the IP address, so Class D does not have any subnet mask.

Example for a Class D IP address:

227.21.6.173

**Class E Network**

Class E IP address is defined by including the starting four network address bits as 1, which allows you two to incorporate addresses from 240.0.0.0 to 255.255.255.255. However, E class is reserved, and its usage is never defined. Therefore, many network implementations discard these addresses as undefined or illegal.

Example for a Class E IP address:

243.164.89.28

**Limitations of classful IP addressing**

Here are the drawbacks/ cons of the classful IP addressing method:

* Risk of running out of address space soon
* Class boundaries did not encourage efficient allocation of address space

**Rules for assigning Network ID:**

The network ID will be assigned based on the below-given rules:

* The network ID cannot start with 127 because 127 belongs to class A address and is reserved for internal loopback functions.
* All bits of network ID set to 1 are reserved for use as an IP broadcast address and cannot be used.
* All bits of network ID are set to 0. They are used to denote a particular host on the local network and should not be routed.