**When is a static constructor called?**

A static constructor is used to initialize any static data, or to perform a particular action that needs performed once only. It is called automatically before the first instance is created or any static members are referenced.

**Static Constructors (C# Programming Guide)**

A static constructor is used to initialize any [static](https://msdn.microsoft.com/en-us/library/98f28cdx.aspx) data, or to perform a particular action that needs to be performed once only. It is called automatically before the first instance is created or any static members are referenced.

class SimpleClass

{

// Static variable that must be initialized at run time.

static readonly long baseline;

// Static constructor is called at most one time, before any

// instance constructor is invoked or member is accessed.

static SimpleClass()

{

baseline = DateTime.Now.Ticks;

}

}

Static constructors have the following properties:

* A static constructor does not take access modifiers or have parameters.
* A static constructor is called automatically to initialize the [class](https://msdn.microsoft.com/en-us/library/0b0thckt.aspx) before the first instance is created or any static members are referenced.
* A static constructor cannot be called directly.
* The user has no control on when the static constructor is executed in the program.
* A typical use of static constructors is when the class is using a log file and the constructor is used to write entries to this file.
* Static constructors are also useful when creating wrapper classes for unmanaged code, when the constructor can call the LoadLibrary method.
* If a static constructor throws an exception, the runtime will not invoke it a second time, and the type will remain uninitialized for the lifetime of the application domain in which your program is running.

Intel **Turbo Boost** monitors the current usage of a Core i5 or i7 processor to determine how close the processor is to the maximum thermal design power, or TDP. The TDP is the maximum amount of power the processor is supposed to use.

Intel **Turbo Boost** is a technology implemented by Intel in certain versions of its processors that enables the processor to run above its base operating frequency via dynamic control of the processor's clock rate. ... The design concept behind **Turbo Boost** is commonly referred to as "dynamic overclocking".

Hyper-Threading is a technology used by some Intel [microprocessor](http://searchcio-midmarket.techtarget.com/definition/microprocessor) s that allows a single microprocessor to act like two separate processors to the [operating system](http://searchcio-midmarket.techtarget.com/definition/operating-system) and the [application program](http://searchsoftwarequality.techtarget.com/definition/application-program) s that use it. It is a feature of Intel's [IA-32](http://searchsoftwarequality.techtarget.com/definition/application-program) processor architecture.

With Hyper-Threading, a microprocessor's "core" processor can execute two (rather than one) concurrent streams (or [thread](http://searchcio-midmarket.techtarget.com/definition/thread) s) of instructions sent by the operating system. Having two streams of execution units to work on allows more work to be done by the processor during each [clock cycle](http://searchwinit.techtarget.com/definition/clock-cycle) . To the operating system, the Hyper-Threading microprocessor appears to be two separate processors. Because most of today's operating systems (such as Windows and Linux) are capable of dividing their work load among multiple processors (this is called symmetric multiprocessing or [SMP](http://searchdatacenter.techtarget.com/definition/SMP) ), the operating system simply acts as though the Hyper-Threading processor is a pool of two processors.

**Dual core** processors are those that contain 2 cores in a single silicon chip while **Core 2 Duo** is the name given by Intel to its second batch of dual core processors.

**Summary**:  
1. Dual core is the generic name given to [processors](http://www.differencebetween.net/technology/difference-between-cpu-and-microprocessor/) that have 2 cores on the same chip  
2. Core 2 Duo is the second line of dual core processors from Intel  
3. All Core 2 Duo processors are dual core but not all dual core processors are Core 2 Duo

**IP address classes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Class** | **1st Octet Decimal Range** | **1st Octet High Order Bits** | **Network/Host ID (N=Network, H=Host)** | **Default Subnet Mask** | **Number of Networks** | **Hosts per Network (Usable Addresses)** |
| A | 1 – 126\* | 0 | N.H.H.H | 255.0.0.0 | 126 (27 – 2) | 16,777,214 (224 – 2) |
| B | 128 – 191 | 10 | N.N.H.H | 255.255.0.0 | 16,382 (214 – 2) | 65,534 (216 – 2) |
| C | 192 – 223 | 110 | N.N.N.H | 255.255.255.0 | 2,097,150 (221 – 2) | 254 (28 – 2) |
| D | 224 – 239 | 1110 | Reserved for Multicasting | | | |
| E | 240 – 254 | 1111 | Experimental; used for research | | | |

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

**Private IP Addresses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Class** | **Private Networks** | **Subnet Mask** | **Address Range** |
| A | 10.0.0.0 | 255.0.0.0 | 10.0.0.0 - 10.255.255.255 |
| B | 172.16.0.0 - 172.31.0.0 | 255.240.0.0 | 172.16.0.0 - 172.31.255.255 |
| C | 192.168.0.0 | 255.255.0.0 | 192.168.0.0 - 192.168.255.255 |

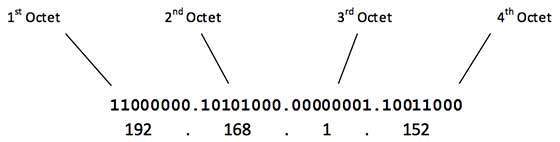
Hosted at [Novgorod State University](http://www.novsu.ru/)

# **IPv4 - Address Classes**

Internet Protocol hierarchy contains several classes of IP Addresses to be used efficiently in various situations as per the requirement of hosts per network. Broadly, the IPv4 Addressing system is divided into five classes of IP Addresses. All the five classes are identified by the first octet of IP Address.

Internet Corporation for Assigned Names and Numbers is responsible for assigning IP addresses.

The first octet referred here is the left most of all. The octets numbered as follows depicting dotted decimal notation of IP Address:



The number of networks and the number of hosts per class can be derived by this formula:



When calculating hosts' IP addresses, 2 IP addresses are decreased because they cannot be assigned to hosts, i.e. the first IP of a network is network number and the last IP is reserved for Broadcast IP.

Class A Address

The first bit of the first octet is always set to 0 (zero). Thus the first octet ranges from 1 – 127, i.e.

Class A Addresses

Class A addresses only include IP starting from 1.x.x.x to 126.x.x.x only. The IP range 127.x.x.x is reserved for loopback IP addresses.

The default subnet mask for Class A IP address is 255.0.0.0 which implies that Class A addressing can have 126 networks (27-2) and 16777214 hosts (224-2).

Class A IP address format is thus: **0NNNNNNN**.HHHHHHHH.HHHHHHHH.HHHHHHHH

Class B Address

An IP address which belongs to class B has the first two bits in the first octet set to 10, i.e.

Class B Addresses

Class B IP Addresses range from 128.0.x.x to 191.255.x.x. The default subnet mask for Class B is 255.255.x.x.

Class B has 16384 (214) Network addresses and 65534 (216-2) Host addresses.

Class B IP address format is: **10NNNNNN.NNNNNNNN**.HHHHHHHH.HHHHHHHH

Class C Address

The first octet of Class C IP address has its first 3 bits set to 110, that is:

Class C Addresses

Class C IP addresses range from 192.0.0.x to 223.255.255.x. The default subnet mask for Class C is 255.255.255.x.

Class C gives 2097152 (221) Network addresses and 254 (28-2) Host addresses.

Class C IP address format is: **110NNNNN.NNNNNNNN.NNNNNNNN**.HHHHHHHH

Class D Address

Very first four bits of the first octet in Class D IP addresses are set to 1110, giving a range of:

Class D Addresses

Class D has IP address rage from 224.0.0.0 to 239.255.255.255. Class D is reserved for Multicasting. In multicasting data is not destined for a particular host, that is why there is no need to extract host address from the IP address, and Class D does not have any subnet mask.

Class E Address

This IP Class is reserved for experimental purposes only for R&D or Study. IP addresses in this class ranges from 240.0.0.0 to 255.255.255.254. Like Class D, this class too is not equipped with any subnet mask.