

System.Net.IPAddress Class

```
[ILAsm]
.class public serializable IPAddress extends System.Object

[C#]
public class IPAddress
```

Assembly Info:

- *Name:* System
- *Public Key:* [00 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00]
- *Version:* 2.0.x.x
- *Attributes:*
 - CLSCompliantAttribute(true)

Summary

Represents an Internet Protocol (IP) address.

Inherits From: System.Object

Library: Networking

Thread Safety: All public static members of this type are safe for multithreaded operations. No instance members are guaranteed to be thread safe.

Description

An instance of the `System.Net.IPAddress` class contains the value of an address on an IP network. This address is stored internally as a `System.Int64` in network-byte-order.

[*Note:* Different conventions are in use for ordering bytes within multi-byte data types. All IP address values must be sent over the network in network-byte-order. Network-byte-order puts the most significant byte first (also known as big-endian order). On the host, the ordering of bytes is platform-specific and this ordering is referred to as host-byte-order.]

The IP address can be represented as four numbers in the range 0-255 separated by periods (for example, "192.168.1.2"), known as dotted-quad notation.

[*Note:* The address space is fragmented into different types determined by bits 31-28 as shown in the following table.

Bits 31-28	Address type	Address range
------------	--------------	---------------

0xxx	class A	0.0.0.0-127.255.255.255
10xx	class B	128.0.0.0-191.255.255.255
110x	class C	192.0.0.0-223.255.255.255
1110	multicast	224.0.0.0-239.255.255.255
1111	reserved	240.0.0.0-255.255.255.255

]

Instances of the `System.Net.IPAddress` class are provided for common IP address values as shown in the following table.

Field	IP Address
Any	0.0.0.0
Broadcast	255.255.255.255
Loopback	127.0.0.1
None	255.255.255.255

IPAddress(System.Int64) Constructor

```
[ILAsm]  
public rtspecialname specialname instance void .ctor(int64  
newAddress)
```

```
[C#]  
public IPAddress(long newAddress)
```

Summary

Constructs and initializes a new instance of the `System.Net.IPAddress` class.

Parameters

Parameter	Description
<i>newAddress</i>	A <code>System.Int64</code> containing the IP address in host-byte-order.

Exceptions

Exception	Condition
System.ArgumentOutOfRangeException	<i>newAddress</i> is less than 0 or greater than 0x00000000FFFFFFFF.

IPAddress.Any Field

```
[ILAsm]  
.field public static initOnly class System.Net.IPAddress Any  
  
[C#]  
public static readonly IPAddress Any
```

Summary

Indicates that the protocol will select which address to use.

Description

This field is read-only.

This is equivalent to `System.Net.IPAddress.IPAddress (0x0000000000000000)` and represents the address 0.0.0.0.

IPAddress.Broadcast Field

```
[ILAsm]  
.field public static initOnly class System.Net.IPAddress Broadcast
```

```
[C#]  
public static readonly IPAddress Broadcast
```

Summary

Provides the IP broadcast address.

Description

This field is read-only.

This is equivalent to `System.Net.IPAddress.IPAddress (0x00000000FFFFFFFF)` and represents the address 255.255.255.255.

This value is used to simultaneously address every host on the network.

[*Note:* Multiple fields are defined for this IP address based on prior art. This field is identical to `System.Net.IPAddress.None`.

]

IPAddress.Loopback Field

```
[ILAsm]  
.field public static initOnly class System.Net.IPAddress Loopback
```

```
[C#]  
public static readonly IPAddress Loopback
```

Summary

Provides the IP loopback address.

Description

This field is read-only.

This is equivalent to `System.Net.IPAddress.IPAddress (0x000000000100007F)` and represents the address 127.0.0.1.

The loopback address is used to specify the address of the local computer.

IPAddress.None Field

```
[ILAsm]  
.field public static initOnly class System.Net.IPAddress None
```

```
[C#]  
public static readonly IPAddress None
```

Summary

Provides the IP address that indicates that no network interface should be used.

Description

This field is read-only.

This is equivalent to `System.Net.IPAddress.IPAddress (0x00000000FFFFFFFF)` and represents the address 255.255.255.255.

[*Note:* Multiple fields are defined for this IP address based on prior art. This field is identical to `System.Net.IPAddress.Broadcast`.

]

IPAddress.Equals(System.Object) Method

```
[ILAsm]  
.method public hidebysig virtual bool Equals(object comparand)
```

```
[C#]  
public override bool Equals(object comparand)
```

Summary

Determines whether the current instance and the specified `System.Object` represent the same IP address.

Parameters

Parameter	Description
<i>comparand</i>	A <code>System.Object</code> to compare to the current instance.

Return Value

A `System.Boolean` where `true` indicates *comparand* is an instance of the `System.Net.IPAddress` class and has the same `System.Net.IPAddress.Address` property value as the current instance; otherwise `false`.

Description

[*Note:* This method overrides `System.Object.Equals`.

]

IPAddress.GetHashCode() Method

```
[ILAsm]  
.method public hidebysig virtual int32 GetHashCode()  
  
[C#]  
public override int GetHashCode()
```

Summary

Generates a hash code for the current instance.

Return Value

A `System.Int32` containing the hash code for the current instance.

Description

The algorithm used to generate the hash code is unspecified.

[*Note:* This method overrides `System.Object.GetHashCode`.

]

IPAddress.HostToNetworkOrder(System.Int64) Method

```
[ILAsm]  
.method public hidebysig static int64 HostToNetworkOrder(int64 host)  
  
[C#]  
public static long HostToNetworkOrder(long host)
```

Summary

Converts a `System.Int64` from host-byte-order to network-byte-order.

Parameters

Parameter	Description
<i>host</i>	A <code>System.Int64</code> in host-byte-order.

Return Value

A `System.Int64` in network-byte-order.

Description

This method performs conversions on systems where the host-byte-order differs from network-byte-order. On systems where this is not the case, this method does nothing.

IPAddress.HostToNetworkOrder(System.Int32) Method

```
[ILAsm]  
.method public hidebysig static int32 HostToNetworkOrder(int32 host)  
  
[C#]  
public static int HostToNetworkOrder(int host)
```

Summary

Converts a `System.Int32` from host-byte-order to network-byte-order.

Parameters

Parameter	Description
<i>host</i>	A <code>System.Int32</code> in host-byte-order.

Return Value

A `System.Int32` in network-byte-order.

Description

This method performs conversions on systems where the host-byte-order differs from network-byte-order. On systems where this is not the case, this method does nothing.

IPAddress.HostToNetworkOrder(System.Int16) Method

```
[ILAsm]  
.method public hidebysig static int16 HostToNetworkOrder(int16 host)  
  
[C#]  
public static short HostToNetworkOrder(short host)
```

Summary

Converts a `System.Int16` from host-byte-order to network-byte-order.

Parameters

Parameter	Description
<i>host</i>	A <code>System.Int16</code> in host-byte-order.

Return Value

A `System.Int16` in network-byte-order.

Description

This method performs conversions on systems where the host-byte-order differs from network-byte-order. On systems where this is not the case, this method does nothing.

IPAddress.IsLoopback(System.Net.IPAddress) Method

```
[ILAsm]  
.method public hidebysig static bool IsLoopback(class  
System.Net.IPAddress address)
```

```
[C#]  
public static bool IsLoopback(IPAddress address)
```

Summary

Returns a `System.Boolean` that indicates whether the specified IP address is a loopback address.

Parameters

Parameter	Description
<i>address</i>	A <code>System.Net.IPAddress</code> containing the IP address to check.

Return Value

`true` if *address* is a loopback address; otherwise `false`.

Description

All IP addresses of the form 127.X.Y.Z, where X, Y, and Z are in the range 0-255, are forwarded to the IP loopback address 127.0.0.1. The `System.Net.IPAddress.Loopback` address is used to specify the address of the local computer.

IPAddress.NetworkToHostOrder(System.Int64) Method

```
[ILAsm]  
.method public hidebysig static int64 NetworkToHostOrder(int64  
network)  
  
[C#]  
public static long NetworkToHostOrder(long network)
```

Summary

Converts a System.Int64 from network-byte-order to host-byte-order.

Parameters

Parameter	Description
<i>network</i>	A System.Int64 in network-byte-order.

Return Value

A System.Int64 in host-byte-order.

Description

This method performs conversions on systems where the host-byte-order differs from network-byte-order. On systems where this is not the case, this method does nothing.

IPAddress.NetworkToHostOrder(System.Int32) Method

```
[ILAsm]  
.method public hidebysig static int32 NetworkToHostOrder(int32  
network)  
  
[C#]  
public static int NetworkToHostOrder(int network)
```

Summary

Converts a `System.Int32` from network-byte-order to host-byte-order.

Parameters

Parameter	Description
<i>network</i>	A <code>System.Int32</code> in network-byte-order.

Return Value

A `System.Int32` in host-byte-order.

Description

This method performs conversions on systems where the host-byte-order differs from network-byte-order. On systems where this is not the case, this method does nothing.

IPAddress.NetworkToHostOrder(System.Int16) Method

```
[ILAsm]  
.method public hidebysig static int16 NetworkToHostOrder(int16  
network)  
  
[C#]  
public static short NetworkToHostOrder(short network)
```

Summary

Converts a System.Int16 from network-byte-order to host-byte-order.

Parameters

Parameter	Description
<i>network</i>	A System.Int16 in network-byte-order.

Return Value

A System.Int16 in host-byte-order.

Description

This method performs conversions on systems where the host-byte-order differs from network-byte-order. On systems where this is not the case, this method does nothing.

IPAddress.Parse(System.String) Method

```
[ILAsm]  
.method public hidebysig static class System.Net.IPAddress  
Parse(string ipString)
```

```
[C#]  
public static IPAddress Parse(string ipString)
```

Summary

Converts a `System.String` representation of an IP address in dotted-quad notation, to a `System.Net.IPAddress` instance.

Parameters

Parameter	Description
<i>ipString</i>	A <code>System.String</code> in dotted-quad notation containing the IP address to convert.

Return Value

A new `System.Net.IPAddress` instance that represents the address specified in *ipString*.

Description

[*Note:* An example of a string in dotted-quad notation is "127.0.0.1".

]

Exceptions

Exception	Condition
<code>System.ArgumentNullException</code>	<i>ipString</i> is null.
<code>System.FormatException</code>	<i>ipString</i> is not a valid IP address.

IPAddress.ToString() Method

```
[ILAsm]  
.method public hidebysig virtual string ToString()  
  
[C#]  
public override string ToString()
```

Summary

Returns a `System.String` representation of the value of the current instance.

Return Value

A `System.String` representation of the current instance. The returned string is an IP address expressed in dotted-quad notation (for example, "192.168.1.2").

Description

[*Note:* The `System.Net.IPAddress.ToString` method converts the IP address stored in the `System.Net.IPAddress.Address` property of the current instance to a `System.String` containing the address in dotted-quad notation (for example, "192.168.1.2").

This method overrides `System.Object.ToString`.

]

IPAddress.Address Property

```
[ILAsm]  
.property int64 Address { public hidebysig specialname instance  
int64 get_Address() public hidebysig specialname instance void  
set_Address(int64 value) }
```

```
[C#]  
public long Address { get; set; }
```

Summary

Gets or sets an Internet Protocol (IP) address.

Property Value

A `System.Int64` containing the IP address in host-byte-order.

Description

[*Note:* To convert `System.Net.IPAddress.Address` to dotted-quad notation, use the `System.Net.IPAddress.ToString` method.

Values greater than 0x00000000FFFFFFFF are permitted for IPv6 extensibility.

]

Exceptions

Exception	Condition
System.ArgumentOutOfRangeException	The value specified in a set operation is less than 0.

IPAddress.AddressFamily Property

```
[ILAsm]  
.property valuetype System.Net.Sockets.AddressFamily AddressFamily {  
public hidebysig specialname instance valuetype  
System.Net.Sockets.AddressFamily get_AddressFamily() }  
  
[C#]  
public AddressFamily AddressFamily { get; }
```

Summary

Gets the address family.

Property Value

System.Net.Sockets.AddressFamily.InterNetwork.

Description

This property is read-only.