System.Net.Dns Class

```
[ILAsm]
.class public sealed Dns extends System.Object

[C#]
public sealed class Dns
```

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

Obtains domain information from the Domain Name System as defined by IETF RFC 1035 and RFC 1036.

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

The `System.Net.Dns` class creates and sends queries to obtain information about a host server from the Internet Domain Name System (DNS). In order to access DNS, the machine executing the query is required to be connected to a network. If the query is executed on a machine that does not have access to a domain name server, a `System.Net.Sockets.SocketException` is thrown.

Information from the DNS query is returned in an instance of the `System.Net.IPHostEntry` class. If the specified host has more than one entry in the DNS database, the `System.Net.IPHostEntry` instance contains multiple IP addresses and aliases.

[*Note:* See the `System.Net.IPHostEntry` class page for an example that uses the `System.Net.Dns` class.]

Dns.BeginGetHostByName(System.String, System.AsyncCallback, System.Object) Method

```
[ILAsm]
.method public hidebysig static class System.IAsyncResult
BeginGetHostByName(string hostName, class System.AsyncCallback
requestCallback, object stateObject)

[C#]
public static IAsyncResult BeginGetHostByName(string hostName,
AsyncCallback requestCallback, object stateObject)
```

Summary

Begins the asynchronous execution of a DNS query to obtain address information about the specified host.

Parameters

Parameter	Description
hostName	A `System.String` containing the DNS name of the host.
requestCallback	A `System.AsyncCallback` delegate, or `null`.
stateObject	An application-defined object, or `null`.

Return Value

A `System.IAsyncResult` instance that contains information about the asynchronous operation.

Description

This method starts an asynchronous request for information about the specified host. To retrieve the results of the query and release resources allocated by this method, call the `System.Net.Dns.EndGetHostByName` method and specify the `System.IAsyncResult` object returned by this method. [*Note:* The `System.Net.Dns.EndGetHostByName` method should be called exactly once for each call to `System.Net.Dns.BeginGetHostByName.`]

If the *requestCallback* parameter is not `null`, the method referenced by *requestCallback* is invoked when the asynchronous operation completes. The `System.IAsyncResult` object returned by this method is passed as the argument to the method referenced by *requestCallback*. The method referenced by *requestCallback* can retrieve the results of the query by calling

```
System.Net.Dns.EndGetHostByName.
```

The *stateObject* parameter can be any object that the caller wishes to have available for the duration of the asynchronous operation. This object is available via the `System.IAsyncResult.AsyncState` property of the object returned by this method.

Exceptions

Exception	Condition
System.ArgumentNullException	*hostName* is `null`.
System.Net.Sockets.SocketException	An error was encountered executing the DNS query.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Permissions

Permission	Description
System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. See `System.Net.DnsPermission` and `System.Security.Permissions.PermissionState.Unrestricted`.

Dns.BeginResolve(System.String, System.AsyncCallback, System.Object) Method

```
[ILAsm]
.method public hidebysig static class System.IAsyncResult
BeginResolve(string hostName, class System.AsyncCallback
requestCallback, object stateObject)

[C#]
public static IAsyncResult BeginResolve(string hostName,
AsyncCallback requestCallback, object stateObject)
```

Summary

Begins the asynchronous execution of a DNS query to resolve a host name or IP address.

Parameters

Parameter	Description
hostName	A `System.String` containing the DNS name or IP address of the host.
requestCallback	A `System.AsyncCallback` delegate or `null`.
stateObject	An application-defined object, or `null`.

Return Value

A `System.IAsyncResult` instance that contains information about the asynchronous operation.

Description

This method starts an asynchronous request for DNS information about the specified host. To retrieve the results of the query and release resources allocated by this method, call the `System.Net.Dns.EndResolve` method, and specify the `System.IAsyncResult` object returned by this method. [*Note:* The `System.Net.Dns.EndResolve` method should be called exactly once for each call to `System.Net.Dns.BeginResolve`]

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If the *requestCallback* parameter is not `null`, the method referenced by *requestCallback* is invoked when the asynchronous operation completes. The `System.IAsyncResult` object returned by this method is passed as the argument

to the method referenced by *requestCallback*. The method referenced by *requestCallback* can retrieve the results of the query by calling `System.Net.Dns.EndResolve`.

The *stateObject* parameter can be any object that the caller wishes to have available for the duration of the asynchronous operation. This object is available via the `System.IAsyncResult.AsyncState` property of the object returned by this method.

Exceptions

Exception	Condition
System.ArgumentNullException	*hostName* is `null`.
System.Net.Sockets.SocketException	An error was encountered executing the DNS query.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Permissions

Permission	Description
System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. See `System.Net.DnsPermission` and `System.Security.Permissions.PermissionState.Unrestricted`.

Dns.EndGetHostByName(System.IAsyncResult) Method

```
[ILAsm]
.method public hidebysig static class System.Net.IPHostEntry
EndGetHostByName(class System.IAsyncResult asyncResult)

[C#]
public static IPHostEntry EndGetHostByName(IAsyncResult asyncResult)
```

Summary

Ends an asynchronous query to obtain address information about the specified host.

Parameters

Parameter	Description
asyncResult	The System.IAsyncResult object that holds the state information for the asynchronous operation.

Return Value

A System.Net.IPHostEntry object containing DNS address information about a host.

Description

This method blocks if the asynchronous operation has not completed.

The System.Net.Dns.EndGetHostByName method completes an asynchronous request for DNS information that was started with a call to System.Net.Dns.BeginGetHostByName. The object specified for the *asyncResult* parameter is required to be the same object as was returned by the System.Net.Dns.BeginGetHostByName method call that began the request.

If the System.Net.Dns.EndGetHostByName method is invoked via the System.AsyncCallback delegate specified to the System.Net.Dns.BeginGetHostByName method, the *asyncResult* parameter is the System.IAsyncResult argument passed to the delegate's method.

Exceptions

Exception	Condition
System.ArgumentNullException	*asyncResult* is `null`.

Exception	Condition
System.ArgumentNullException	*asyncResult* is `null`.

Dns.EndResolve(System.IAsyncResult) Method

```
[ILAsm]
.method public hidebysig static class System.Net.IPHostEntry
EndResolve(class System.IAsyncResult asyncResult)

[C#]
public static IPHostEntry EndResolve(IAsyncResult asyncResult)
```

Summary

Ends an asynchronous query to resolve a host name or IP address.

Parameters

Parameter	Description
asyncResult	The `System.IAsyncResult` object that holds the state information for the asynchronous operation.

Return Value

A `System.Net.IPHostEntry` object containing address information about a host.

Description

This method blocks if the asynchronous operation has not completed.

The `System.Net.Dns.EndResolve` method completes an asynchronous request for DNS information that was started with a call to `System.Net.Dns.BeginResolve`. The object specified for the *asyncResult* parameter is required to be the same object as was returned by the `System.Net.Dns.BeginResolve` method call that began the request.

If the `System.Net.Dns.EndResolve` method is invoked via the `System.AsyncCallback` delegate specified to the `System.Net.Dns.BeginResolve` method, the *asyncResult* parameter is the `System.IAsyncResult` argument passed to the delegate's method.

Exceptions

Exception	Condition
System.ArgumentNullException	*asyncResult* is `null`.

Dns.GetHostByAddress(System.String) Method

```
[ILAsm]
.method public hidebysig static class System.Net.IPHostEntry
GetHostByAddress(string address)


[C#]
public static IPHostEntry GetHostByAddress(string address)
```

Summary

Queries DNS for the DNS host name of the specified IP address.

Parameters

Parameter	Description
address	A `System.String` containing an IP address.

Return Value

A `System.Net.IPHostEntry` instance containing the host information.

Description

The IP address specified by the *address* parameter is required to be in dotted-quad notation (for example, "192.168.1.2").

Exceptions

Exception	Condition
System.ArgumentNullException	*address* is `null`.
System.FormatException	*address* is not a valid IP address.
System.Net.Sockets.SocketException	An error was encountered executing the DNS query.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Permissions

Permission	Description

System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. See `System.Net.DnsPermission` and `System.Security.Permissions.PermissionState. Unrestricted.`

Dns.GetHostByAddress(System.Net.IPAddress) Method

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


[C#]
public static IPHostEntry GetHostByAddress(IPAddress address)
```

Summary

Queries DNS for the DNS host name of the specified IP address.

Parameters

Parameter	Description
address	A System.Net.IPAddress instance.

Return Value

A System.Net.IPHostEntry instance containing the host information.

Exceptions

Exception	Condition
System.ArgumentNullException	*address* is null.
System.Net.Sockets.SocketException	An error was encountered executing the DNS query.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Permissions

Permission	Description
System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. See System.Net.DnsPermission and System.Security.Permissions.PermissionState.Unrestricted.

Dns.GetHostByName(System.String) Method

```
[ILAsm]
.method public hidebysig static class System.Net.IPHostEntry
GetHostByName(string hostName)

[C#]
public static IPHostEntry GetHostByName(string hostName)
```

Summary

Queries DNS for address information about the specified host.

Parameters

Parameter	Description
hostName	A `System.String` containing the DNS name of the host.

Return Value

A `System.Net.IPHostEntry` object containing host information for the address specified in *hostName*.

Description

[*Note:* To retrieve host information asynchronously, use the `System.Net.Dns.BeginGetHostByName` and `System.Net.Dns.EndGetHostByName` methods.

See the `System.Net.IPHostEntry` class page for an example that uses the `System.Net.Dns.GetHostByName` method.

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Exceptions

Exception	Condition
System.ArgumentNullException	*hostName* is `null`.
System.Net.Sockets.SocketException	An error was encountered executing the DNS query.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Permissions

Permission	Description
System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. See `System.Net.DnsPermission` and `System.Security.Permissions.PermissionState. Unrestricted.`

Dns.GetHostName() Method

```
[ILAsm]
.method public hidebysig static string GetHostName()


[C#]
public static string GetHostName()
```

Summary

Gets the DNS host name of the local machine.

Return Value

A `System.String` containing the DNS host name of the local machine.

Exceptions

Exception	Condition
System.Net.Sockets.SocketException	An error was encountered resolving the local host name.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Permissions

Permission	Description
System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. See `System.Net.DnsPermission` and `System.Security.Permissions.PermissionState.Unrestricted`.

Dns.Resolve(System.String) Method

```
[ILAsm]
.method public hidebysig static class System.Net.IPHostEntry
Resolve(string hostName)


[C#]
public static IPHostEntry Resolve(string hostName)
```

Summary

Resolves a DNS host name or IP address to a `System.Net.IPHostEntry` instance.

Parameters

Parameter	Description
hostName	A `System.String` containing a DNS-style host name or IP address.

Return Value

A `System.Net.IPHostEntry` instance containing address information about the host specified in *hostName*.

Description

The `System.Net.Dns.Resolve` method queries a DNS server for the IP address associated with a host name or an IP address in dotted-quad notation.

When *hostName* is a DNS-style host name associated with multiple IP addresses, only the first IP address that resolves to that host name is returned.

Exceptions

Exception	Condition
System.ArgumentNullException	*hostName* is `null`.
System.Net.Sockets.SocketException	An error was encountered executing the DNS query.
System.Security.SecurityException	The caller does not have permission to access DNS information.

Example

The following example demonstrates the use of the `System.Net.Dns.Resolve` method.

`[C#]`

```
using System;
using System.Net;

public class DnsTest {
 public static void Main() {
    IPHostEntry hostInfo1 = Dns.Resolve("www.contoso.com");
    DisplayHostInfo(hostInfo1);
    Console.WriteLine();
 }

 public static void DisplayHostInfo(IPHostEntry hostInfo) {
    string[] aliases = hostInfo.Aliases;
    IPAddress[] addresses = hostInfo.AddressList;
    Console.WriteLine("The host name is: {0}", hostInfo.HostName);

    for(int x = 0; x < aliases.Length; x++)
      Console.WriteLine("Alias {0} == {1}", aliases[x], addresses[x]);
 }
}
```
The output is

```
The host name is: contoso.com


Alias www.contoso.com == 207.46.230.186
```

Permissions

Permission	Description
System.Net.DnsPermission	Requires unrestricted permission for accessing DNS information. This method also asserts unrestricted `DnsPermission`. See `System.Net.DnsPermission` and `System.Security.Permissions.PermissionState.Unrestricted`.