

TestPingCSharpV2

Software Documentation

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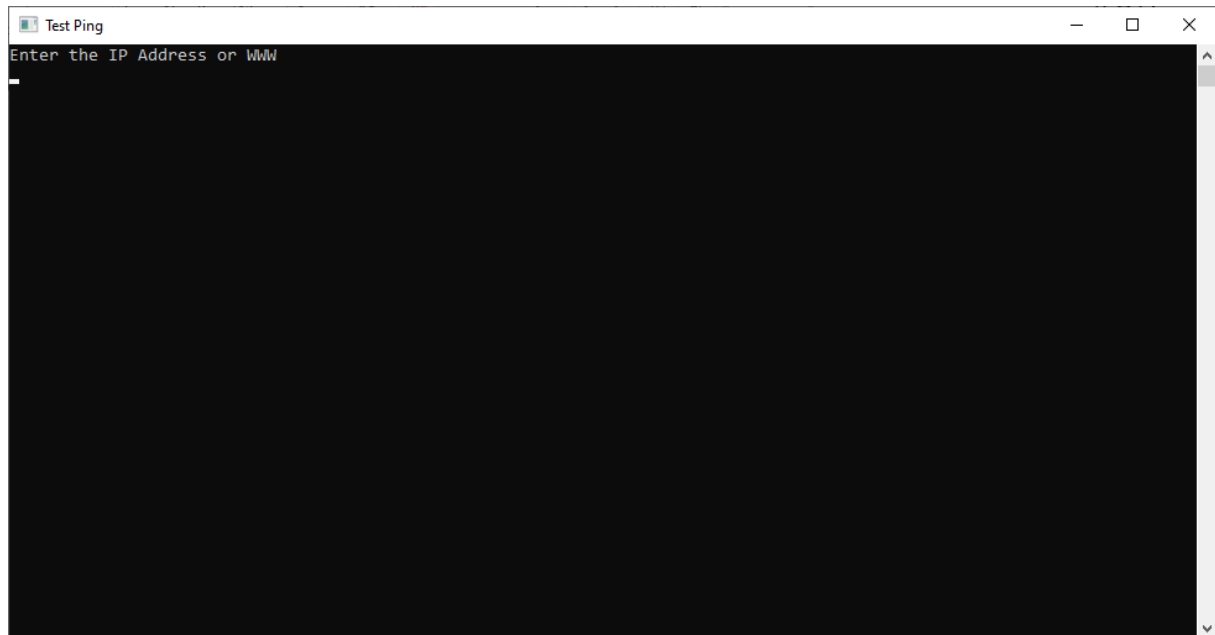
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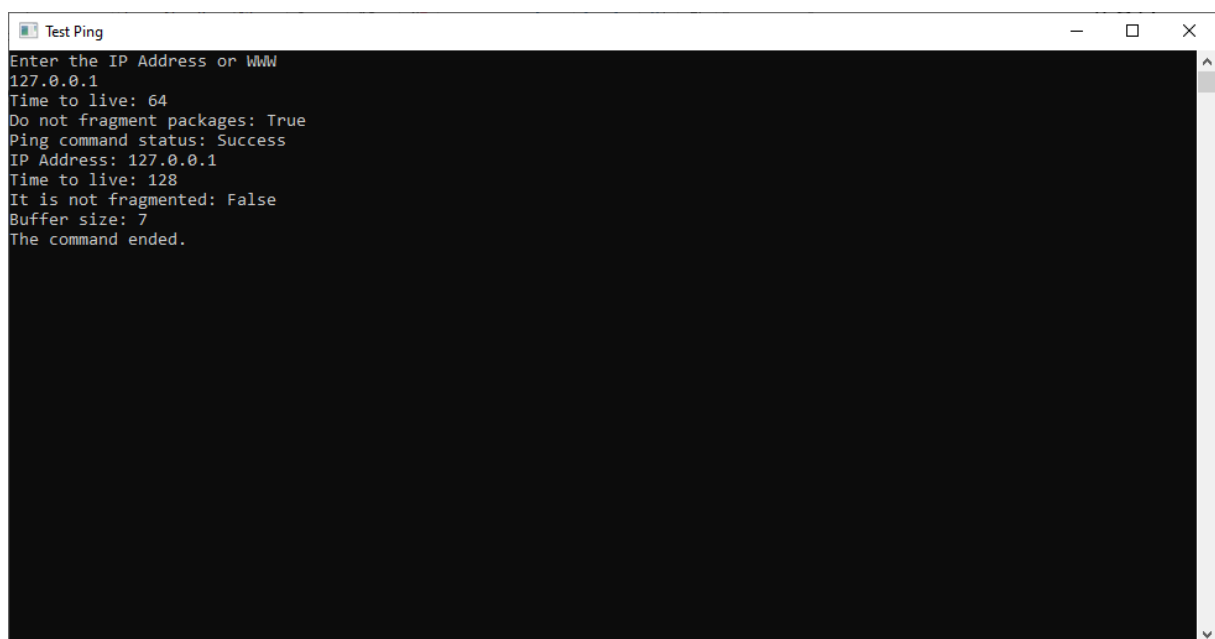
Introduction

This software documentation includes: description of the application's operation, what is needed for use, algorithms used, interface description and source code description. This application is used to diagnose network connections by Ping command.

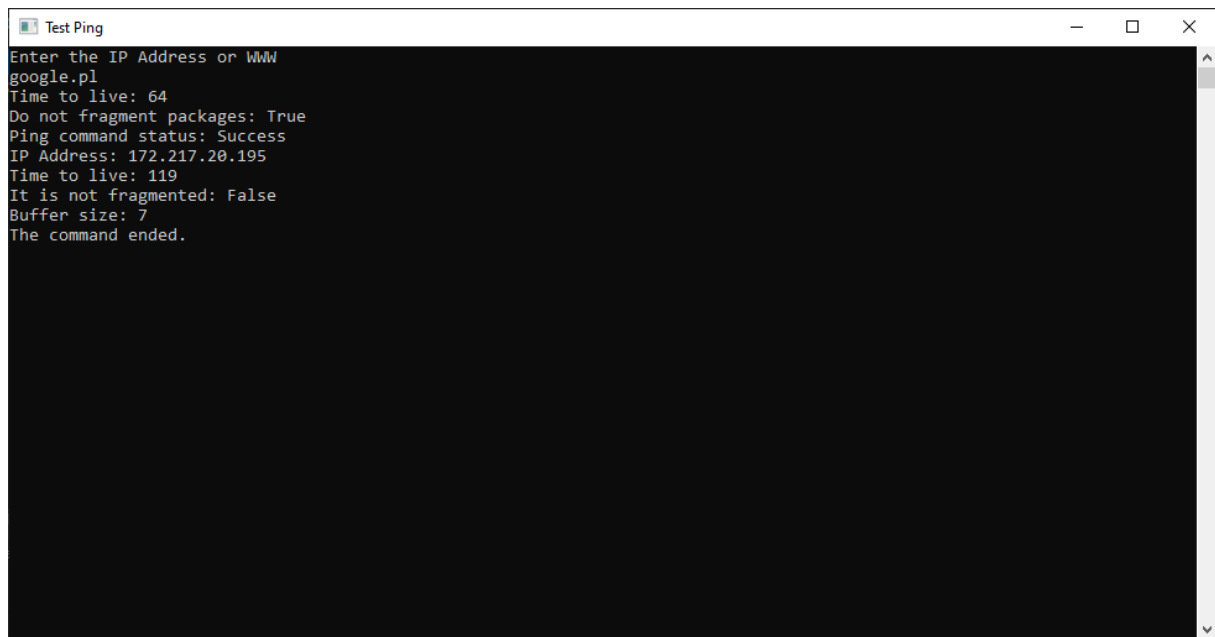
Describing of the application's operation



Drawing 1: The beginning of the application's operation [own study]

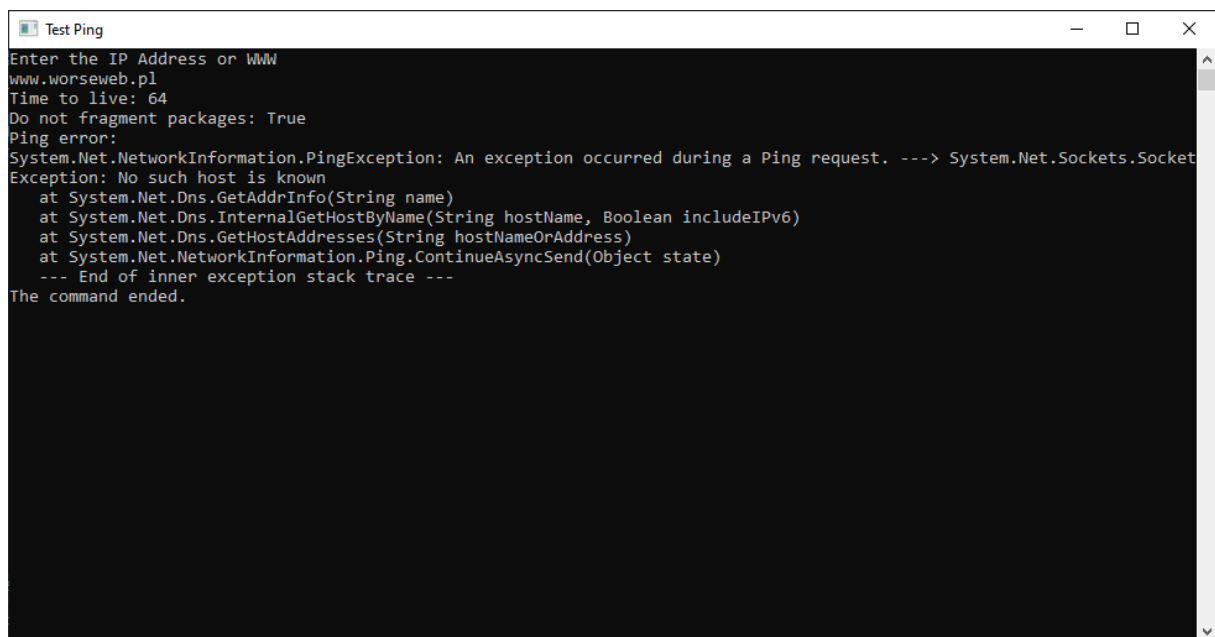


Drawing 2: The effect after entering the IPv4 address of the localhost[own study]



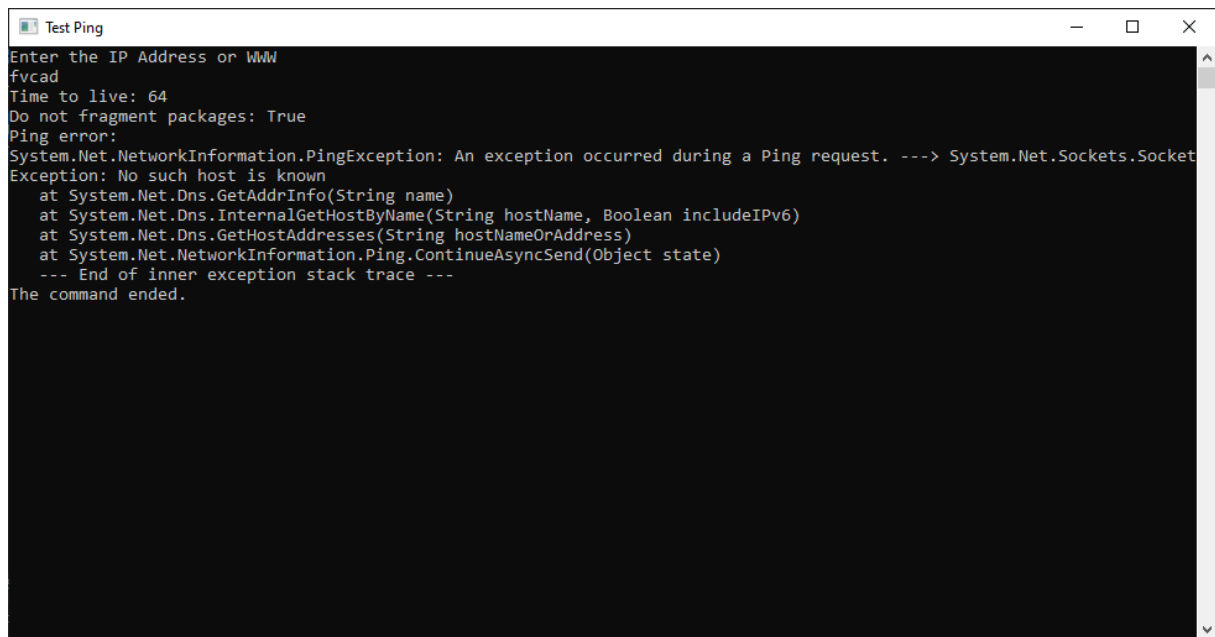
```
Test Ping
Enter the IP Address or WWW
google.pl
Time to live: 64
Do not fragment packages: True
Ping command status: Success
IP Address: 172.217.20.195
Time to live: 119
It is not fragmented: False
Buffer size: 7
The command ended.
```

Drawing 3: The effect after entering the website [own study]



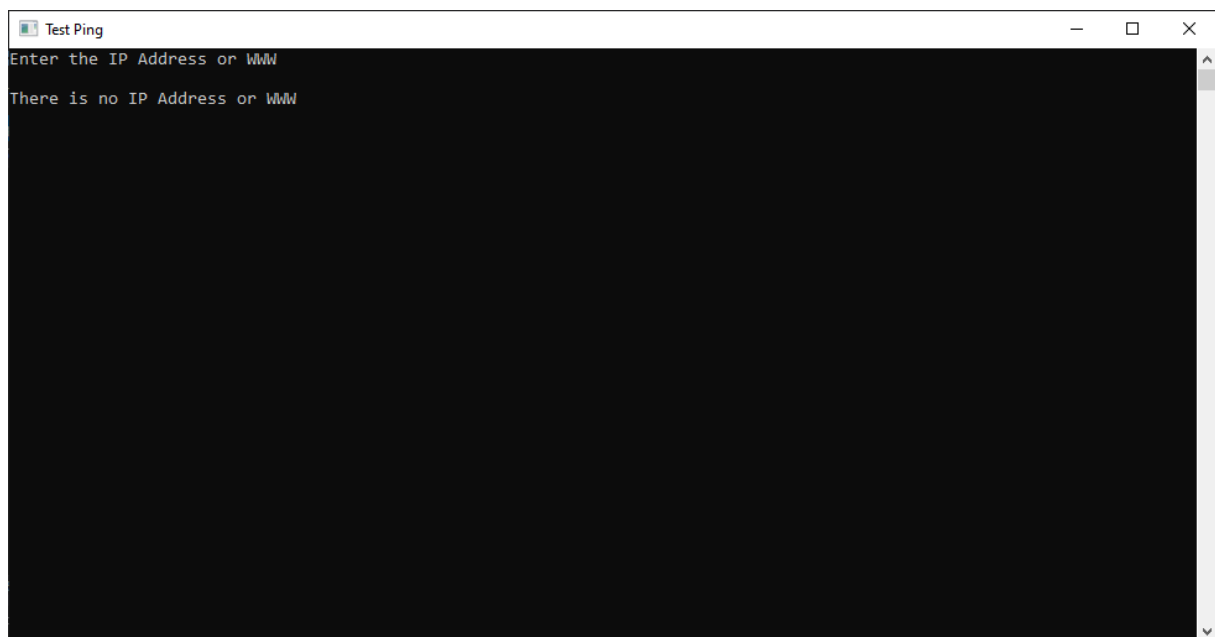
```
Test Ping
Enter the IP Address or WWW
www.worseweb.pl
Time to live: 64
Do not fragment packages: True
Ping error:
System.Net.NetworkInformation.PingException: An exception occurred during a Ping request. ---> System.Net.Sockets.Socket
Exception: No such host is known
   at System.Net.Dns.GetAddrInfo(String name)
   at System.Net.Dns.InternalGetHostByName(String hostName, Boolean includeIPv6)
   at System.Net.Dns.GetHostAddresses(String hostNameOrAddress)
   at System.Net.NetworkInformation.Ping.ContinueAsyncSend(Object state)
   --- End of inner exception stack trace ---
The command ended.
```

Drawing 4: Effect after entering a wrong address [own study]



```
Test Ping
Enter the IP Address or WWW
fvcad
Time to live: 64
Do not fragment packages: True
Ping error:
System.Net.NetworkInformation.PingException: An exception occurred during a Ping request. ---> System.Net.Sockets.SocketException: No such host is known
    at System.Net.Dns.GetAddrInfo(String name)
    at System.Net.Dns.InternalGetHostByName(String hostName, Boolean includeIPv6)
    at System.Net.Dns.GetHostAddresses(String hostNameOrAddress)
    at System.Net.NetworkInformation.Ping.ContinueAsyncSend(Object state)
    --- End of inner exception stack trace ---
The command ended.
```

Drawing 5: Effect after entering random characters [own study]



```
Test Ping
Enter the IP Address or WWW
There is no IP Address or WWW
```

Drawing 6: Effect after typing nothing [own study]

After starting the program, the user is asked to enter an IP address or a website. Accepts the input by pressing the Enter key. If there is a network connection and the recipient information is correct, "Success" will be displayed next to "Ping command status". Otherwise, when there is a wrong address, random characters (not IP Address and WWW) or missing connection, there will be a message containing error details. It is possible that the user is staring at nothing and typing nothing, then the message "There is no IP Address or WWW" will appear. There are certainly errors that the developer did not discover while working on the application.

What is needed for use?

The application does not require installation. It only needs the Windows operating system.

Algorithm used

The basic form of the algorithm can be deduced from the previous section. It only needs the Windows operating system. In summary, the application is equivalent to the Ping command in the Windows Command Prompt.

Interface description



Drawing 7: Graphical interface [own study]

The interface is typical for a Console Application.

Source code description

The project was made in the C# programming language, in the Visual Studio Community 2017 programming environment. All work was done on the Windows 10 operating system. The application's source code looks like this.

```
using System;  
using System.Collections.Generic;  
using System.Linq;  
using System.Text;  
using System.Threading;  
using System.Net;
```

```

using System.Net.NetworkInformation;

namespace TestPingCSharpV2
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Title = "Test Ping";
            Console.WriteLine("Enter the IP Address or WWW");
            string adresWWW = Console.ReadLine();

            if (adresWWW.Length > 0)
            {
                try
                {
                    AutoResetEvent waiter = new AutoResetEvent(false);

                    Ping pingSender = new Ping();

                    pingSender.PingCompleted += new
PingCompletedEventHandler(PingCompletedCallback);

                    string data = "Message";
                    byte[] buforBajtow = Encoding.ASCII.GetBytes(data);

                    int timeout = 3600;

                    PingOptions opcje = new PingOptions(64, true);

                    Console.WriteLine("Time to live: " + opcje.Ttl.ToString());
                    Console.WriteLine("Do not fragment packages: " +
opcje.DontFragment.ToString());

                    pingSender.SendAsync(adresWWW, timeout, buforBajtow, opcje,
waiter);

                    waiter.WaitOne();
                    Console.WriteLine("The command ended.");
                } catch (Exception)
                {
                    Console.WriteLine("Wrong IP Address or WWW");
                }
            }
            else if (adresWWW.Length == 0) Console.WriteLine("There is no IP Address
or WWW");
            Console.ReadKey();
        }

        public static void PingCompletedCallback(object sender, PingCompletedEventArgs
e)
        {
            if (e.Cancelled)
            {
                Console.WriteLine("Cancelled Ping.");
                ((AutoResetEvent)e.UserState).Set();
            }

            if (e.Error != null)
            {
                Console.WriteLine("Ping error:");
                Console.WriteLine(e.Error.ToString());
            }
        }
    }
}

```

```

        ((AutoResetEvent)e.UserState).Set();
    }

    PingReply odpowiedz = e.Reply;
    WyświetlOdpowiedzPing(odpowiedz);
    ((AutoResetEvent)e.UserState).Set();
}

public static void WyświetlOdpowiedzPing(PingReply odpowiedz)
{
    if (odpowiedz == null) return;

    Console.WriteLine("Ping command status: "+odpowiedz.Status.ToString());
    if (odpowiedz.Status == IPStatus.Success)
    {
        Console.WriteLine("IP Address: " + odpowiedz.Address.ToString());
        Console.WriteLine("Time to live: " +
odpowiedz.Options.Ttl.ToString());
        Console.WriteLine("It is not fragmented: " +
odpowiedz.Options.DontFragment.ToString());
        Console.WriteLine("Buffer size: " +
odpowiedz.Buffer.Length.ToString());
    }
}
}
}

```

Listing 1: Source code [own study]

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