Ex5 – ICMP:

First Part- Sending ICMP packet

In this pat we sent a ICMP packet with data inside it via ICMP protocol and also got an answer is everything went well.
At the end, we measure the time (RTT) from the moment we sent the message until we received it fully.

In addition, we asked to capture the packet in sniffing tool (we use in wireshark) to capture the packet.

At the image below we can see the packet which sent with all it data inside and the packet which received (the same one). We can also see the RTT measure.

```
┌──(tanjiro㉿kali)-[~/Desktop/Ex5_ICMP]
└─$ sudo ./myping
One packet has been sent :
        Total Packetsize: 27 bytes: IP Header Length is: 8 + ICMP Header length is: 19 +  Data length :27
        Data: This is the ping.

One packet has been recived:
        Total Packetsize: 47 bytes: IP Header Length is: 20 + ICMP Header length is: 8 +  Data length :19
        The Data: This is the ping.

The RTT is: 0.170000 milliseconds, 170 microseconds
```
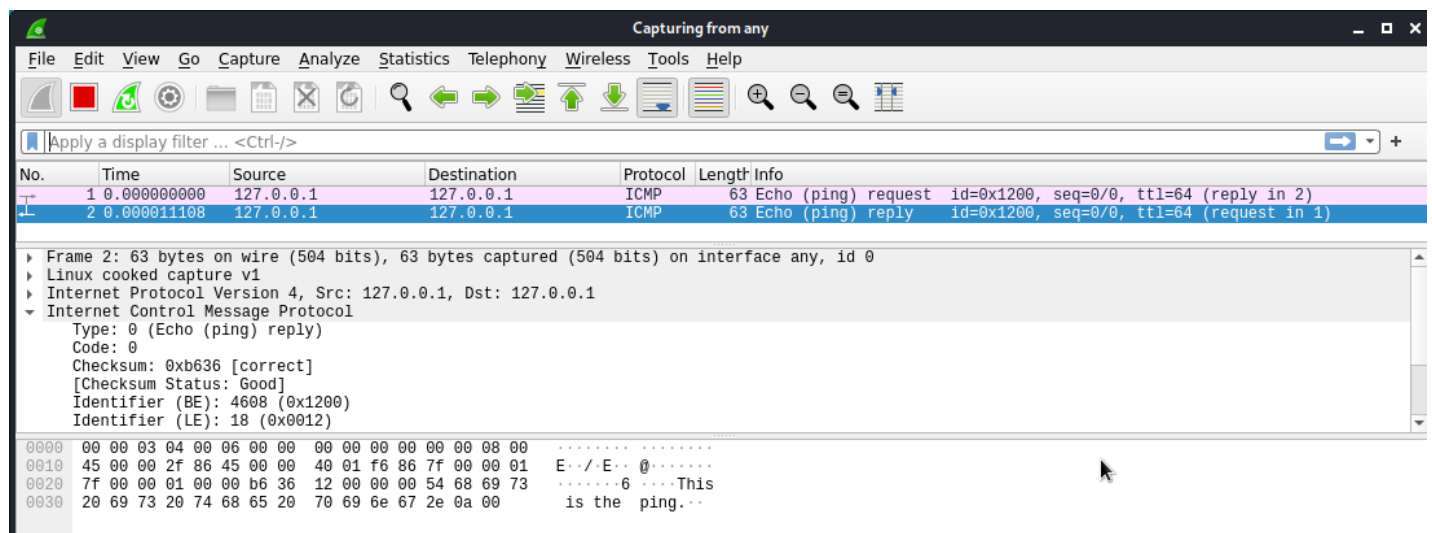
Here we can see that packet we sent in sniffing tool, we see that it format is ICMP protocol and the data inside it.
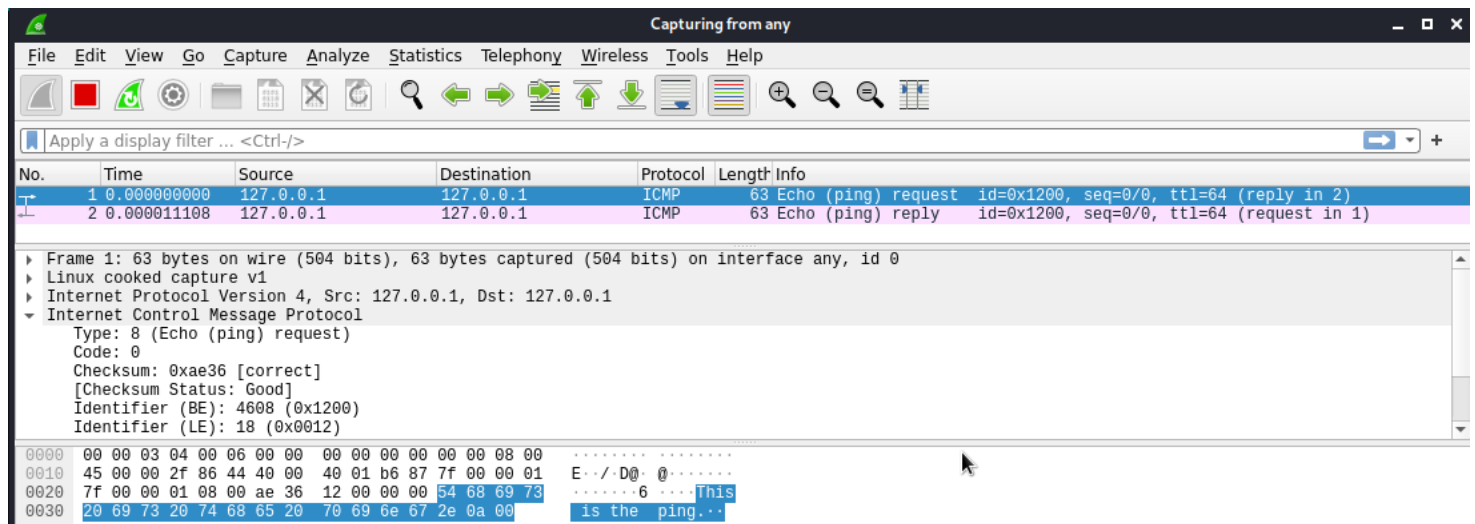
In the Image below, we can see the reply of the packet we have sent, including all the information.
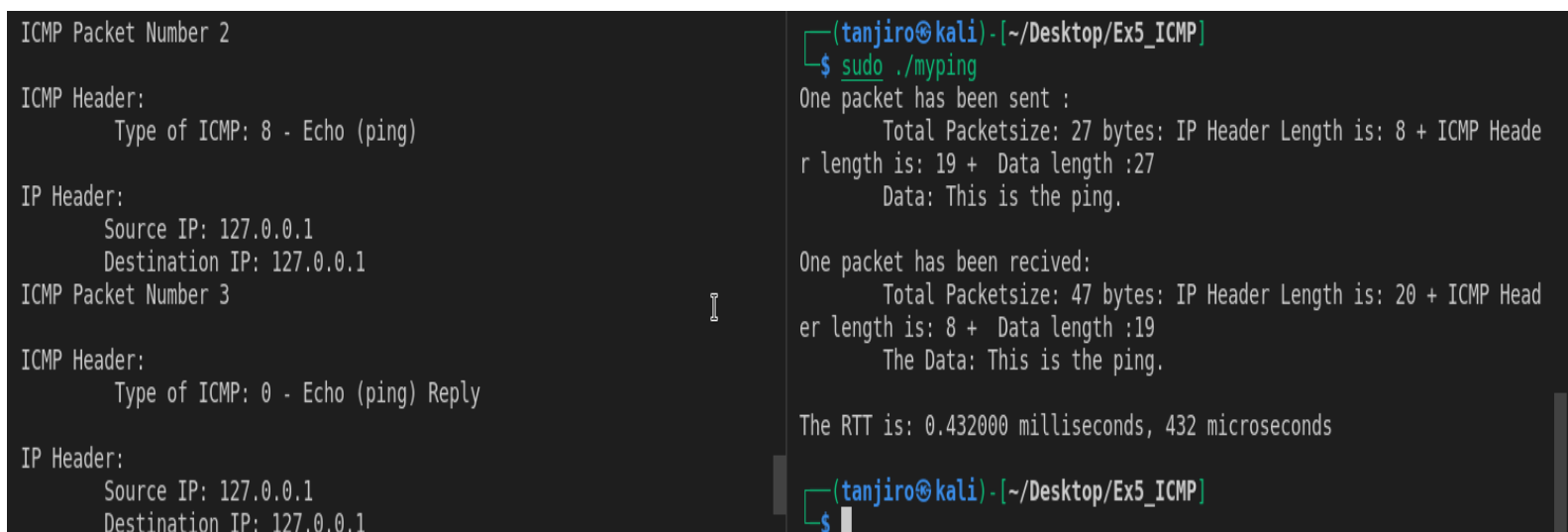
Part 2: Building a sniffing tool

In this part we asked to build a sniffer tool, the main goal of this part is demonstrate how a sniffing tool is actually work, so we built a very basic sniffing tool which capture the packet we sent via myping.c in a very basic way.
As we can see in the image below, in the right side this is myping.c sending the packets, and in the left side this is the basic sniffer we built.
As we can see the sniffer tool capture very basic information such as; if it ping or replay on a ping, which is the source and the destination IP.

```
ICMP Packet Number 2

ICMP Header:
        Type of ICMP: 8 - Echo (ping)

IP Header:
        Source IP: 127.0.0.1
        Destination IP: 127.0.0.1
ICMP Packet Number 3

ICMP Header:
        Type of ICMP: 0 - Echo (ping) Reply

IP Header:
        Source IP: 127.0.0.1
        Destination IP: 127.0.0.1
```

```
┌──(tanjiro㉿kali)-[~/Desktop/Ex5_ICMP]
└─$ sudo ./myping
One packet has been sent :
        Total Packetsize: 27 bytes: IP Header Length is: 8 + ICMP Heade
r length is: 19 +  Data length :27
        Data: This is the ping.

One packet has been recived:
        Total Packetsize: 47 bytes: IP Header Length is: 20 + ICMP Head
er length is: 8 +  Data length :19
        The Data: This is the ping.

The RTT is: 0.432000 milliseconds, 432 microseconds

┌──(tanjiro㉿kali)-[~/Desktop/Ex5_ICMP]
└─$
```

/// Very Important!
In aim to run this two program we need to use the sudo commend, because only in that way we can ran it with administer way.

What we learn:

In this project we learn the basic structure of a sniffing tool and how we can really send a ping.
In the whole course we did several things because "this is the way", without any dip understanding in very important thing such as; what a ping is really is?, or how sniffing tool is actually work, after this assignment we can tell for sure that we learn a lot about it.