TRƯỜNG ĐẠI HỌC BÁCH KHOA

ĐẠI HỌC QUỐC GIA TP HỒ CHÍ MINH

HOMEWORK

MẠNG MÁY TÍNH (THỰC HÀNH) – LAB 5

Giảng viên hướng dẫn: Ths. Bùi Xuân Giang

Sinh viên thực hiện: Trần Minh Tân

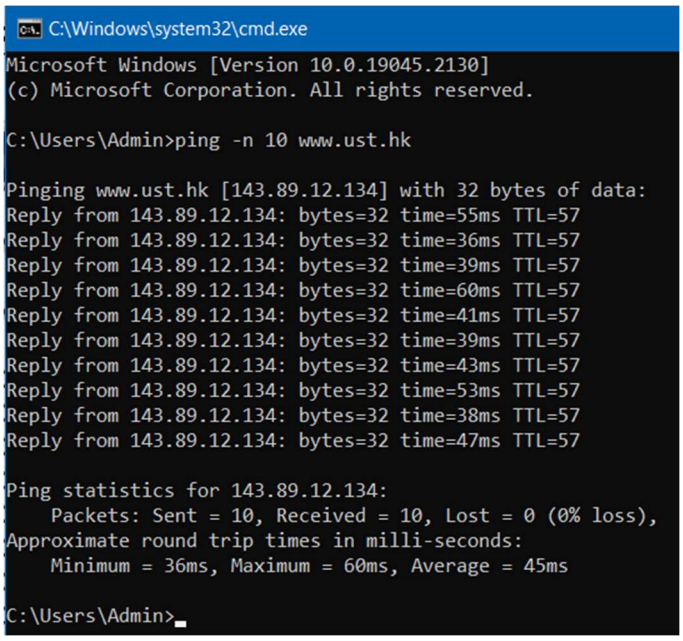
Mã số sinh viên: 2012018

Lớp: L10.

Thành phố Hồ Chí Minh – 2022

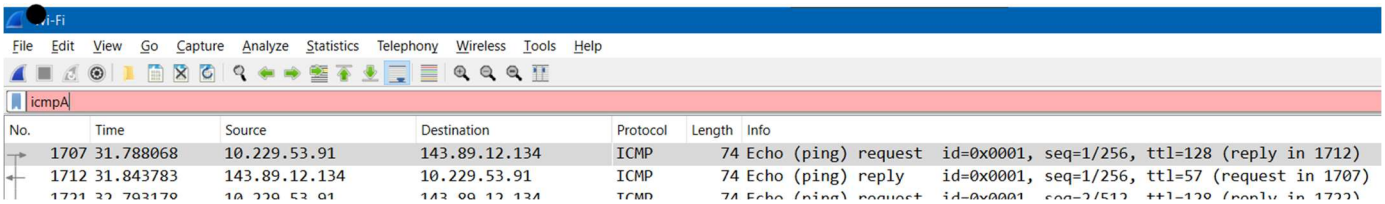
PART I. ICMP and Ping.

This is the picture of my CMD



1. What is the IP address of your host? What is the IP address of the destination host?

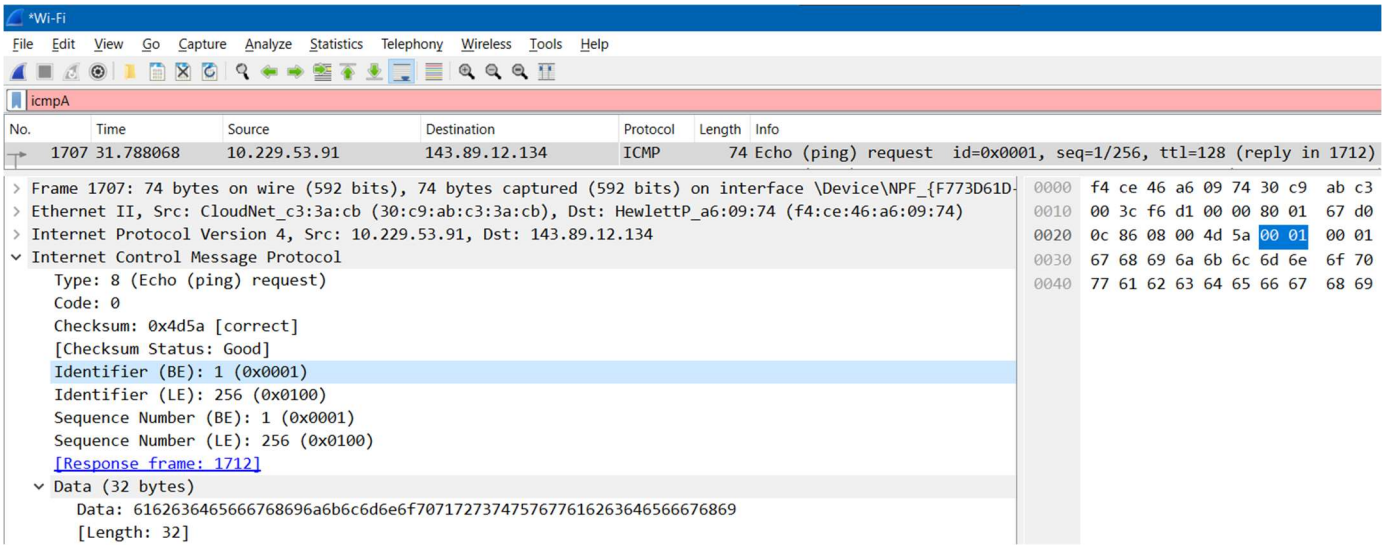
The IP address of my host is 10.229.53.91. The destination host is 143.89.12.134



2. Why is it that an ICMP packet does not have source and destination port numbers?

TCP and UDP are transport protocols that use port numbers to multiplex their use between applications or processes. ICMP is not a transport protocol but a part of the IP protocol. It is used for signaling between hosts.

3. Examine one of the ping request packets sent by your host. What are the ICMP type and code numbers? What other fields does this ICMP packet have? How many bytes are the checksum, sequence number and identifier fields ?

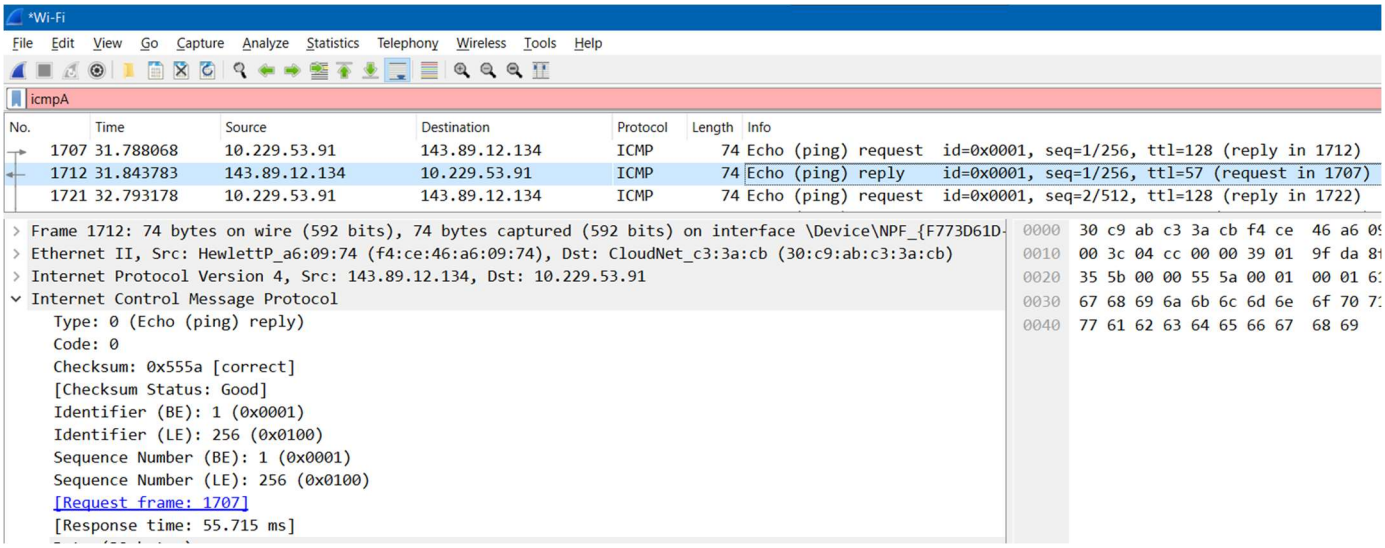


The ICMP type and code is 8 and 0 respectively.

The other fields are Checksum , Identifier and Sequence Number.

The checksum , sequence number and identifier fields are all 2 bytes.

4. Examine the corresponding ping reply packet. What are the ICMP type and code numbers? What other fields does this ICMP packet have? How many bytes are the checksum, sequence number and identifier fields?



The ICMP type and code is 0 and 0 respectively.

The other fields are Checksum , Identifier and Sequence Number.

The checksum , sequence number and identifier fields are all 2 bytes.

PART 2. ICMP and Traceroute

```
C:\Windows\system32\cmd.exe
 15   327 ms   333 ms   324 ms  unit240-reth1-vfw-ext-dc1.inria.fr [192.93.122.19]
 16   335 ms   344 ms   358 ms  prod-inriafr-cms.inria.fr [128.93.162.83]

Trace complete.

C:\Users\Admin>tracert www.inria.fr

Tracing route to inria.fr [128.93.162.83]
over a maximum of 30 hops:

  1    75 ms     3 ms     9 ms  10.229.0.1
  2  1750 ms   350 ms   180 ms  static.cmcti.vn [203.205.56.22]
  3    15 ms     8 ms    19 ms  static.cmcti.vn [203.205.56.124]
  4   773 ms     *      354 ms  static.cmcti.vn [101.99.48.18]
  5   213 ms   176 ms    50 ms  203.131.243.65
  6    91 ms    69 ms    43 ms  ae-11.r26.tkokhk01.hk.bb.gin.ntt.net [129.250.6.122]
  7   119 ms   122 ms   156 ms  ae-12.r30.tokyjp05.jp.bb.gin.ntt.net [129.250.2.50]
  8  1670 ms     *     1832 ms  ae-4.r25.snjsca04.us.bb.gin.ntt.net [129.250.5.78]
  9   648 ms   255 ms   298 ms  ae-45.r01.snjsca04.us.bb.gin.ntt.net [129.250.3.175]
 10  1956 ms     *      825 ms  ae9.cr6-sjc1.ip4.gtt.net [69.174.23.157]
 11   474 ms   290 ms   290 ms  et-3-3-0.cr2-par7.ip4.gtt.net [213.200.119.214]
 12   362 ms   334 ms   634 ms  renater-gw-ix1.gtt.net [77.67.123.206]
 13   339 ms   327 ms   325 ms  te1-1-inria-rtr-021.noc.renater.fr [193.51.177.107]
 14   328 ms   325 ms   351 ms  inria-rocquencourt-gi3-2-inria-rtr-021.noc.renater.fr [193.51.184.177]
 15     *      606 ms   362 ms  unit240-reth1-vfw-ext-dc1.inria.fr [192.93.122.19]
 16   348 ms     *      470 ms  prod-inriafr-cms.inria.fr [128.93.162.83]

Trace complete.
```

5. What is the IP address of your host? What is the IP address of the target destination host?

The IP address of my host is 10.229.53.91

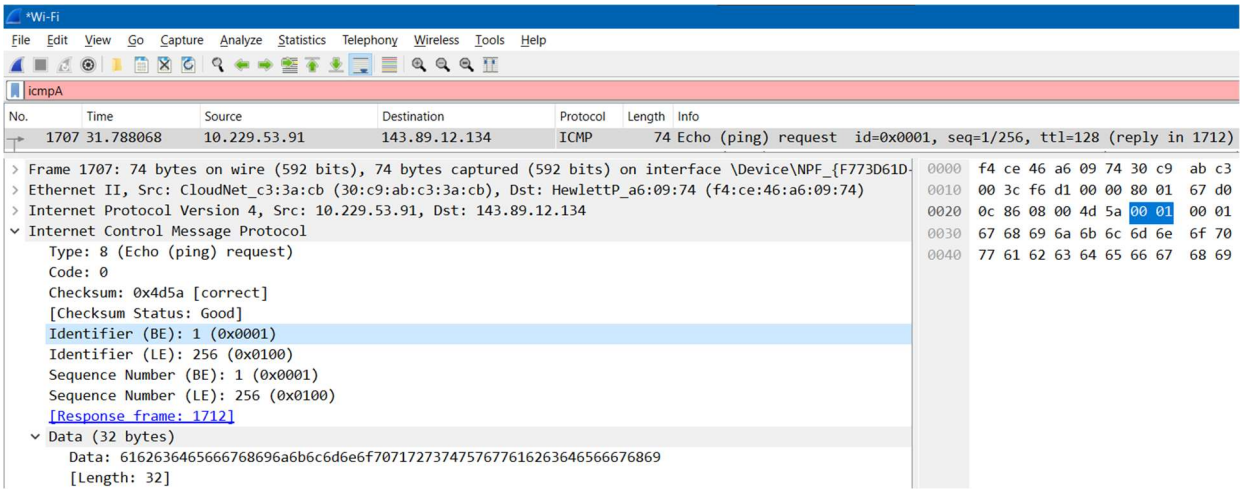
What is the IP address of the target destination host ? 128.93.162.83

6. If ICMP sent UDP packets instead (as in Unix/Linux), would the IP protocol number still be 01 for the probe packets? If not, what would it be?

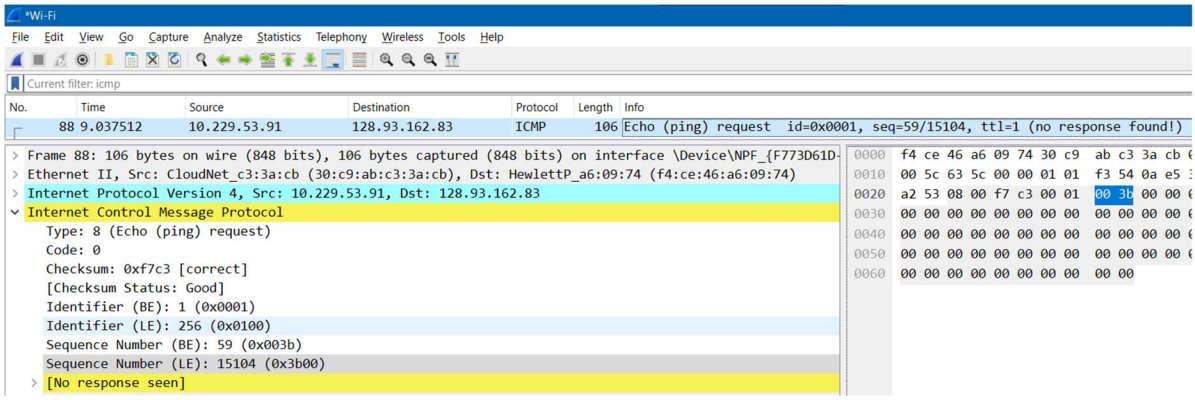
No, It would be 0x11.

7. Examine the ICMP echo packet in your screenshot. Is this different from the ICMP ping query packets in the first half of this lab? If yes, how so?

This is the ICMP ping query packet.



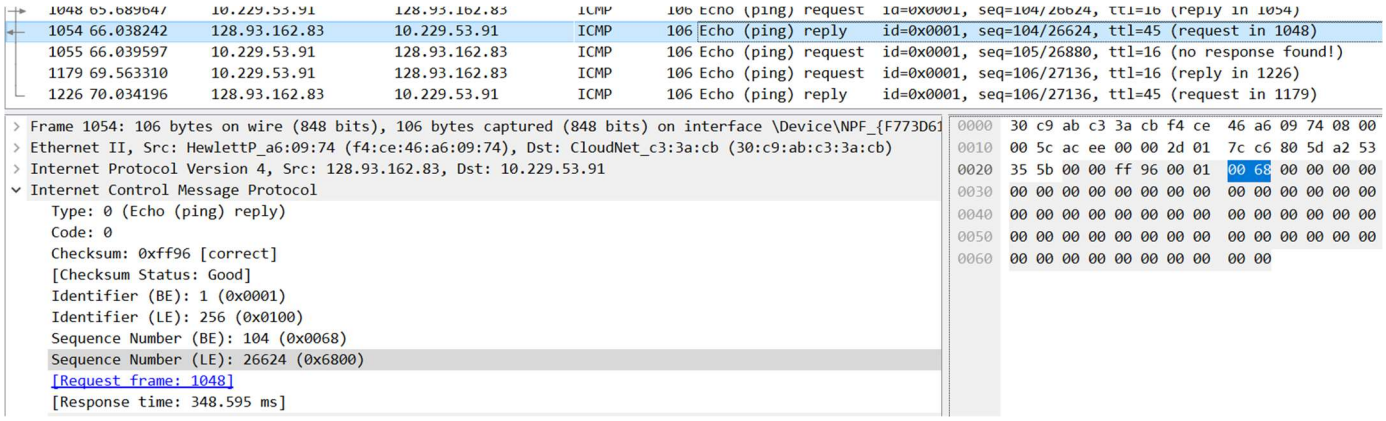
This is the ICMP echo packet in the second half of the lab



There are no different between them. The fields are the same.

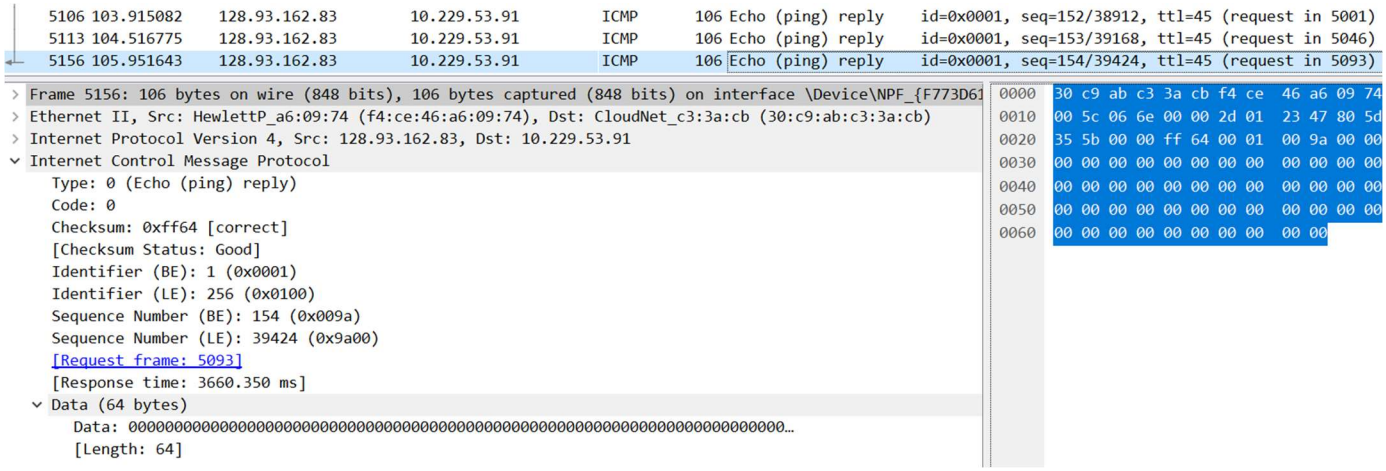
8. Examine the ICMP error packet in your screenshot. It has more fields than the ICMP echo packet. What is included in those fields?

This is the screenshot of the ICMP error packet.



The fields included the information of the error packet as well as IPv4 fields.

9. Examine the last three ICMP packets received by the source host. How are these packets different from the ICMP error packets? Why are they different?



Thay are different from the ICMP error packets because they have the response time field and they don't have the information of the error packet. Moreover, their type are 0, while the type of ICMP error packet is 8.

10. Within the tracert measurements, is there a link whose delay is significantly longer than others? Refer to the screenshot in Figure 4, is there a link whose delay is significantly longer than others? On the basis of the router names, can you guess the location of the two routers on the end of this link?

Yes, the link at 9 to 10 are the one whose delay is significantly longer than others.

The location of the two routers on the end of this link is New York City, base on the "nyc" in line 9.