实验报告 Lab 5

姓名：王钦　学号：13349112

asdasda asdad

A look at the captured trace

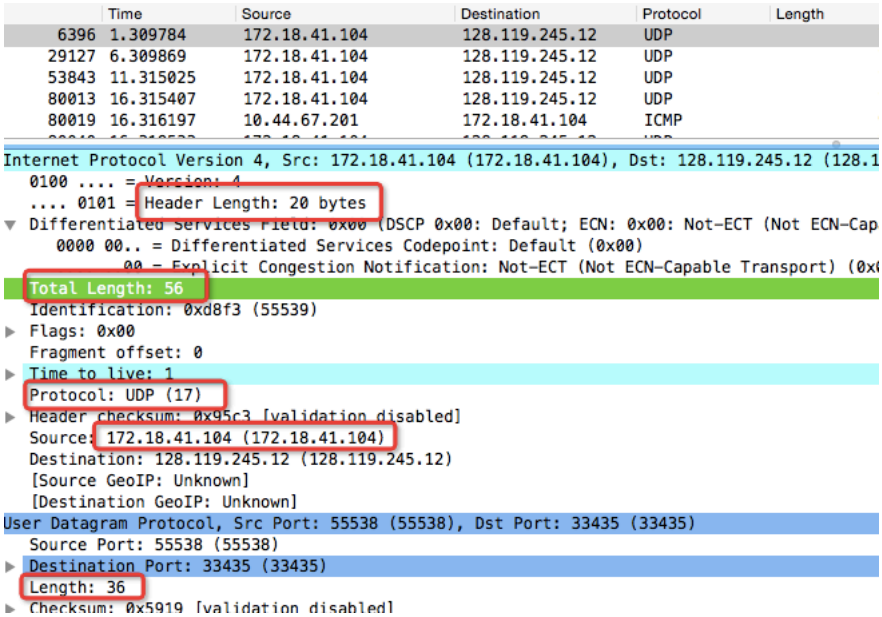

Figure 1: UDP segment

1. the IP address of my computer: `172.18.41.104`,see figure 1.(Note: use tracerout on mac os)
2. upper layer protocol field: `UDP (17)`,see figure 1
3. bytes are in the IP header:20 bytes,bytes are in the payload of the IP datagram:36 bytes.Total length:56 bytes.See figure 1
4. The more fragments bit = 0, so the data is not fragmented.

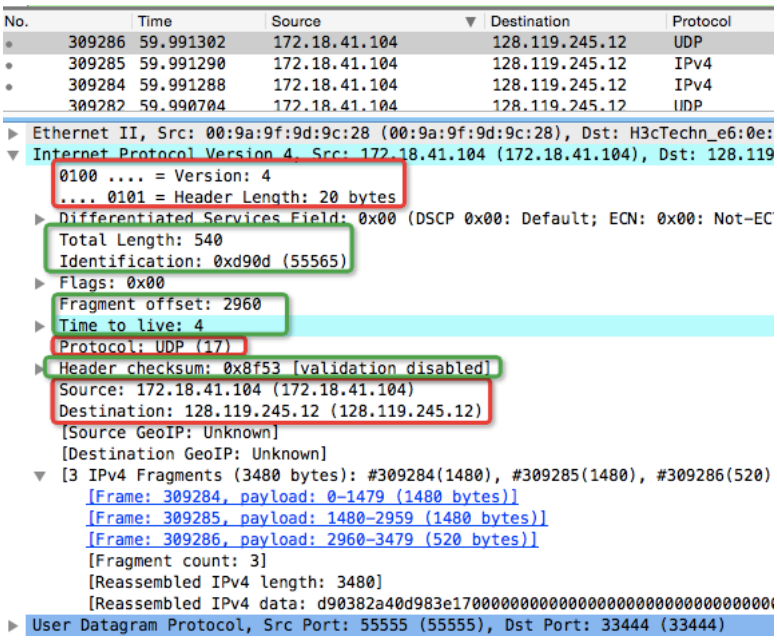

Figure 2: Internet Protocol portion

5. always change:Identification, Header checksum ,fragment offset.some point green rect in figure 2.
6. Stay constant

   Version (since we are using IPv4 for all packets)

   header length (since these are 20 bytes)

   source IP (since we are sending from the same source)

   destination IP (since we are sending to the same dest)

   Differentiated Services (since all packets are UDP they use the same Type of Service class)

   Upper Layer Protocol (since these are UDP packets).some point red rect in figure 2.

   Must constant

   Version (since we are using IPv4 for all packets)

   header length (since these are 20 bytes)

   source IP (since we are sending from the same source)

   destination IP (since we are sending to the same dest)

   Differentiated Services (since all packets are UDP they use the same Type of Service class)

   Upper Layer Protocol (since these are UDP packets),some point red rect in figure 2.

   Must change

   Identification(IP packets must have different id)

   Time to live (traceroute increments each subsequent packet)

   Header checksum (since header changes, so must checksum)

7. Identification field.The IP header Identification increment with each UDP segment.

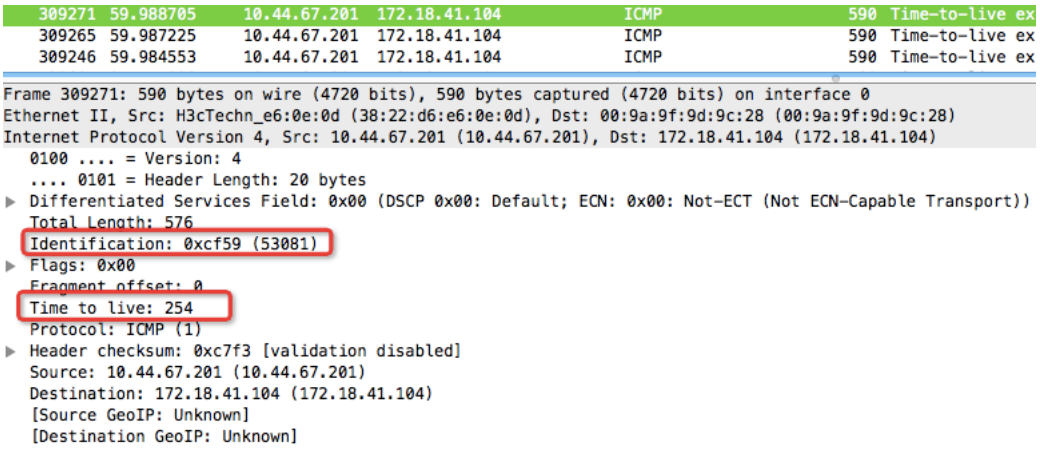

Figure 3: ICMP TTL- exceeded replies

8. Identification :53081,TTL:254.

9. Identification always change.But TTL always constant.
Because the identification field is a unique value for each packets except a case that when two or more IP datagrams have the same identification value, then it means that these IP datagrams are fragments of a single large IP datagram, and the TTL of first hop router is always the same,the distance between my computer and router is constant.

10. Packet size of 2000 cause fragmentation,see figure 4.

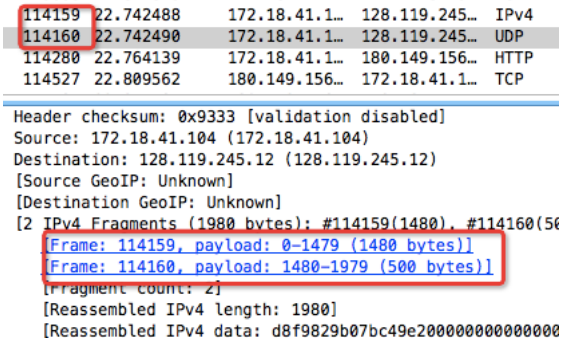

Figure 4: 2000 bytes fragmentation

11. From flags field for more fragments is set, indicating the datagram has been fragmented. From fragment offset is 0, incicating this is the first fragment. And total length is 1500.

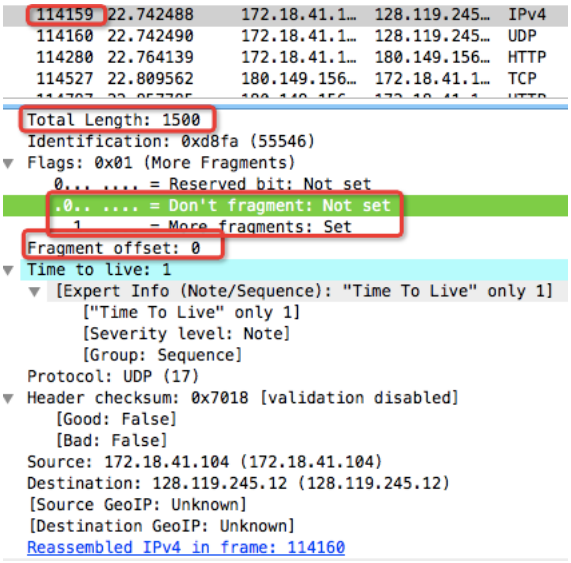

Figure 5: first fragment

12. From fragment offset is 1480 not 0,so isn't first fragment. From flags field for more fragments is not set, indicating the datagram has no more fragments.

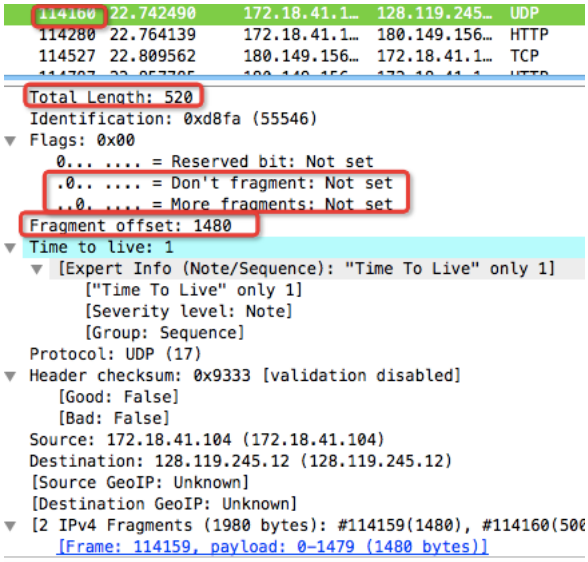

Figure 6: second fragment

13. changed:total length, flags, fragment offset, checksum.some point in green rect see figure 7.

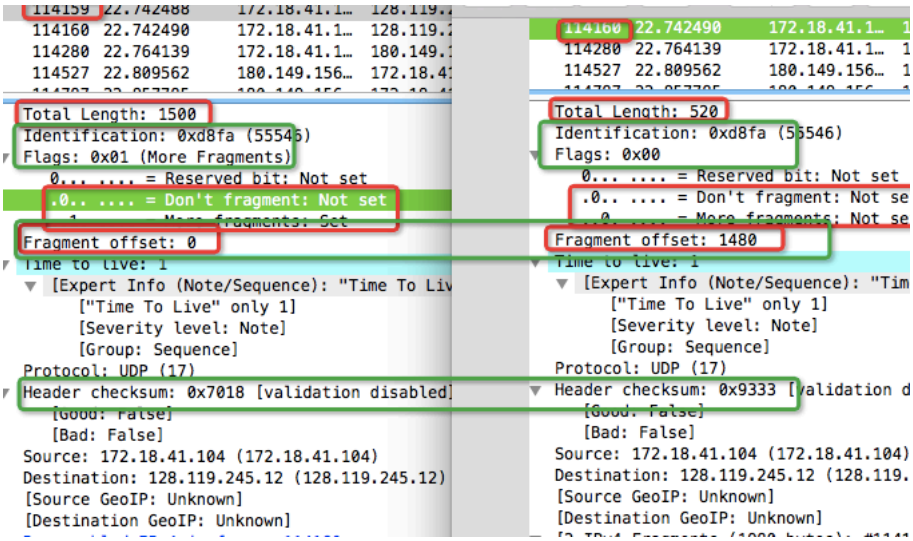

Figure 7: changed fields

14. Packet size of 3500 has 3 fragments see figure 8.

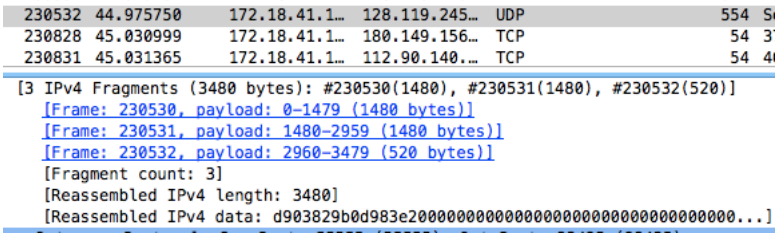

Figure 8: changed fields

15. Fields have changed among the fragments are `Total length, Fragment offset, Header checksum`.
Detail:

    Total length of first fragment and second fragment was the same value 1500,the last is 540.

    Fragment offset of three fragments are `0, 1480, 2960`.

    Header checksum are unique in each fragment.

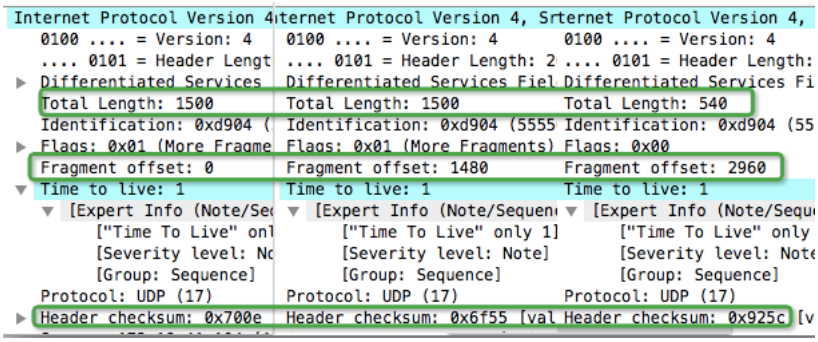

Figure 9: changed fields