计算机学院 计算机网络 课程实验报告

实验题目： UDP		学号：202200130048
日期：3.26	班级： 6	姓名： 陈静雯
Email：1205037094@qq.com		

实验方法介绍：

通过 nslookup 访问主机，wireshark 捕获到 dns 信息，查看里面的 udp

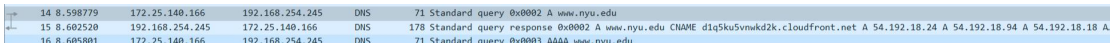
实验过程描述：

在 Wireshark 上启动数据包捕获后，运行 nslookup 查找您有一段时间没有访问的主机名。然后停止抓包，设置 Wireshark 包过滤，使 Wireshark 只显示主机发送和接收的 UDP 段。选择第一个 UDP 段，并在详细信息窗口中展开 UDP 字段，查看详细信息。

结论分析：

1.Select the first UDP segment in your trace. What is the packet number 4 of this segment in the trace file?

Number: 14

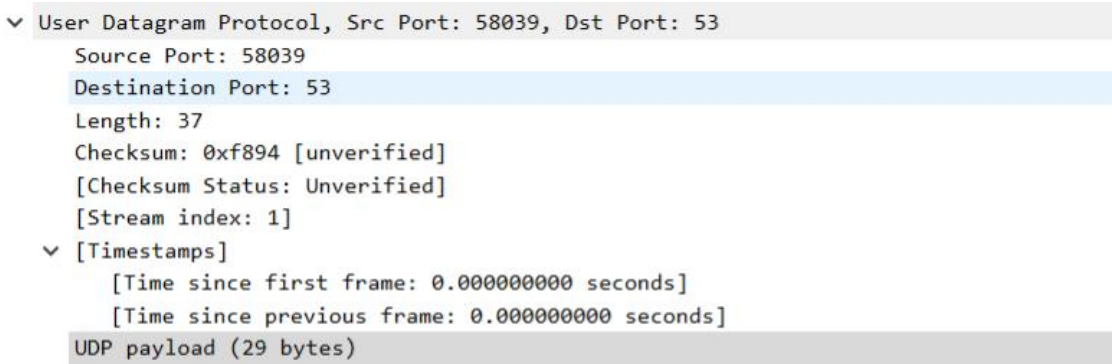


What type of application-layer payload or protocol message is being carried in this UDP segment?

DNS

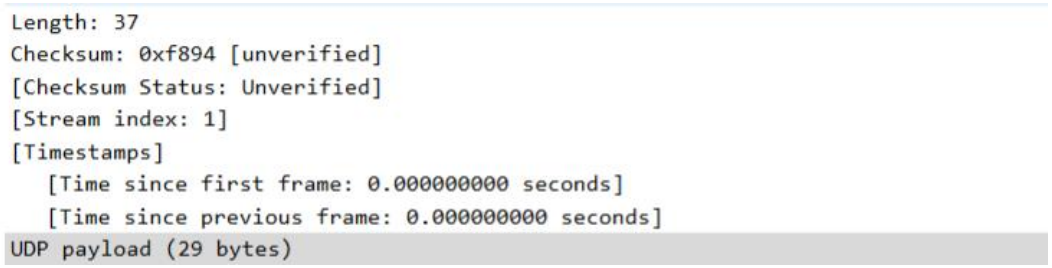
How many fields there are in the UDP header?What are the names of these fields?

4 个，Source port, destination port, length, checksum



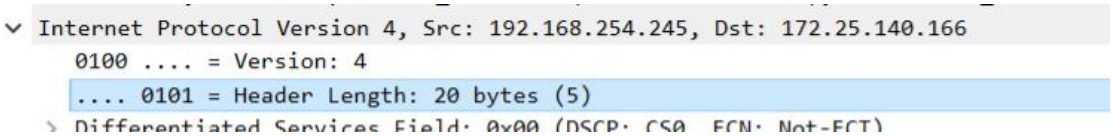
2.By consulting the displayed information in Wireshark’s packet content

field for this packet (or by consulting the textbook), what is the length (in bytes) of each of the UDP header fields?
8 bytes（每个部分 2bytes，2*4=8）



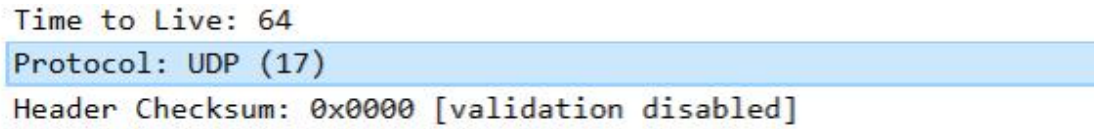
3. The value in the Length field is the length of what? (You can consult the text for this answer). Verify your claim with your captured UDP packet.
37 length。是 UDP 数据报整个的长度，UDP 头+UDP 数据=29+8=37=length

4. What is the maximum number of bytes that can be included in a UDP payload?
2^16-1-8-20=65507，长度是用 2byte 的数来表示，最大 2 的 16 次-1=65535，8 是 udp 头部字节，20 是 IPv4 头部字节

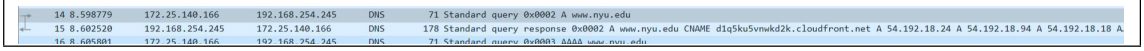


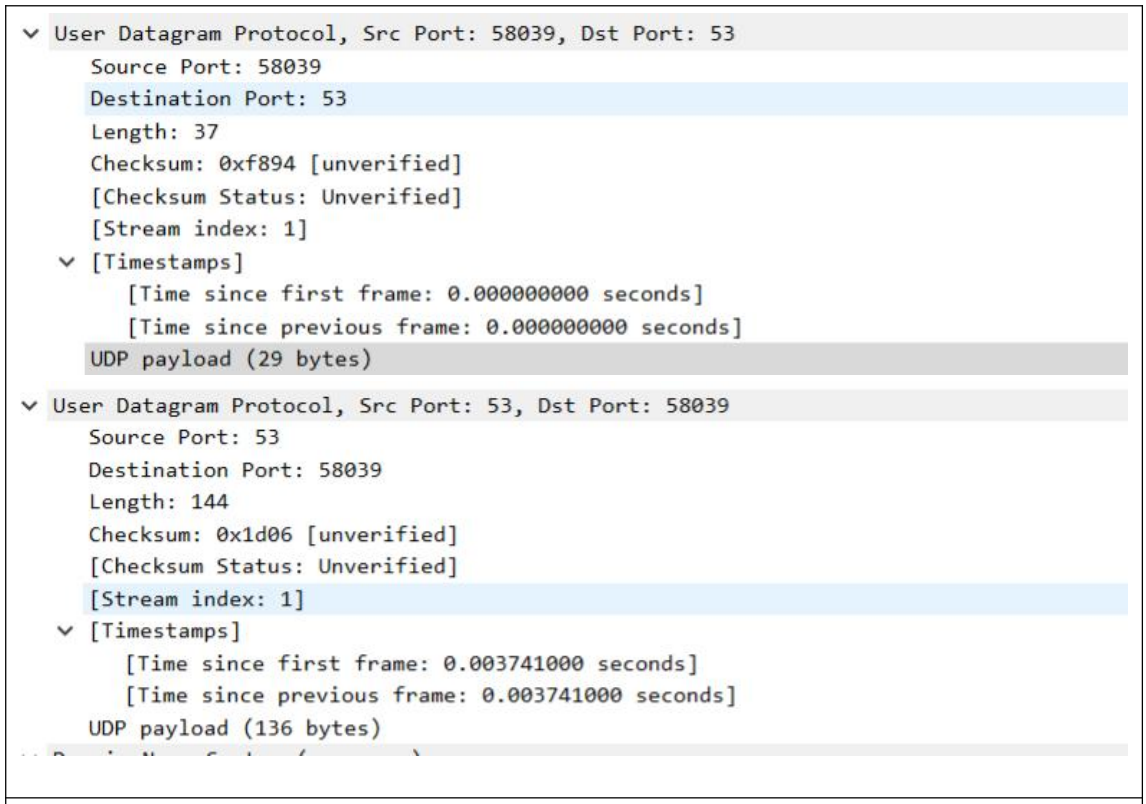
5. What is the largest possible source port number?
65536-1=65535（从 0 开始算）

6. What is the protocol number for UDP? Give your answer in decimal notation.
17（十进制）



7.Examine the pair of UDP packets in which your host sends the first UDP packet and the second UDP packet is a reply to this first UDP packet.
第一个 packet number：14，src port：58039，dst port：53
第二个 packet number：15， src port：53，dst port：58039
前后的源端口和目的端口相反，前一次的源会变成响应时候的目的。





结论：

1. UDP 最大有效载荷长度=IPv4 数据包最大长度-IPv4 头部长度-UDP 头部长度
2. 发送、响应的源和目的端口会互换
3. UDP 数据报长度=UDP 头+UDP 数据