Supplement to *Computer Networking: A Top-Down Approach, 7th ed.,* J.F. Kurose and K.W. Ross

*“Tell me and I forget. Show me and I remember. Involve me and I understand.”* Chinese proverb

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**Lab 8 – DNS / UDP**

Adapted for the students of IT 276 at Illinois State University

**PLEASE INSERT SCREEN SHOTS TO SUPPORT YOUR ANSWERS**

In this lab, we’ll take a quick look at the UDP transport protocol. UDP is a streamlined, no-frills protocol. Because UDP is simple and sweet, we’ll be able to cover it pretty quickly in this lab. So, if you’ve another appointment to run off to in 30 minutes, no need to worry, as you should be able to finish this lab with ample time to spare.

At this stage, you should be a Wireshark expert. Thus, we are not going to spell out the steps as explicitly as in earlier labs. In particular, we are not going to provide example screenshots for all the steps.

**The Assignment**

Start capturing packets in Wireshark and then use **nslookup** to cause your host to send and receive several UDP packets. It’s also likely that, just by doing nothing (except capturing packets via Wireshark), some UDP packets sent by others will appear in your trace.

After stopping packet capture, set your packet filter so that Wireshark only displays the UDP packets sent and received at your host (use “udp”). Pick one of these UDP packets and expand the UDP fields in the details window.

|  |  |
| --- | --- |
| Recall that the format of a UDP packet is as follows: |  |

1. Select *one* UDP packet from your trace. From this packet, fill out the different fields of the packet (using the table below).

|  |  |
| --- | --- |
| 63708 | 53 |
| 35 | 0x0506 |
| 27 | |

1. How many fields are there in the UDP header?

Your answer: \_\_4\_\_

A screenshot of a computer

Description automatically generated

1. By consulting the displayed information in Wireshark’s packet content field for this packet, determine the length (in bytes) of each of the UDP header fields.

|  |  |
| --- | --- |
| **Field** | **Length (in bytes)** |
| Source port # | 2 bytes |
| Destination port # | 2 bytes |
| Total Length | 2 bytes |
| Checksum | 2 bytes |
| Application Data | 27 bytes |

1. The value in the **Total\_Length** field is the length of what?

Your answer:\_\_The number of bytes in the UDP segment\_\_

Verify your claim with your captured UDP packet.

1. What is the maximum number of bytes that can be included in a UDP payload? (Hint: the answer to this question can be determined by your answer to 3. above)

Your answer:\_\_\_2^16 – 1 = 65535 – 8 = **65527 bytes**\_\_\_\_

1. What is the largest possible source port number?

(Hint: the answer to this question can be determined by your answer to 3. above)

Your answer:\_\_\_2^16 – 1 =\_**65535**\_\_\_\_