

UDP Sockets

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Assignment 2

Part-2: Wireshark Analysis

1. Capture all packets exchanged between the client and server during execution. Show the screenshots

The screenshot displays the Wireshark interface with a packet capture filter set to `ip.addr == 127.0.0.1 and udp.port==12345`. The packet list shows several UDP packets between 127.0.0.1 and 127.0.0.1 on port 12345. Packet 337 is selected, and its details are shown in the right pane.

No.	Time	Source	Destination	Protocol	Length	Info
337	10.617710935	127.0.0.1	127.0.0.1	UDP	64	36805 → 12345 Len=20
338	10.617910064	127.0.0.1	127.0.0.1	UDP	50	12345 → 36805 Len=6
339	10.617993294	127.0.0.1	127.0.0.1	UDP	54	12345 → 36805 Len=10
340	10.618049911	127.0.0.1	127.0.0.1	UDP	50	12345 → 36805 Len=6
341	10.618095478	127.0.0.1	127.0.0.1	UDP	50	12345 → 36805 Len=6
342	10.618131351	127.0.0.1	127.0.0.1	UDP	55	12345 → 36805 Len=11
343	10.618170675	127.0.0.1	127.0.0.1	UDP	51	12345 → 36805 Len=7

Packet 337 details:

- Frame 337: 64 bytes on wire (512 bits), 64 bytes captured (512 bits) on interface any, id 0
- Linux cooked capture v1
- Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
- User Datagram Protocol, Src Port: 36805, Dst Port: 12345
- Data (20 bytes)
 - Data: 3232435333303035365f46696c655312e74787400
 - [Length: 20]

Wireshark interface status: `wireshark_any70HA12.pcapng`, Packets: 380 - Displayed: 7 (1.8%) - Dropped: 0 (0.0%) - Profile: Default

assignment > UDP_Sockets_Networks_Lab.pcap

index	micro sec	source	dest	protocol	len	info
337	10617711	127.0.0.1	127.0.0.1	UDP	64	User Datagram Protocol, Src Port: 36805, Dst Port: 12345
338	10617910	127.0.0.1	127.0.0.1	UDP	50	User Datagram Protocol, Src Port: 12345, Dst Port: 36805
339	10617994	127.0.0.1	127.0.0.1	UDP	54	User Datagram Protocol, Src Port: 12345, Dst Port: 36805
340	10618050	127.0.0.1	127.0.0.1	UDP	50	User Datagram Protocol, Src Port: 12345, Dst Port: 36805
341	10618096	127.0.0.1	127.0.0.1	UDP	50	User Datagram Protocol, Src Port: 12345, Dst Port: 36805
342	10618132	127.0.0.1	127.0.0.1	UDP	55	User Datagram Protocol, Src Port: 12345, Dst Port: 36805
343	10618171	127.0.0.1	127.0.0.1	UDP	51	User Datagram Protocol, Src Port: 12345, Dst Port: 36805
349	11613868	10.105.55.132	10.105.55.255	UDP	88	User Datagram Protocol, Src Port: 57621, Dst Port: 57621

udp

> Frame 340: 50 bytes on wire (400 bits), 50 bytes captured (400 bits) on interface 0
 > Linux cooked capture v1
 > Internet Protocol Version 4, Src: 127.0.0.1, Dst: 127.0.0.1
 > User Datagram Protocol, Src Port: 12345, Dst Port: 36805

Frame	Offset	Hex	ASCII
0x00000000	0	48 00 01 04 00 06 00 00 00 00 00 00 44 76 00 00F...
0x00000010	16	45 00 00 22 2d 06 40 00 40 11 0e f3 7f 00 00 01	E...".0.0...[]...
0x00000020	32	7f 00 00 01 30 39 8f c5 00 0e fe 21 53 75 6d 69	[]...09.....tSumi
0x00000030	48	76 00	t.

The file transferred in this screenshot contains
 HELLO
 22CS30056
 Sumit
 Kumar
 hey there
 FINISH

The first packet is the file name which is received to the server.
 After that all the packets contains the words of the files which are sent one by one.

2.What protocol is used for communication?

UDP(User Datagram Protocol) is being used for communication.

3.What are the source and destination IP addresses and ports?

For the first packet:

Source: 127.0.0.1:36805

Destination:127.0.0.1:12345

For the following packets:

Source: 127.0.0.1:12345

Destination: 127.0.0.1:36805

4. What is the size (in bytes) of the FILENAME request sent by the client?

The size of the FILENAME request sent by the client is of 64 bytes.

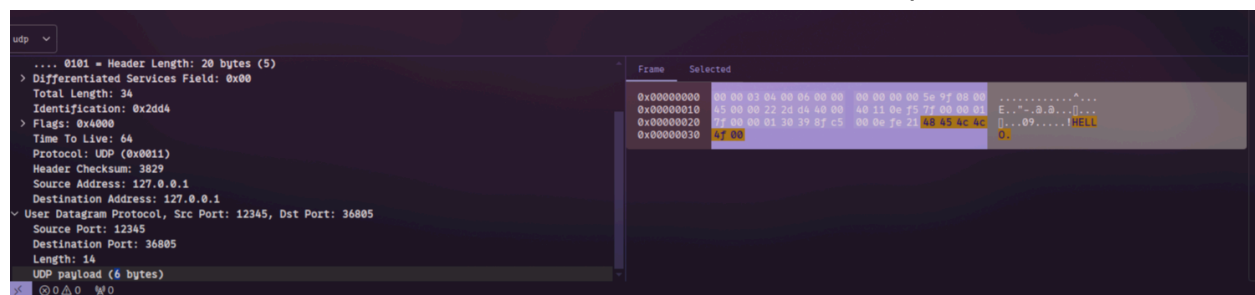
5. What is the size of the server's response for HELLO and the first word (WORD)?

For the HELLO word is 50 bytes of server's response.

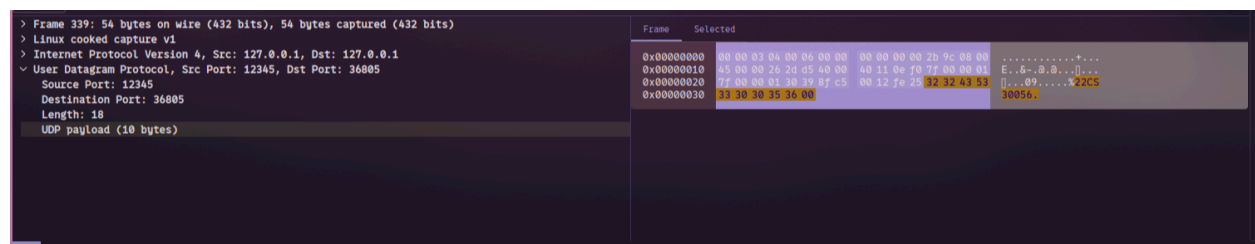
For the first word it is 54 bytes of server response.

6. Inspect the payload of packets where the words are transmitted. Show the UDP payloads of those packets.

We can see that the first word is HELLO in the truncated part.



We can check the truncated and highlighted part in the image.



7. Measure the total time taken for the file transfer from start to finish.

We note the times for the first packet sent.

First packet: t1=10617711 microsec

Last Packet: t2= 10618171 microsec

Hence the total time taken is 460microsec

8. What is the average size of each packet during the communication?

The average size is 53.4285 bytes.