

- 1) a) Got the wireshark trace working.

**Please use “udp.port == 12000” Filter** to display all the packets related to this particular “GET file2.txt” transfer.

In this we can clearly see the ACK being sent by receiver to sender over every 100bytes of packets delivered.

Every packet of length 35 in the screenshot below is an ACK packet.

The ones with length of 1032 are file data packets.

The first 2 packets of length , 46 and 41 are “GET file2.txt” and “LEN: <size>” packets respectively .

Followed by the 3rd packet of length 39 which is “ACK\_LEN” packet.

No.	Time	Source	Destination	Protocol	Length	Info
793	2025-10-23 23:15:08.536563	169.226.237.49	169.226.237.49	LLC	46 I, N(R)=16, N(S)=42; DSAP 0x46 Group, SSAP 0x44 Response	
794	2025-10-23 23:15:08.537081	169.226.237.49	169.226.237.49	LLC	41 I, N(R)=29, N(S)=39; DSAP 0x4c Individual, SSAP 0x44 Response	
795	2025-10-23 23:15:08.537109	169.226.237.49	169.226.237.49	LLC	39 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
796	2025-10-23 23:15:08.537125	169.226.237.49	169.226.237.49	LLC	1032 S, func=NRN, N(R)=16; DSAP ISO Network Layer (OSLAN 2) Individual, SSAP 0x68 Command	
797	2025-10-23 23:15:08.537794	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
798	2025-10-23 23:15:08.537850	169.226.237.49	169.226.237.49	LLC	1032 I, P, func=RE3, N(O)=16; DSAP 0x74 Individual, SSAP 0x62 Command	
799	2025-10-23 23:15:08.537887	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
800	2025-10-23 23:15:08.537972	169.226.237.49	169.226.237.49	LLC	1032 S F, func=RE5; DSAP 0x64 Group, SSAP 0x66 Response	
801	2025-10-23 23:15:08.537993	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
802	2025-10-23 23:15:08.538012	169.226.237.49	169.226.237.49	LLC	1032 S F, func=RNH, N(R)=7; DSAP 0x6c Individual, SSAP 0x6e Response	
803	2025-10-23 23:15:08.538151	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
804	2025-10-23 23:15:08.538251	169.226.237.49	169.226.237.49	LLC	1032 I, P, N(R)=59, N(S)=16; DSAP 0x74 Individual, SSAP 0x68 Command	
805	2025-10-23 23:15:08.538289	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
806	2025-10-23 23:15:08.538328	169.226.237.49	169.226.237.49	LLC	1032 S F, func=RE3, N(R)=55; DSAP 0x74 Group, SSAP 0x72 Response	
807	2025-10-23 23:15:08.538371	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
808	2025-10-23 23:15:08.538424	169.226.237.49	169.226.237.49	LLC	1032 I, N(R)=16, N(S)=58; DSAP 0x66 Group, SSAP 0x68 Command	
809	2025-10-23 23:15:08.538489	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
810	2025-10-23 23:15:08.538553	169.226.237.49	169.226.237.49	LLC	1032 U, func=U4; DSAP 0x74 Group, SSAP 0x68 Response	
811	2025-10-23 23:15:08.538587	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
812	2025-10-23 23:15:08.538623	169.226.237.49	169.226.237.49	LLC	1032 U P, func=IA; DSAP 0x6c Individual, SSAP ISO Network Layer (unofficial?) Command	
813	2025-10-23 23:15:08.538747	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
814	2025-10-23 23:15:08.538797	169.226.237.49	169.226.237.49	LLC	1032 I, P, func=RE3, N(O)=57; DSAP 0x74 Individual, SSAP 0x64 Response	
815	2025-10-23 23:15:08.538817	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
816	2025-10-23 23:15:08.538875	169.226.237.49	169.226.237.49	LLC	1032 S, func=RR, N(R)=58; DSAP 0x64 Group, SSAP 0x74 Individual, SSAP 0x68 Command	
817	2025-10-23 23:15:08.538907	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
818	2025-10-23 23:15:08.538989	169.226.237.49	169.226.237.49	LLC	1032 I, P, N(R)=57, N(S)=57; DSAP 0x6d Individual, SSAP 0x68 Response	
819	2025-10-23 23:15:08.538998	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
820	2025-10-23 23:15:08.538995	169.226.237.49	169.226.237.49	LLC	1032 S F, func=RE5, N(O)=23; DSAP 0x6e Group, SSAP 0x72 Command	
821	2025-10-23 23:15:08.538973	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
822	2025-10-23 23:15:08.539060	169.226.237.49	169.226.237.49	LLC	1032 S F, func=RNH, N(R)=52; DSAP ISO Network Layer (unofficial?) Individual, SSAP 0x70 Response	
823	2025-10-23 23:15:08.539092	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
824	2025-10-23 23:15:08.539144	169.226.237.49	169.226.237.49	LLC	1032 I, P, N(R)=54, N(S)=16; DSAP 0x74 Individual, SSAP 0x6e Response	
825	2025-10-23 23:15:08.539164	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	
826	2025-10-23 23:15:08.539223	169.226.237.49	169.226.237.49	LLC	1032 I, P, N(R)=56, N(S)=16; DSAP 0x6e Group, SSAP 0x6e Command	
877	2025-10-23 23:15:08.539249	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response	

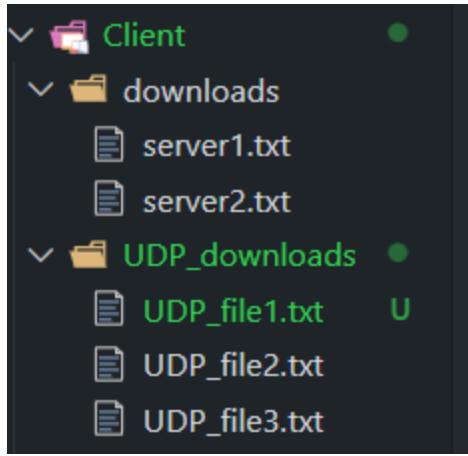
- b) It took roughly 0.01sec to send the first packet of data after initial connection.

793	2025-10-23 23:15:08.536563	169.226.237.49	169.226.237.49	LLC	46 I, N(R)=16, N(S)=42; DSAP 0x46 Group, SSAP 0x44 Response
794	2025-10-23 23:15:08.537081	169.226.237.49	169.226.237.49	LLC	41 I, N(R)=29, N(S)=39; DSAP 0x4c Individual, SSAP 0x44 Response
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796	2025-10-23 23:15:08.537125	169.226.237.49	169.226.237.49	LLC	1032 S, func=NRN, N(R)=16; DSAP ISO Network Layer (OSLAN 2) Individual, SSAP 0x68 Command

The last “FIN” packed was sent roughly 0.1 seconds after initial connection.  
Hence, that's how long it took to send whole file.

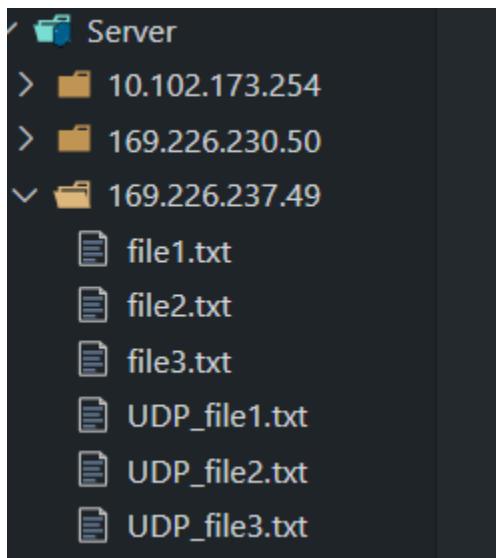
861	2025-10-23 23:15:08.541381	169.226.237.49	169.226.237.49	LLC	35 U, func=Unknown; DSAP 0x40 Group, SSAP Spanning Tree BPDU Response
862	2025-10-23 23:15:08.541633	169.226.237.49	169.226.237.49	LLC	35 [Malformed Packet]

- 2) I am using name “Downloads” for the directory to specify the files downloaded using TCP and “UDP\_downloads” to specify the file download using UDP.



In server I used naming file1.txt to specify files uploaded using TCP connection.

And I am using "UDP\_file1.txt" naming to specify files uploaded using UDP connection.



I did this to keep files uploaded / downloaded using UDP and TCP differently.