

PR3  
Jarkom/B  
Muhammad Irfan Amrullah / 1706039585

1. IP yang saya gunakan untuk mengirim file ke gaia adalah 10.5.92.122. Dengan port yang digunakan adalah 50510

239	27.846023	10.5.92.122	128.119.245.12	TCP	66	50510 → 80	[ACK] Seq=1 Ack=1 Win=131904 Len=0 TSval=979030261 TSecr=1363
240	27.846722	10.5.92.122	128.119.245.12	TCP	672	50510 → 80	[PSH, ACK] Seq=1 Ack=1 Win=131904 Len=606 TSval=979030261 TSecr=1363
241	27.847113	10.5.92.122	128.119.245.12	TCP	203	50510 → 80	[PSH, ACK] Seq=607 Ack=1 Win=131904 Len=137 TSval=979030262 TSecr=1363
242	27.847831	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80	[ACK] Seq=744 Ack=1 Win=131904 Len=1374 TSval=979030262 TSecr=1363
243	27.847832	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80	[ACK] Seq=2118 Ack=1 Win=131904 Len=1374 TSval=979030262 TSecr=1363

2. Sequence numbernya adalah 0. Terdapat info [SYN] yang bernilai 1 pada info header.

237	27.454102	10.5.92.122	128.119.245.12	TCP	78	50510 → 80	[SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=64 TSval=979029872 TSecr=1363
238	27.845931	128.119.245.12	10.5.92.122	TCP	74	80 → 50510	[SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1386 SACK_PERM=1 TSecr=1363

3. Sequence numbernya adalah 0. ACK number yang diberikan adalah 1. ACK field merupakan sequence number dari client yang dikembalikan untuk menandai bahwa resepsi sudah diterima. Informasi yang menandakan bahwa segmen tersebut merupakan segmen SYNACK adalah adanya info [SYN, ACK] pada info header.

237	27.454102	10.5.92.122	128.119.245.12	TCP	78	50510 → 80	[SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=64 TSval=979029872 TSecr=1363
238	27.845931	128.119.245.12	10.5.92.122	TCP	74	80 → 50510	[SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1386 SACK_PERM=1 TSecr=1363
239	27.846023	10.5.92.122	128.119.245.12	TCP	66	50510 → 80	[ACK] Seq=1 Ack=1 Win=131904 Len=0 TSval=979030261 TSecr=1363

4. Sequencenya adalah 1, lengthnya adalah 777.

No.	Time	Source	Destination	Protocol	Length	Info
386	30.237884	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=124404 Win=180608 Len=0 TSval=1363875589 TSecr=1363
387	30.237891	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=132648 Win=174592 Len=0 TSval=1363875589 TSecr=1363
388	30.256683	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=139518 Win=169728 Len=0 TSval=1363875589 TSecr=1363
389	30.256691	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=146388 Win=196992 Len=0 TSval=1363875589 TSecr=1363
390	30.256692	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=149329 Win=202880 Len=0 TSval=1363875589 TSecr=1363
391	30.281846	128.119.245.12	10.5.92.122	HTTP	843	HTTP/1.1 200 OK (text/html)
392	30.281957	10.5.92.122	128.119.245.12	TCP	66	50510 → 80 [ACK] Seq=149329 Ack=778 Win=131072 Len=0 TSval=979032689 TSecr=1363

Frame 391: 843 bytes on wire (6744 bits), 843 bytes captured (6744 bits) on interface 0  
Ethernet II, Src: IntelCor\_0f:8c:88 (90:e2:ba:0f:8c:88), Dst: Apple\_0c:a2:f4 (a4:83:e7:0c:a2:f4)  
Internet Protocol Version 4, Src: 128.119.245.12, Dst: 10.5.92.122  
Transmission Control Protocol, Src Port: 80, Dst Port: 50510, Seq: 1, Ack: 149329, Len: 777  
Hypertext Transfer Protocol  
Line-based text data: text/html (11 lines)

01a0 55 54 46 2d 38 0d 0a 0d 0a 3c 54 49 54 4c 45 3e UTF-8...<TITLE>  
01b0 55 70 6c 6f 61 64 20 70 61 67 65 20 66 6f 72 20 Upload page for  
01c0 54 43 50 20 45 74 68 65 72 65 61 6c 20 4c 61 62 TCP Ethe real lab  
01d0 3c 2f 54 49 54 4c 45 3e 0a 3c 62 6f 64 79 20 62 </TITLE> <body b  
01e0 67 63 6f 6c 6f 72 3d 22 23 46 46 46 46 46 46 22 gcolor=" #FFFFFF"  
01f0 3e 0a 3c 70 3e 3c 66 6f 6e 74 20 66 61 63 65 3d ><p>fo nt face=  
0200 22 41 72 69 61 6c 2c 20 48 65 6c 76 65 74 69 63 "Arial, Helvetic  
0210 61 2c 20 73 61 6e 73 2d 73 65 72 69 66 22 20 73 a, sans-serif" s  
0220 69 7a 65 3d 22 34 22 3e 20 43 6f 6e 67 72 61 74 ize="4"> Congrat  
0230 75 6c 61 74 69 6f 6e 73 21 20 3c 62 72 3e 20 3c ulations ! <br> <  
0240 2f 66 6f 6e 74 3e 0a 0a 3c 50 3e 3c 66 6f 6e 74 /font> <<p>font

- 5.

No.	Time	Source	Destination	Protocol	Length	Info
242	27.847831	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=744 Ack=1 Win=131904 Len=1374 TSval=979030262 TSecr=1363
243	27.847832	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=2118 Ack=1 Win=131904 Len=1374 TSval=979030262 TSecr=1363
244	28.167201	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=607 Win=30208 Len=0 TSval=1363873531 TSecr=1363
245	28.167209	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=744 Win=31488 Len=0 TSval=1363873531 TSecr=1363
246	28.167329	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=3492 Ack=1 Win=131904 Len=1374 TSval=979030581 TSecr=1363
247	28.191607	128.119.245.12	10.5.92.122	TCP	66	80 → 50510 [ACK] Seq=1 Ack=3492 Win=36992 Len=0 TSval=1363873532 TSecr=1363
248	28.191730	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=4866 Ack=1 Win=131904 Len=1374 TSval=979030605 TSecr=1363
No.	Time	Source	Destination	Protocol	Length	Info
249	28.191731	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=6240 Ack=1 Win=131904 Len=1374 TSval=979030605 TSecr=1363
250	28.191732	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=7614 Ack=1 Win=131904 Len=1374 TSval=979030605 TSecr=1363

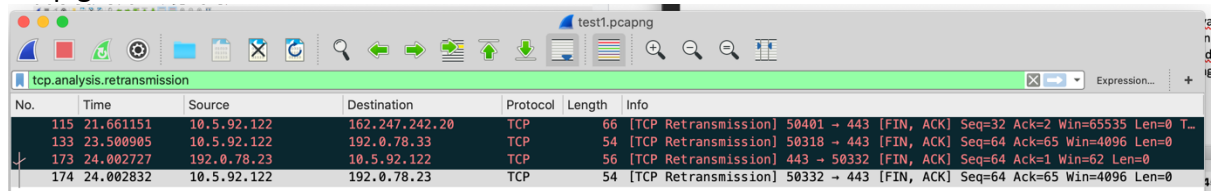
Panjangnya adalah 1374.

- 6.

237	27.454102	10.5.92.122	128.119.245.12	TCP	78	50510 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=64 TSval=979029872 TSecr=1363
238	27.845931	128.119.245.12	10.5.92.122	TCP	74	80 → 50510 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1386 SACK_PERM=1 TSecr=1363

Receive window minimum yang dari keseluruhan trace wireshark yang saya dapatkan adalah 28960. Yang dimiliki oleh client.

7. Tidak ada. Cara mengetahuinya adalah dengan melihat urutan sequencenya. Apabila ada sequence number yang nomernya sudah tampil dan lebih kecil dari yang sekarang maka wireshark akan menganggap itu sebagai retransmission. Sedangkan apabila melihat tcp.analysis.retransmission dapat dilihat kalau tidak ada yang menuju ke ip gaia.



No.	Time	Source	Destination	Protocol	Length	Info
115	21.661151	10.5.92.122	162.247.242.20	TCP	66	[TCP Retransmission] 50401 → 443 [FIN, ACK] Seq=32 Ack=2 Win=65535 Len=0 T...
133	23.500905	10.5.92.122	192.0.78.33	TCP	54	[TCP Retransmission] 50318 → 443 [FIN, ACK] Seq=64 Ack=65 Win=4096 Len=0
173	24.002727	192.0.78.23	10.5.92.122	TCP	56	[TCP Retransmission] 443 → 50332 [FIN, ACK] Seq=64 Ack=1 Win=62 Len=0
174	24.002832	10.5.92.122	192.0.78.23	TCP	54	[TCP Retransmission] 50332 → 443 [FIN, ACK] Seq=64 Ack=65 Win=4096 Len=0

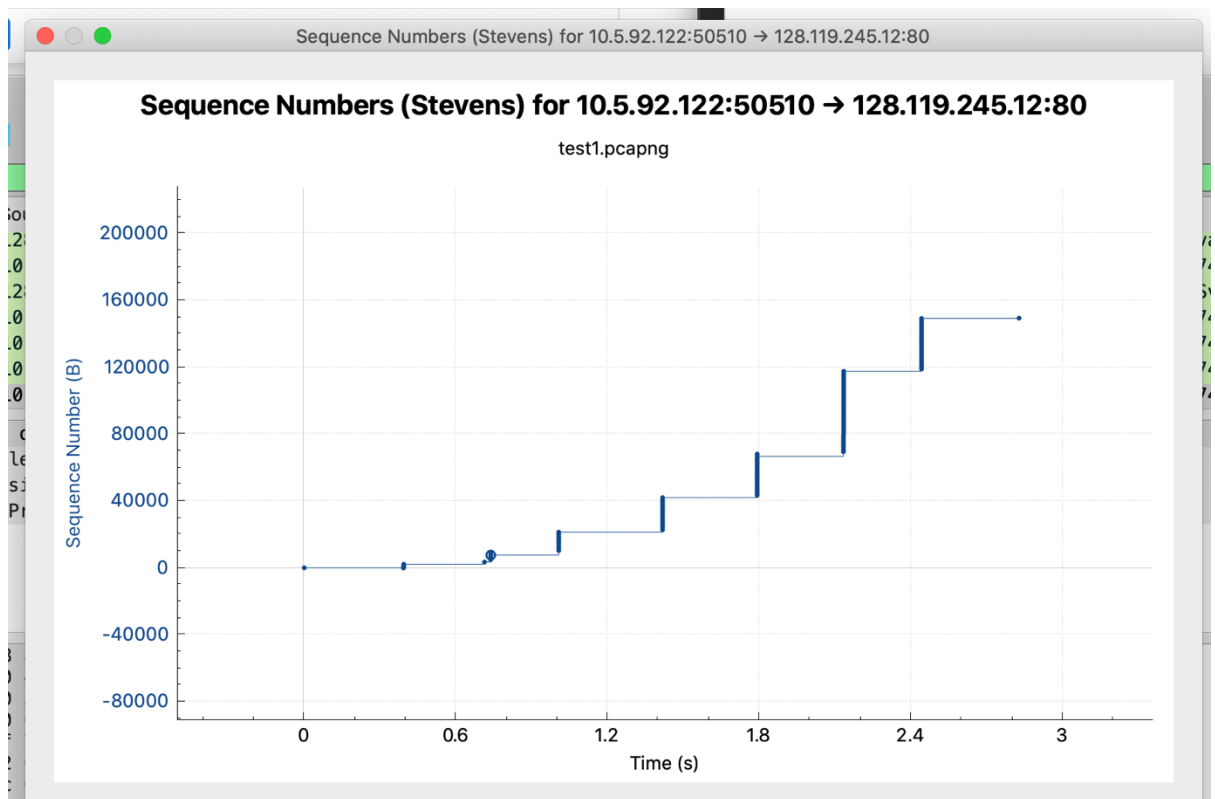
8. 4 segmen dengan masing2 panjang 1374.

Ada kasus server gaia mengirimkan ack setelah menerima 1 segmen

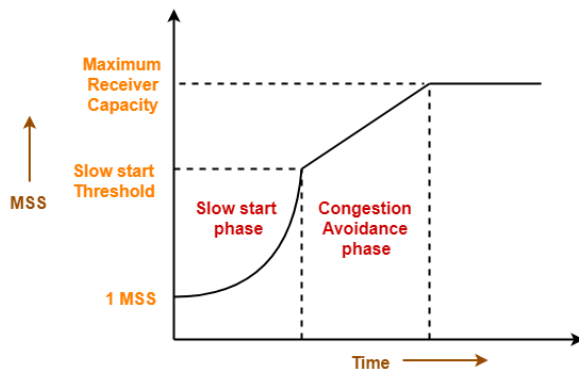


No.	Time	Source	Destination	Protocol	Length	Info
248	28.191730	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=4866 Ack=1 Win=131904 Len=1374 TSval=979030605 TS...
249	28.191731	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=6240 Ack=1 Win=131904 Len=1374 TSval=979030605 TS...
250	28.191732	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=7614 Ack=1 Win=131904 Len=1374 TSval=979030605 TS...
251	28.191732	10.5.92.122	128.119.245.12	TCP	1440	50510 → 80 [ACK] Seq=8988 Ack=1 Win=131904 Len=1374 TSval=979030605 TS...

- 9.



TCP Slow Start dimulai di 0 dan berakhir di sekitar 2.2



10. Harusnya congestion control yang ideal tidak memiliki slow start, dia juga harus setelah menerima triple duplicated ACK juga harus timeout, sayangnya di grafik nomer 9 bisa dilihat grafiknya naik terus.