

Computer Networks-LAB

UE22CS252B

CN-LAB-5

4th Semester, Academic Year 2023-2024

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Question 1:-TCP Congestion Window: Wireshark based

The aim of this experiment is to understand the TCP congestion control mechanisms. When will the Congestion Window grow and when will it shrink? Who dictates the size of the Congestion Window? How does the client and server exchange this information? What causes Fast Retransmit? We will try to understand and answer these questions in this experiment.

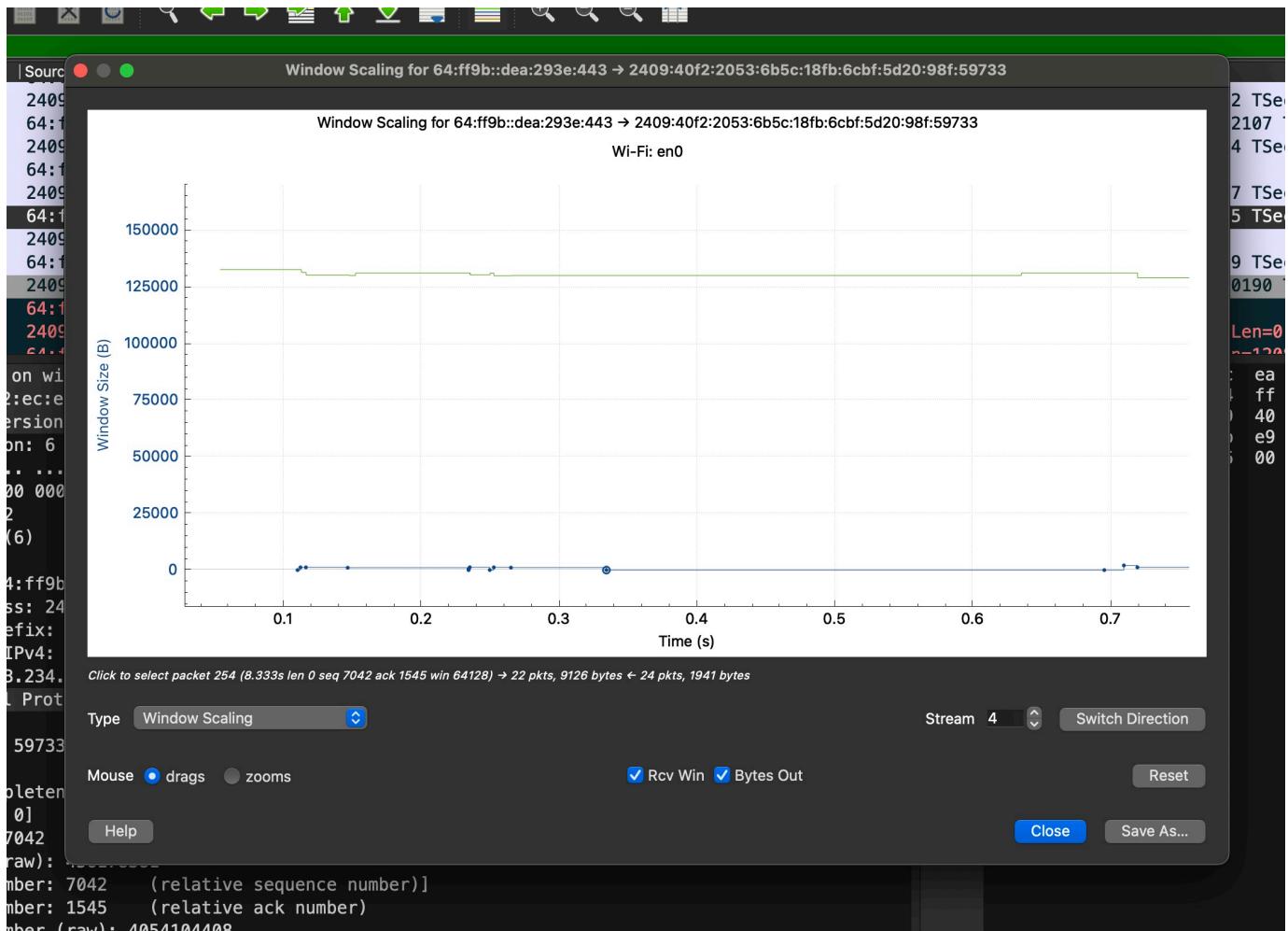
WEBSITE USED:-

The screenshot shows the News18 website homepage. At the top, there's a navigation bar with links for 'CHANGE LANGUAGE' (set to English), 'WATCH LIVE TV', 'DOWNLOAD NEWS18 APP', and social media links for 'FOLLOW US ON' (Facebook, Twitter, YouTube). Below this is a 'Trending Topics' section with links for 'IPL 2024', 'Lok Sabha Elections', 'Orange Cap', 'IPL Schedule', and 'Purple Cap'. The main menu below includes 'HOME', 'MOVIES', 'CRICKET', 'INDIA', 'SHOWSHA', 'POLITICS', 'WORLD', 'VIRAL', 'BUSINESS', 'OPINION', 'EDUCATION', 'WEB STORIES', 'VIDEOS', and a search icon. A 'Latest' link is also present. A large advertisement for 'HDFC SKY' is centered above the main content. The main news area features a story titled 'Arvind Kejriwal's Wife Addresses Media on 'So-Called' Liquor Scam; Delhi CM Tells HC 'Aim of Arrest is to Disable AAP' | Updates'. To the right of this are other news snippets and promotional boxes for 'moneycontrol PRO' and 'NEWS18 SPECIALS'.

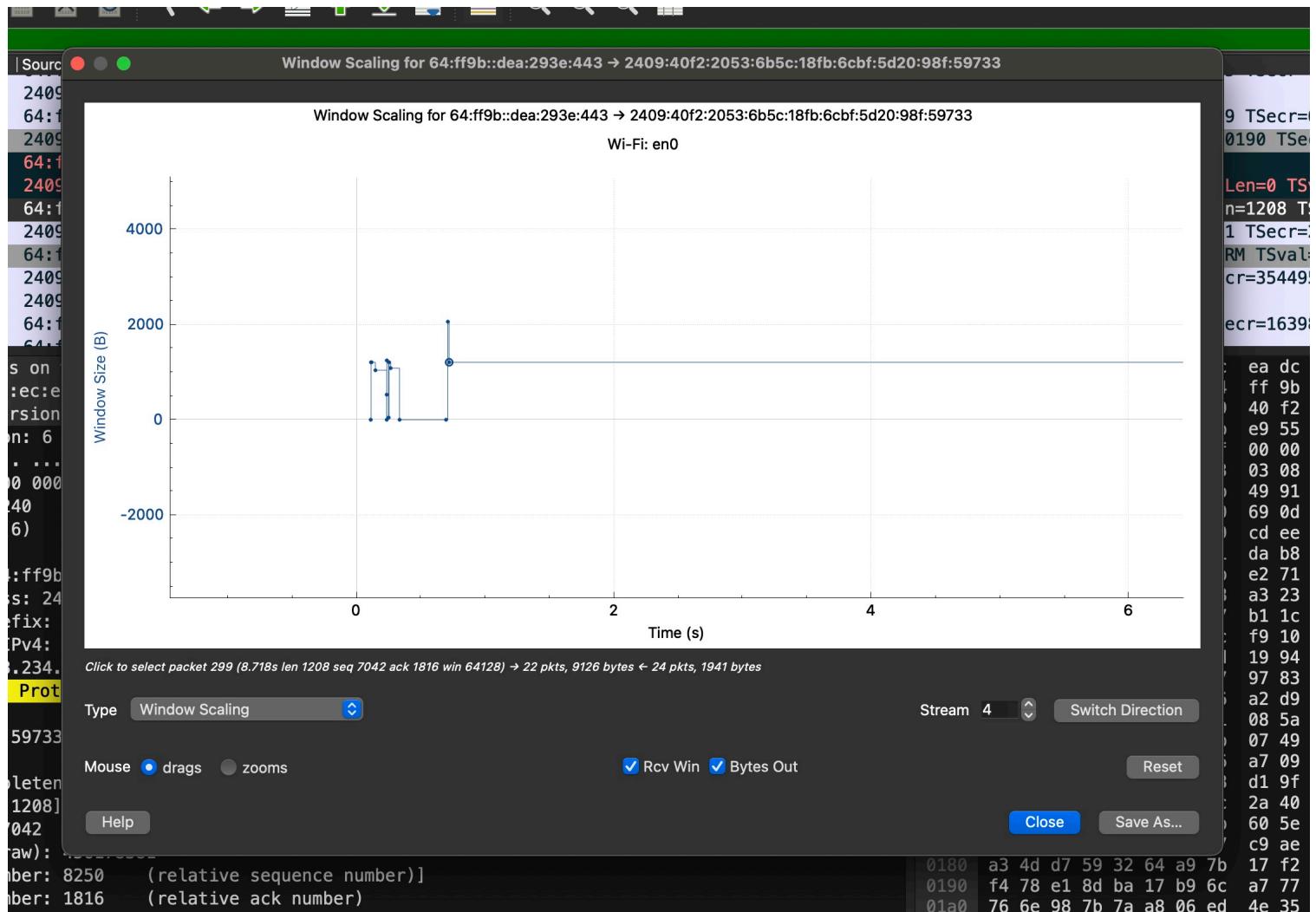
a. Capture TCP traffic and plot the CW:

For Stream=4

(i)Not-zoomed—preview:-

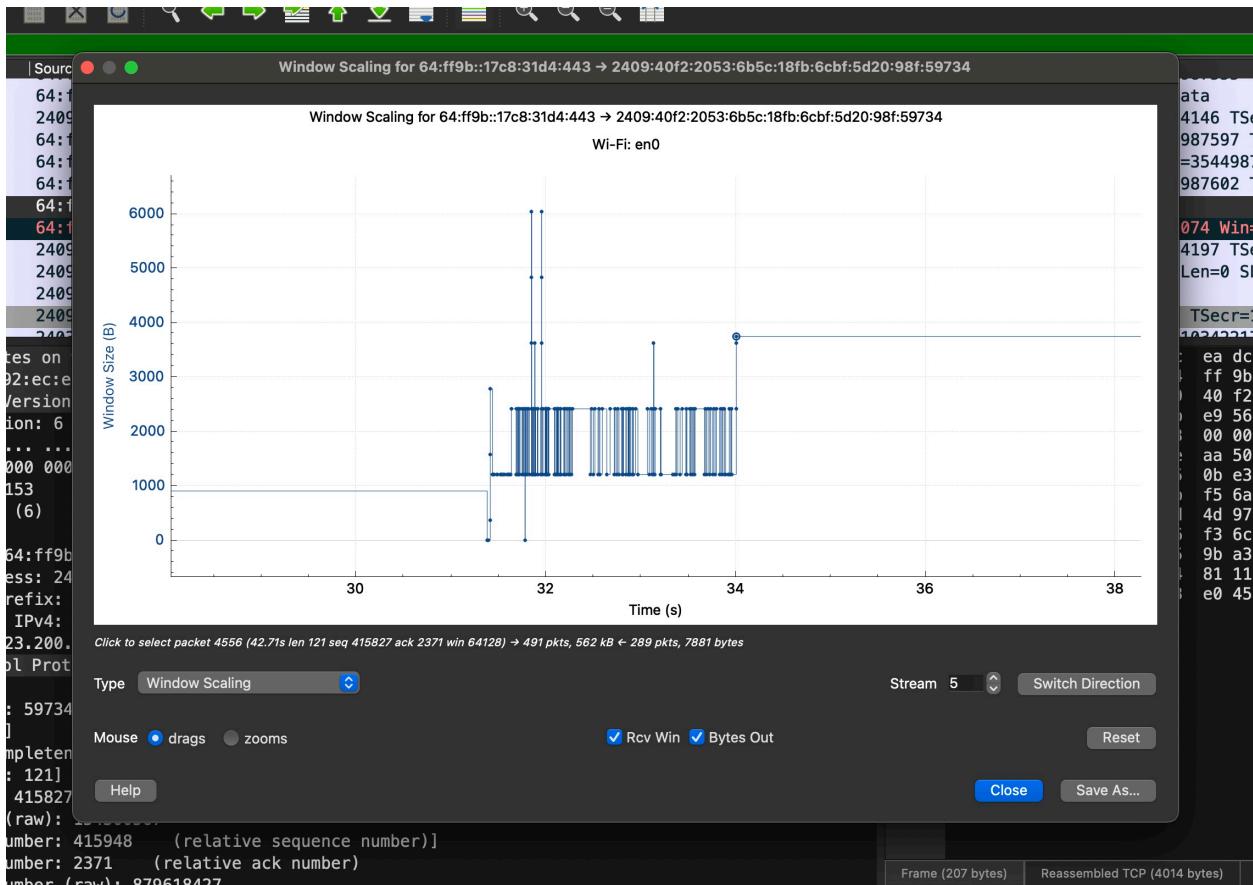


(ii)zoomed—preview:-

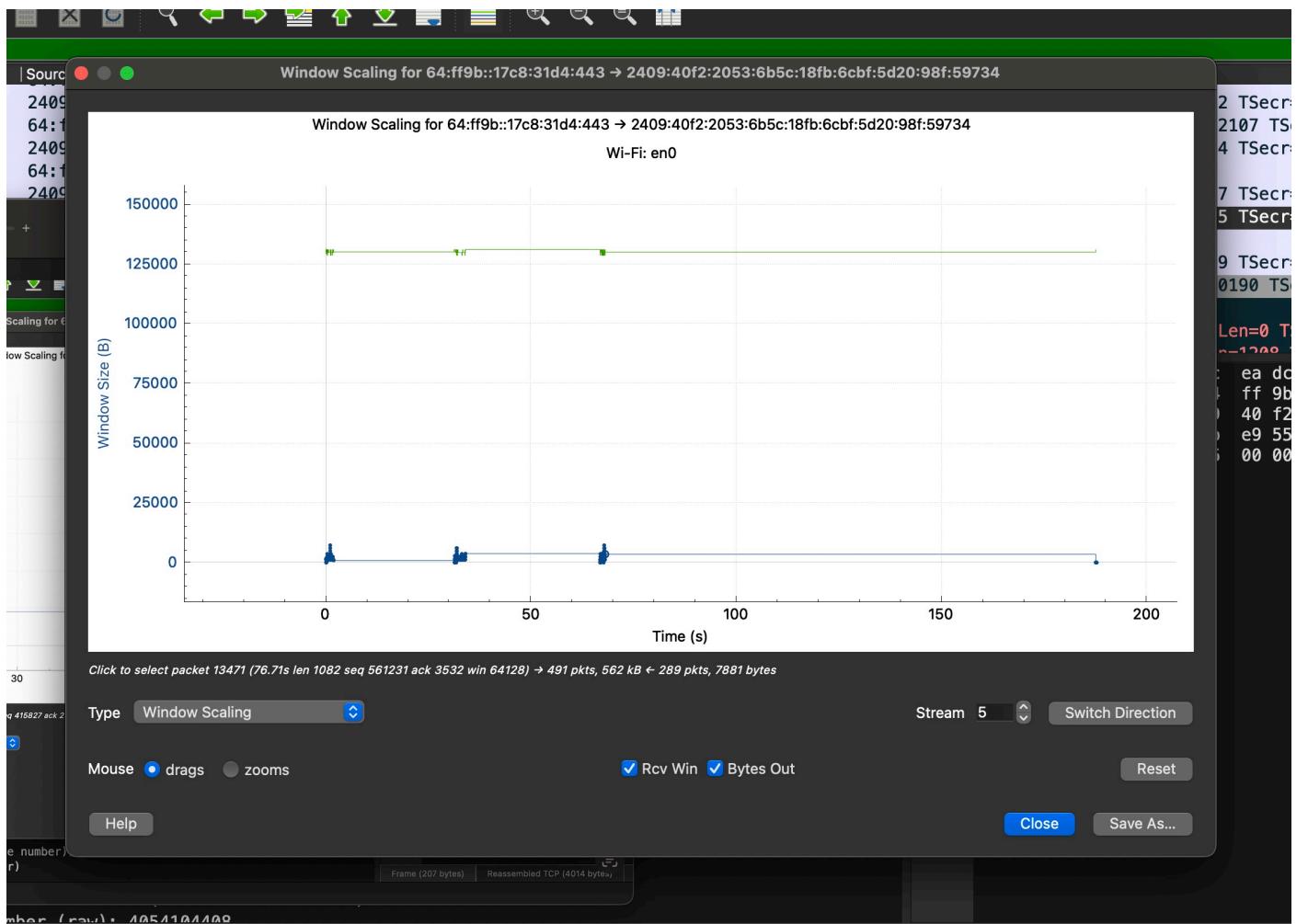


For Stream=5

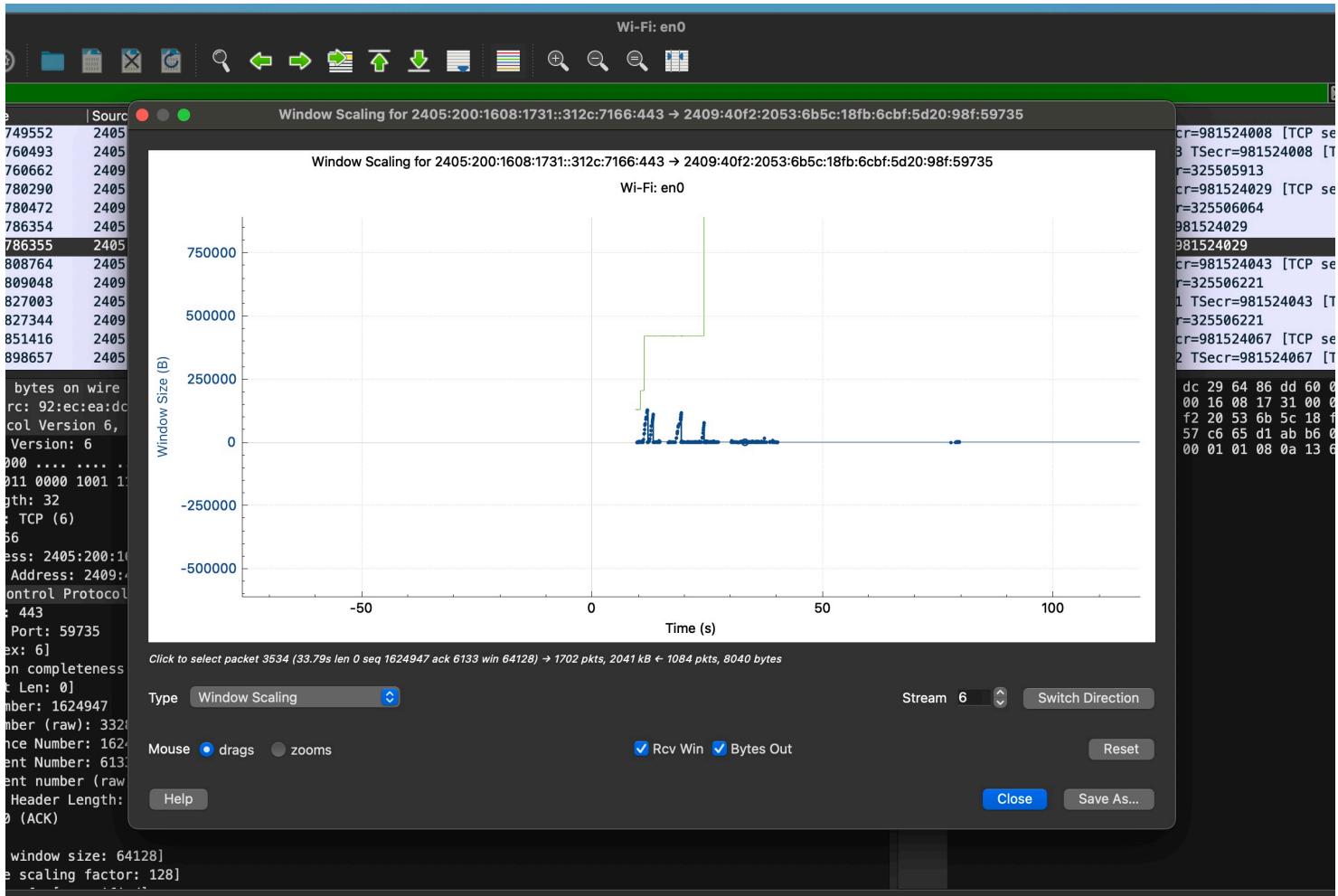
(i)zoomed—preview:-



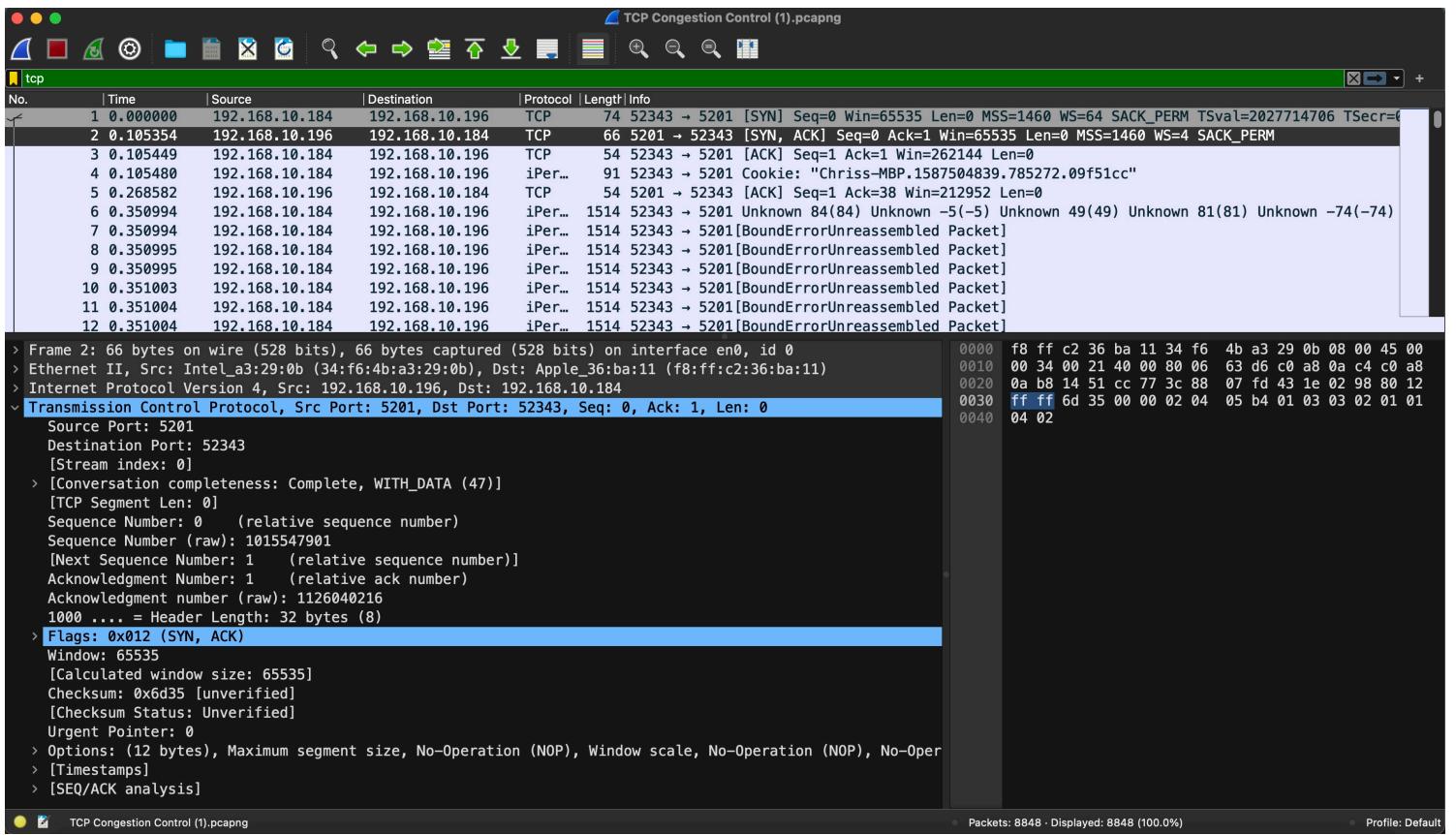
(i)Not-zoomed—preview:-



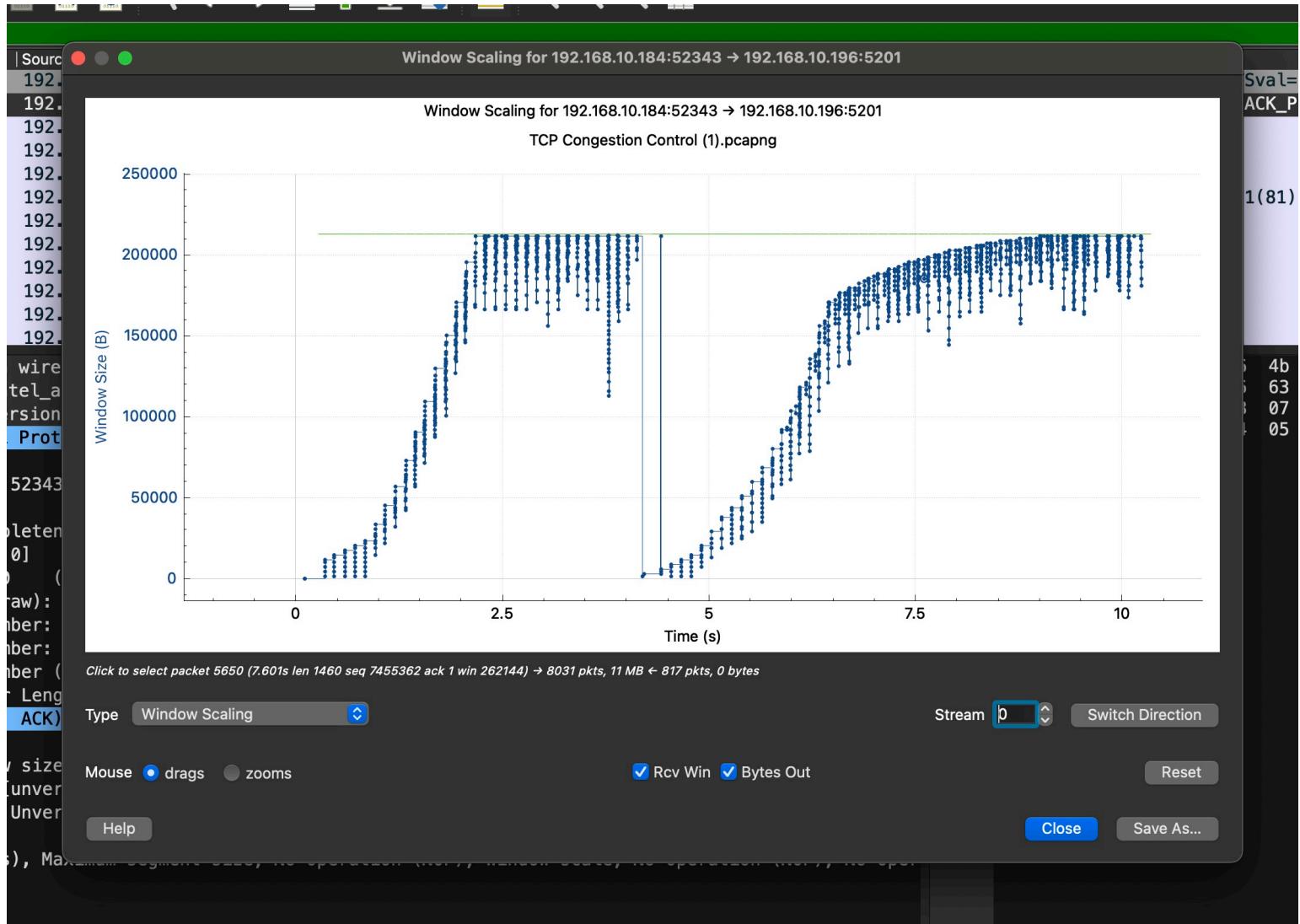
For Stream=6



b. Use a PCAP and try to analyze the Congestion Window graph.



Plot of Congestion Window



1)SLOW START: The slow start phase occurs at the beginning of each spike in the graph. During this phase, the congestion window size increases exponentially until it reaches a certain threshold.

2)Congestion Avoidance: After the slow start, the growth becomes linear, indicating that the system has entered the congestion avoidance phase. the segments where the window size increases steadily without exponential growth. This represents the congestion avoidance phase.

3)Timeout: The timeout event is visible as sharp drops in the graph.

When packet loss is detected, the window size is significantly reduced.

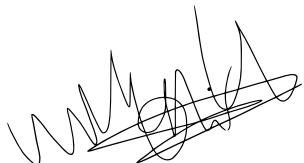
the points where the window size suddenly decreases. These correspond to timeout events.

4)TCP Flavor in Use : Based on the observed behavior, it appears that the graph depicts TCP Tahoe flavor. The slow start, congestion avoidance, and timeout patterns align with TCP Tahoe's behavior.

Disclaimer:

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

Signature:

A handwritten signature in black ink, appearing to read "V V Mohith".

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