TCP Basics and End-to-End Examples

- Create a sample file on your Mininet VM using “fallocate -11 GiB a big file”
- Install an FTP server on your Mininet VM using "sudo apt-get install ftpd".
- Start Mininet and xterm windows.
- Run "sudo mn", and then open a window on each virtual host using "xterm h1" and "xterm h2".
- n the h2 xterm window, start a tcpdump capture (to a file) for packets between your h1 and h2 virtual machines on port 21, e.g., "tcpdump -w ftp-transfer host 10.0.0.1 and host 10.0.0.2 and port 21".
- In the h1 xterm window, change to the /tmp directory using "cd /tmp", and then start a ftp session using the command "ftp 10.0.0.2" in a terminal and type the following commands in order,

Name: mininet
Password: mininet
ftp> get a-big-file
...
and after a successful transfer
ftp>bye

- Below is a screen shot of the output

- Close tcpdump, open the capture file in wireshark and answer the following questions,

What is the sequence number of the TCP SYN segment that initiates TCP connection between h1 and h2? What information helped you identify the segment as a SYN segment?

The sequence number is 0**.** We identified the segment as a SYN segment from the Flag field in the TPC packet. The flag's value is SYN.

What are the values of Seq and Ack fields for the segment containing the ftp message "Response: 150" (ok to send data) from h2 (ignore any bad check-sums)?

ACK - 82 SYN - 431

What are the values of Seq and Ack fields for the FIN segment sent from the h2? What information helped you identify the segment as a FIN segment?

ACK - 82 SYN - 509

What is the approximate value for time elapsed between receipts of segments containing the FTP messages "Response: 150" (ok to send data) and "Response: 226" (file receive ok)?

12.7 seconds