Lab 2: Ethernet and ARPA

University of Windsor
Department of Electrical and Computer Engineering
ELEC 8560 – Computer Networks
Semester: Fall 2023

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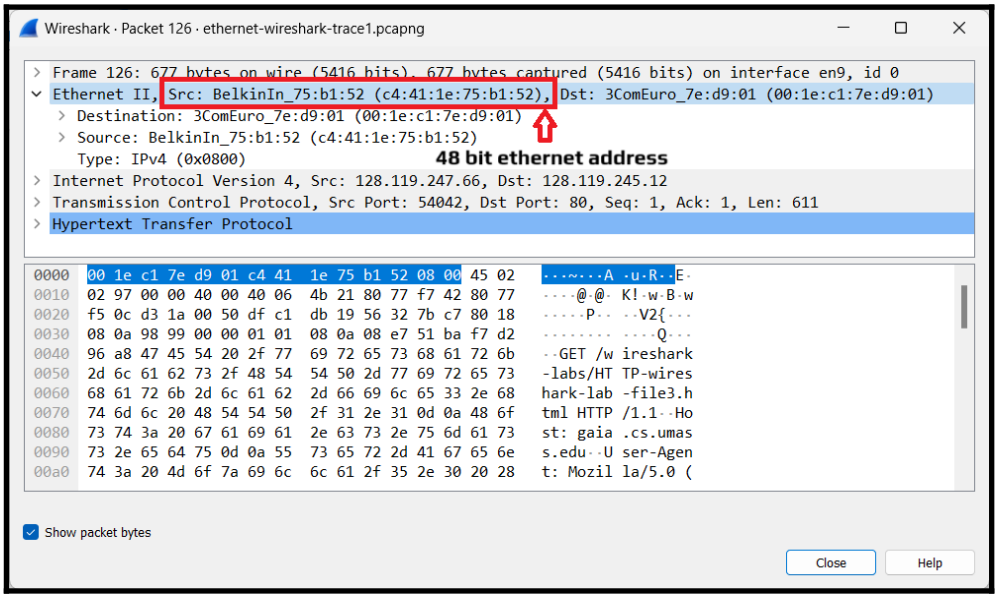
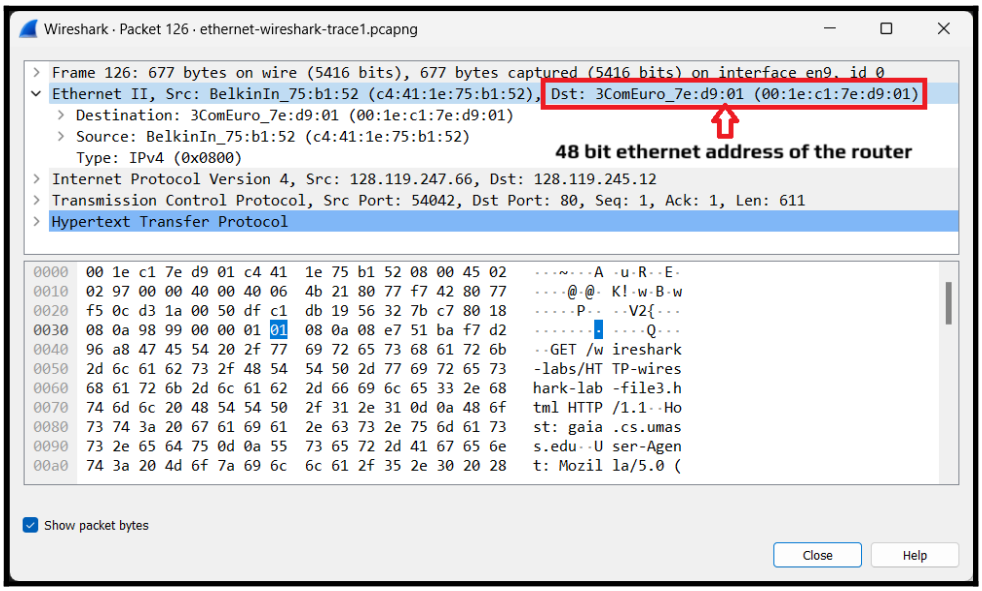
Answers: You need to use full SS, not partial for 1, 2, 5 and 6.

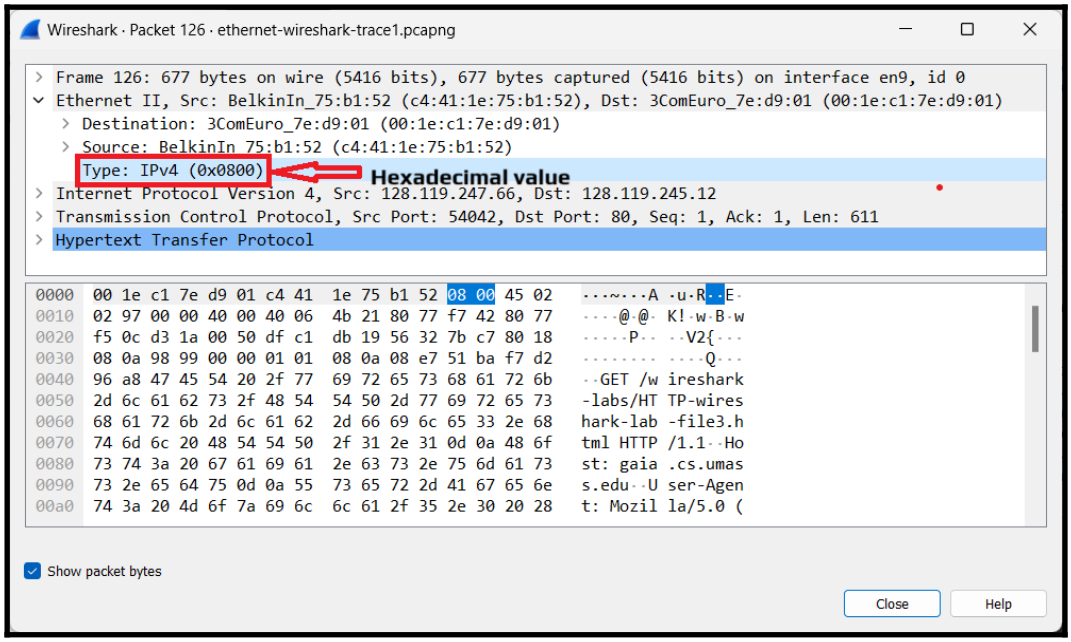
1. The 48-bit Ethernet address of the computer used to capture packet in wireshark using given zip file is **c4:41:1e:75:b1:52.**



2. The 48-bit destination address in the Ethernet frame is **00:1e:c1:7e:d9:01**. This is **NOT** the Ethernet address of "gaia.cs.umass.edu." It is the address of my **ComEuro router.**. - 0.5



3. The hexadecimal value for the two-byte Frame type field in the Ethernet frame carrying the HTTP GET reques is **0x0800**.

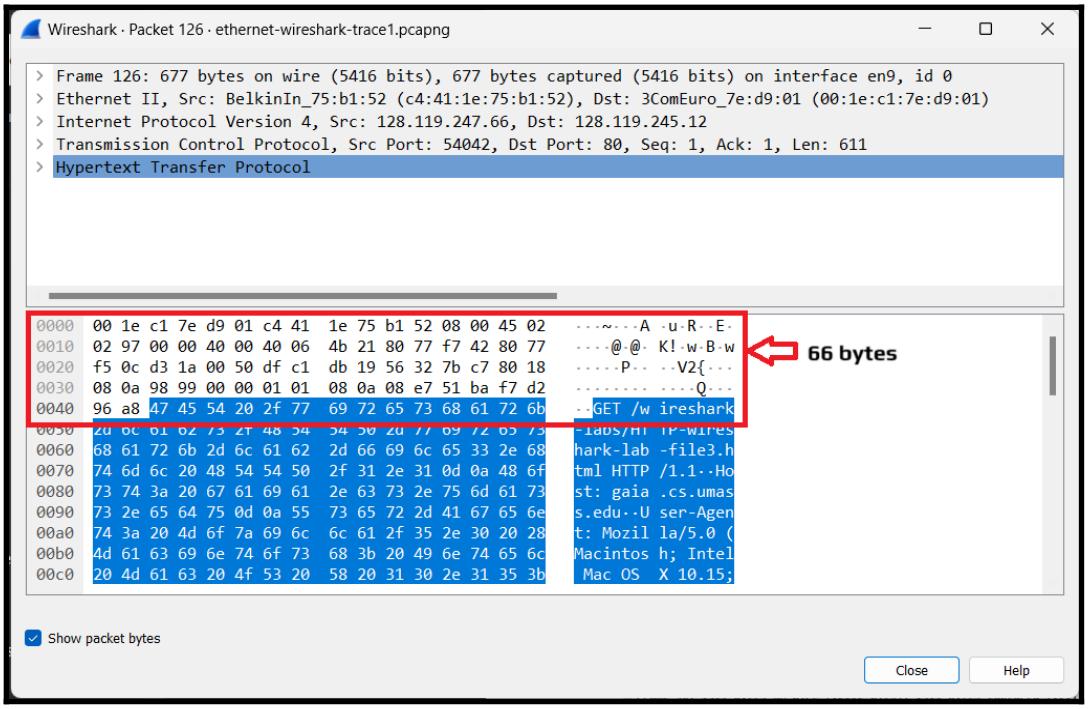


4. I have 66 Bytes before the ASCI character “G” in HTTP GET

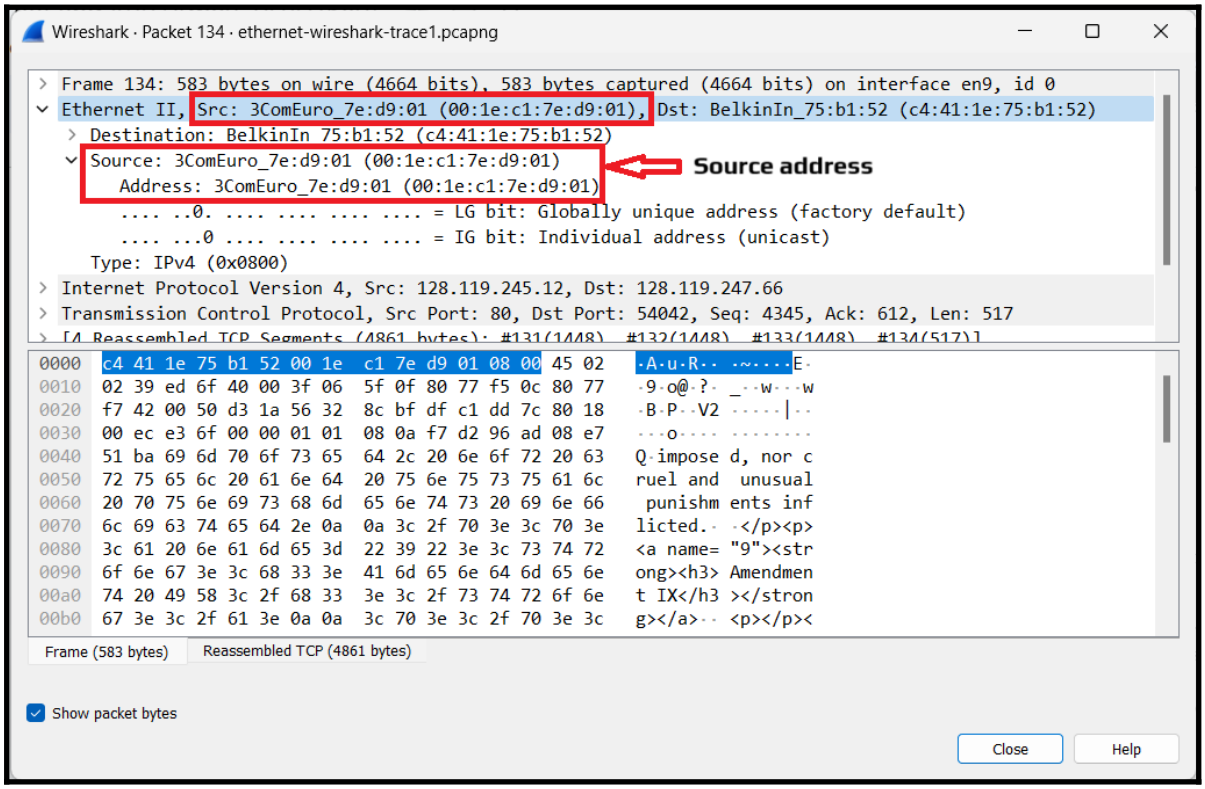
   Which can be classified as:
   No. of bytes in Ethernet Frame: 14
   No. of bytes in IP Frame: 20
   No. of bytes in TCP Frame: 32

   Total Number of Bytes before “G”: 66

   After removing the 2 preamble bytes, the resulting data is : 66 – 2 = **64**.

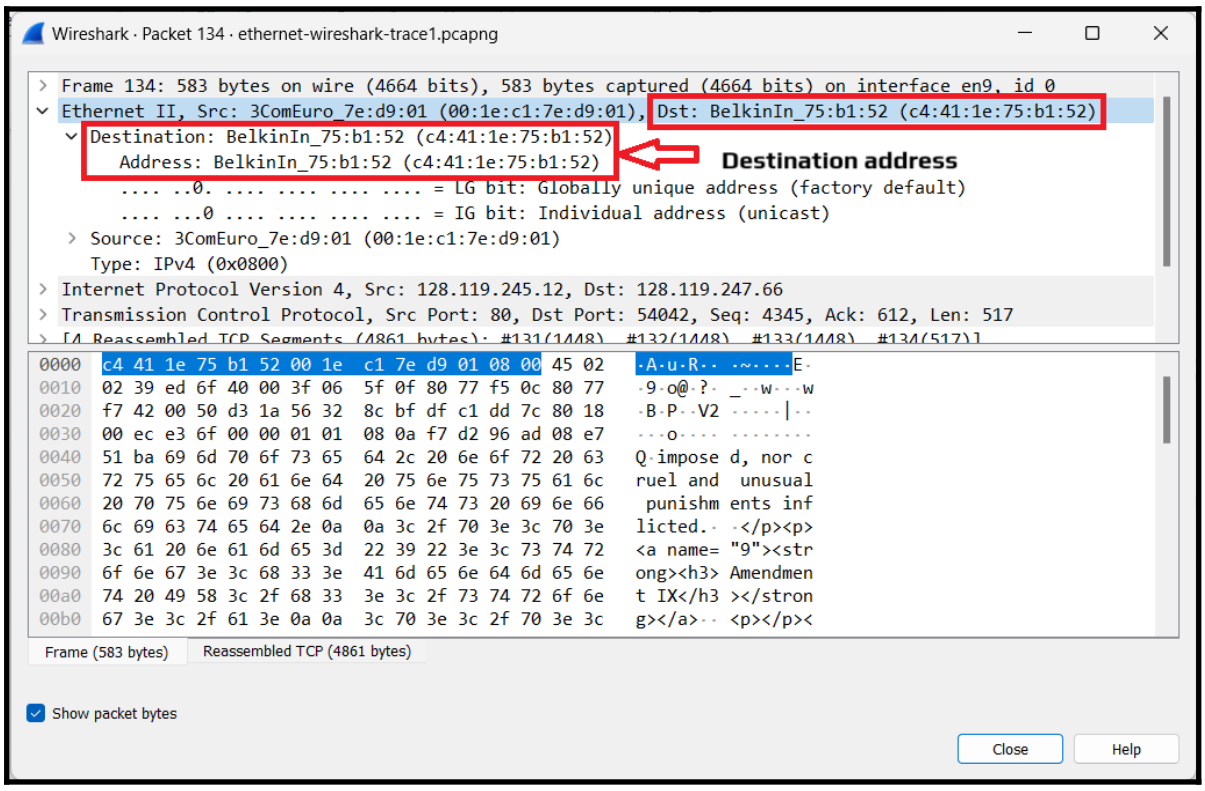


5. The source address **00:1e:c1:7e:d9:01** is neither the Ethernet address of "gaia.cs.umass.edu " nor the address of my computer. It is the address of **ComEuro router**.

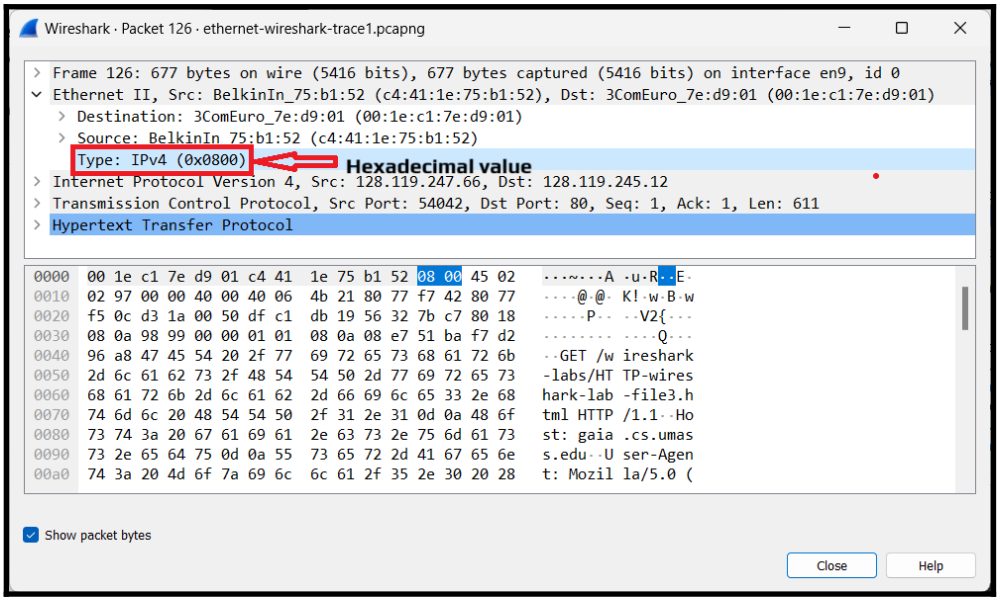


- 0. 5

6. The destination address **c4:41:1e:75:b1:52** is the address of my computer.



7. The hex value for the Frame type field is **0x0800.** (Note - same as question 3)



8. I have 54 Bytes before the HTTP OK response and in HTTP OK response and I have 13 Bytes before ASCII character "O" in HTTP frame.

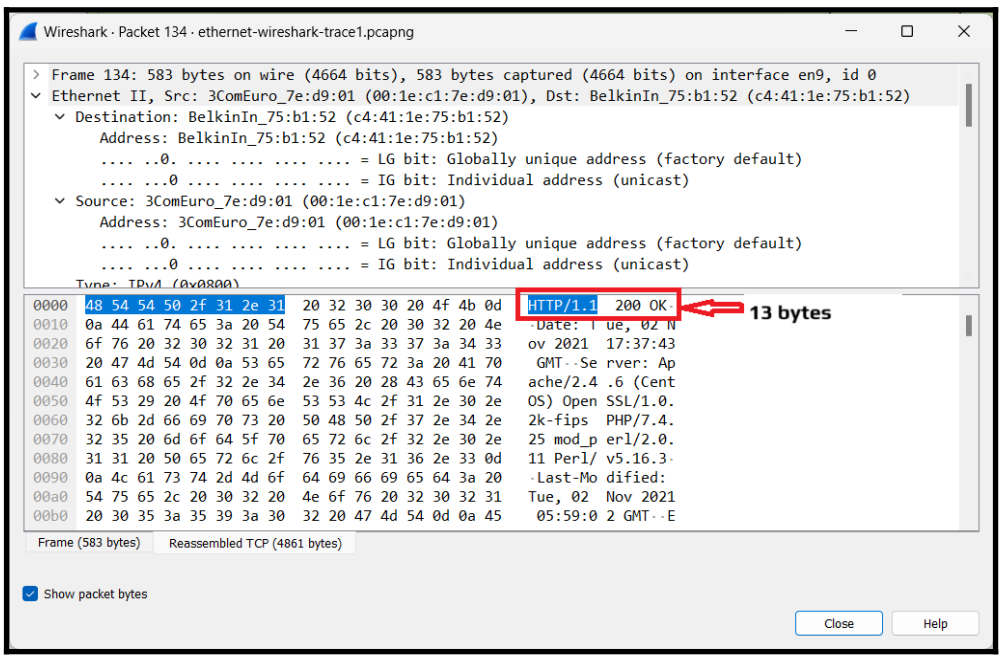
   Which can be classified as:

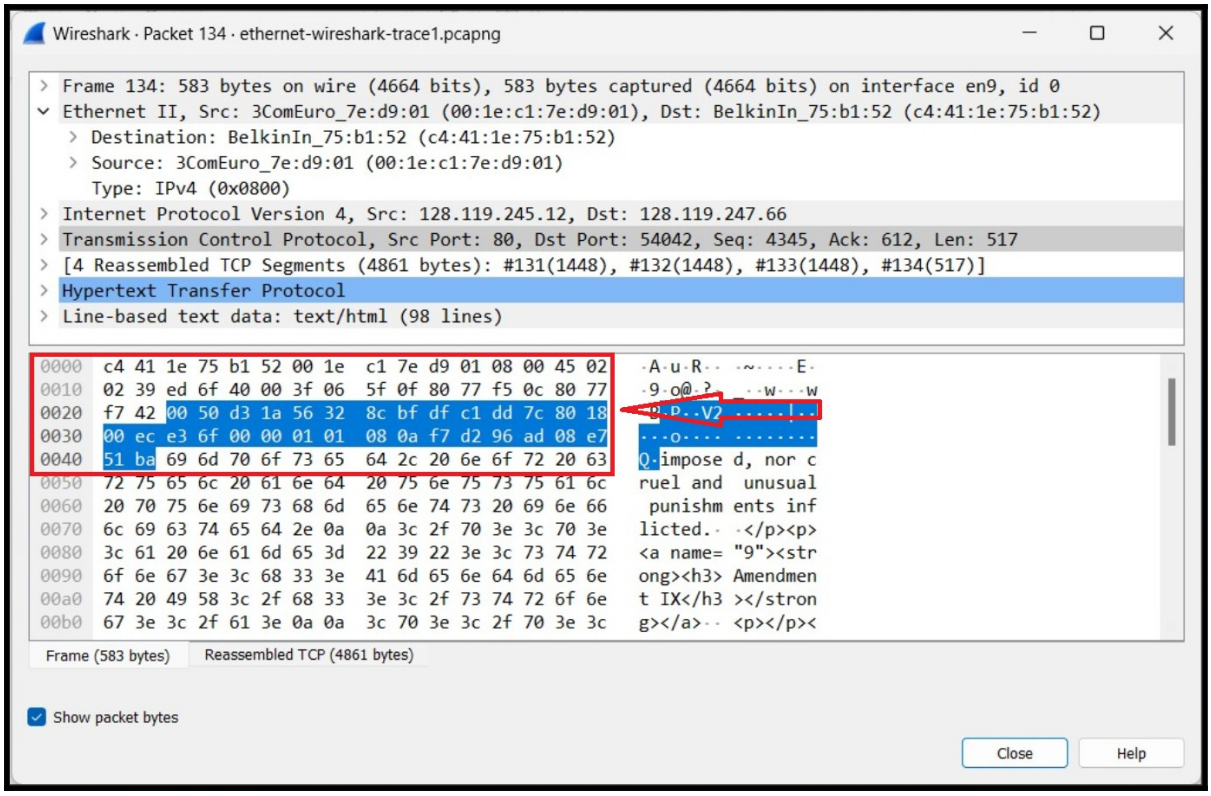
   No. of bytes in Ethernet Frame: 14
   No. of bytes in IP Frame: 20
   No. of bytes in TCP Frame: 32

   Total No. of Bytes before HTTP OK : 66
   No. of Bytes before "O" in the response: 13

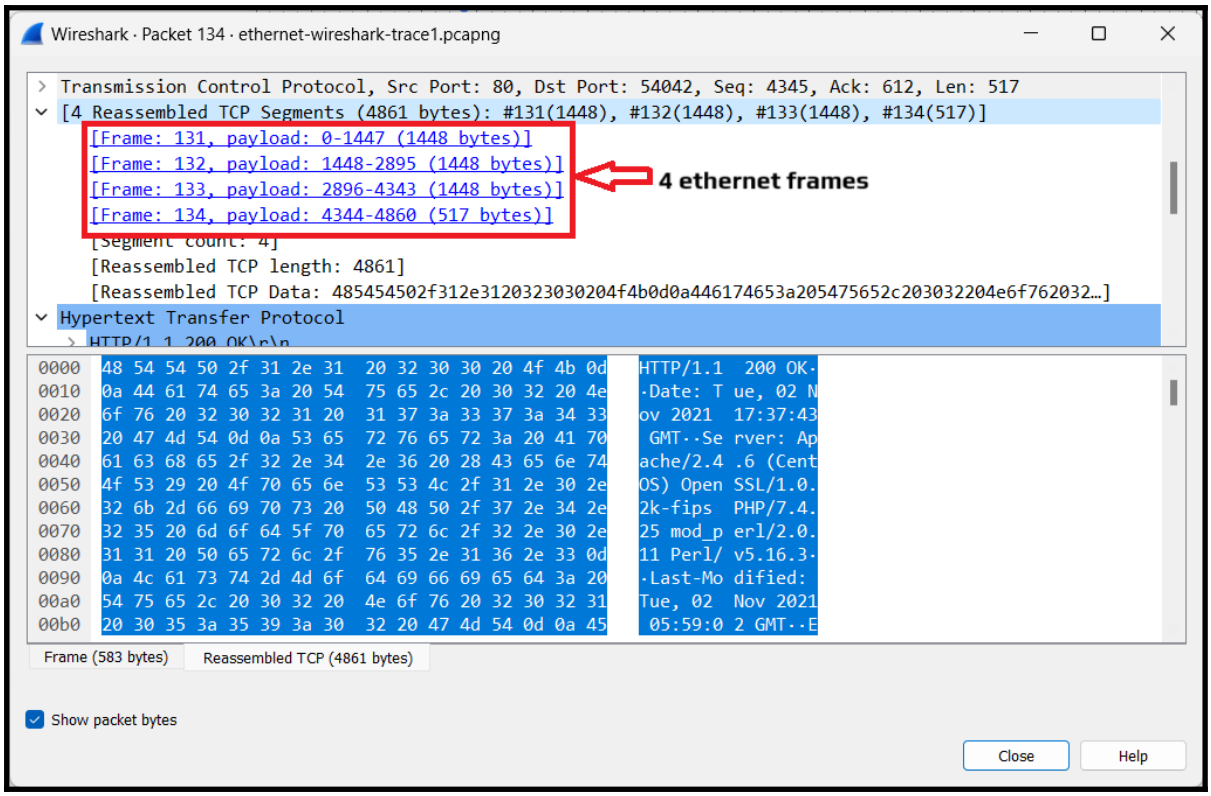
   Total No. of Bytes before ASCII "O" : 79

After removing the 2 preamble bytes, the resulting data is: **79 – 2 = 77 bytes.**

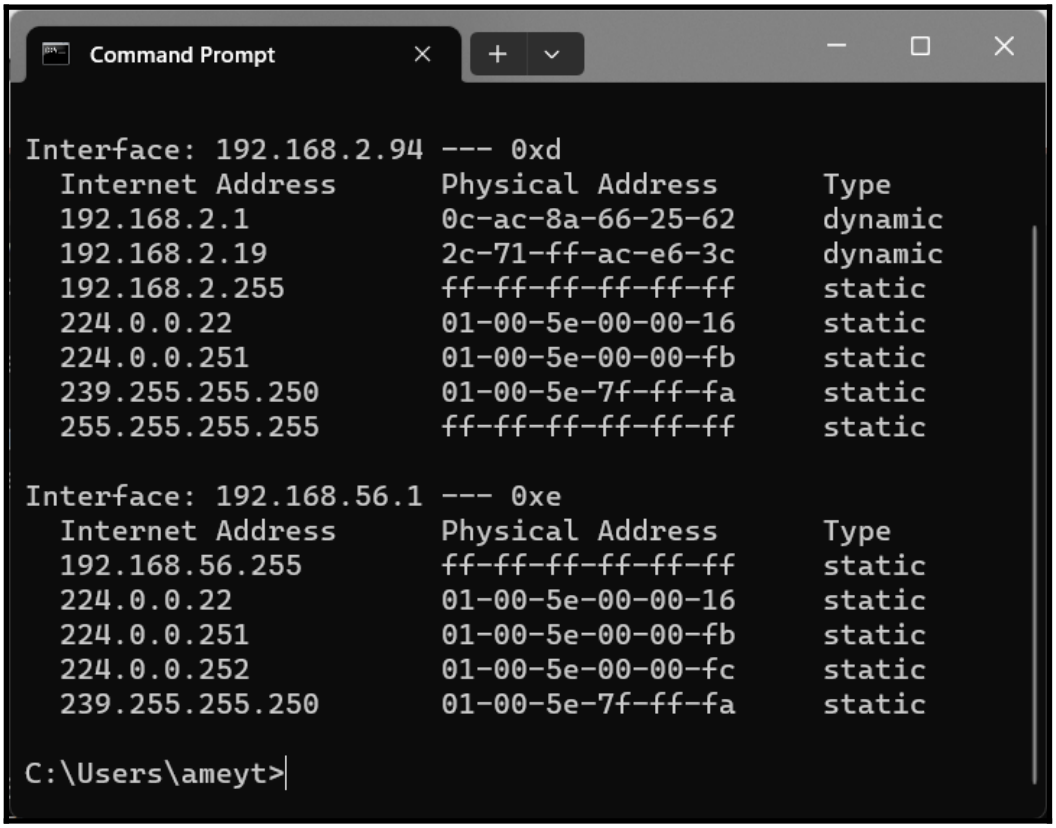




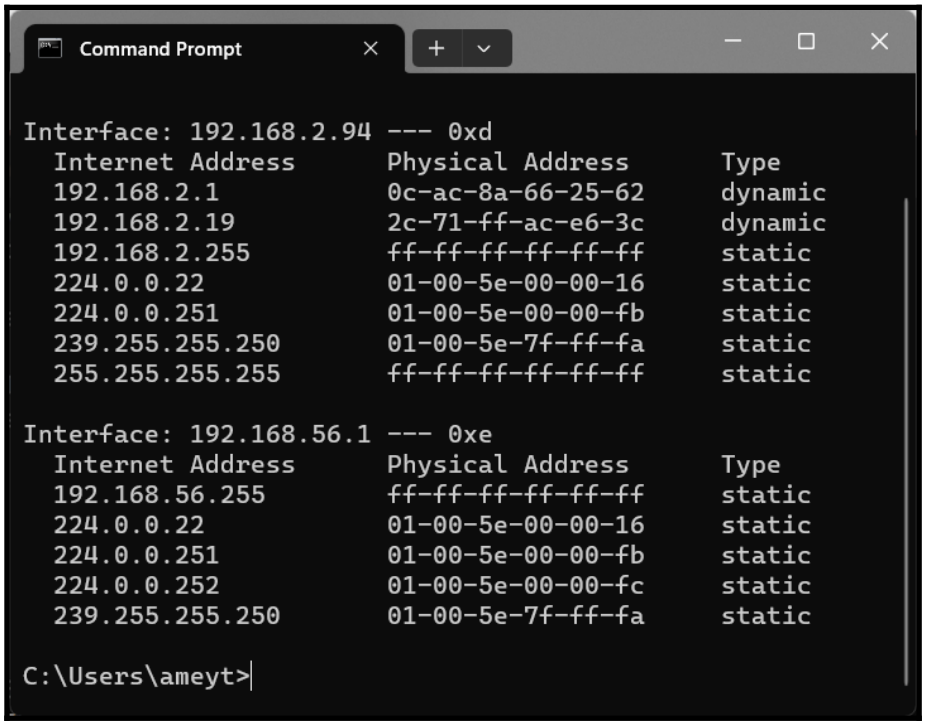
9. **4 Ethernet frames** (each containing an IP datagram, each containing a TCP segment) carry data that is part of the complete HTTP "OK 200 ..." reply message.



10. There are **2 interfaces** in ARP cache, where first interface had **7 entries** and second interface had **5 entries.**

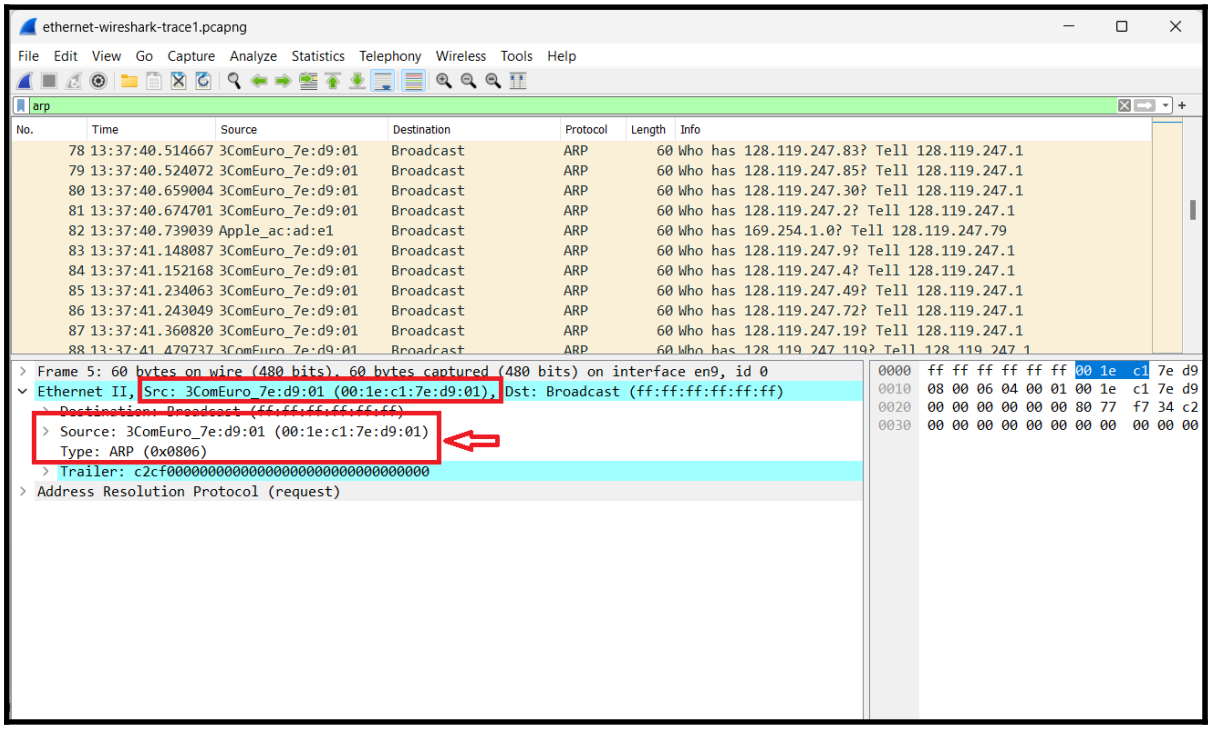


11. What is contained in each displayed entry of the ARP cache
    - There are three columns with values representing the IP address, Physical Address and the Type of address.



Wrong packet selected for 12 and 13. The packet should be related to ARP request from your computer

12. The hexadecimal value of the source address in the Ethernet frame containing the ARP request message sent out by your computer is **00:1e:c1:7e:d9:01**.



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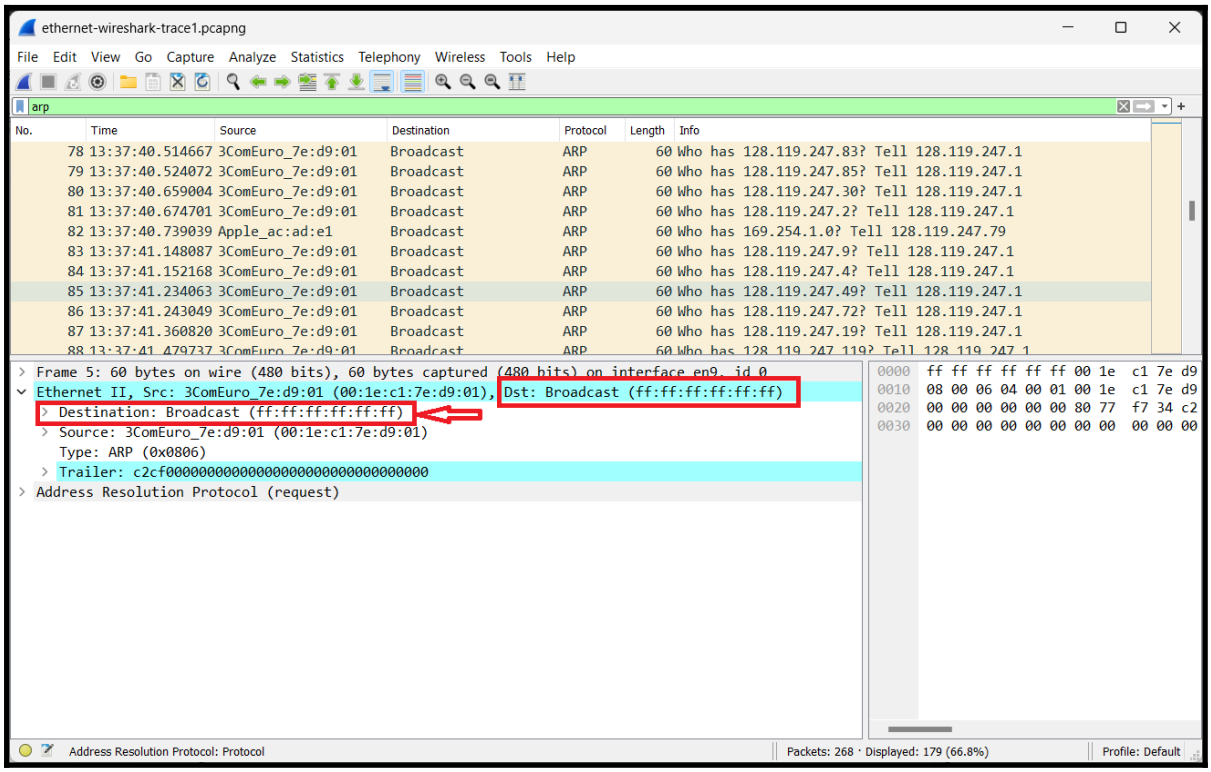
13. The hexadecimal value of the destination addresses in the Ethernet frame containing the ARP request message sent out by your computer **ff:ff:ff:ff:ff:ff** and there is no device.



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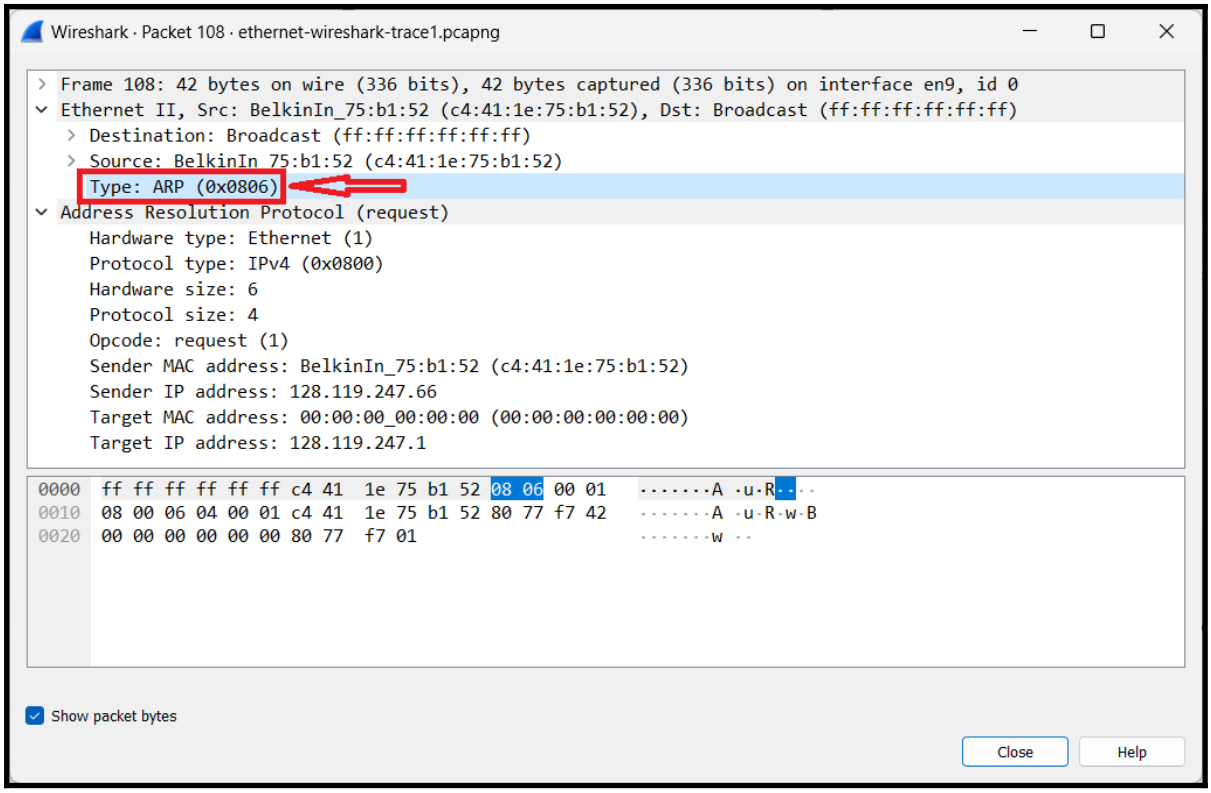
14. The hexadecimal value for the two-byte Ethernet Frame type field is **0x0806**. It corresponds to **ARP protocol**.


Wireshark · Packet 108 · ethernet-wireshark-trace1.pcapng
Frame 108: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface en9, id 0
Ethernet II, Src: BelkinIn_75:b1:52 (c4:41:1e:75:b1:52), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
Destination: Broadcast (ff:ff:ff:ff:ff:ff)
Source: BelkinIn_75:b1:52 (c4:41:1e:75:b1:52)
Type: ARP (0x0806)
Address Resolution Protocol (request)
Hardware type: Ethernet (1)
Protocol type: IPv4 (0x0800)
Hardware size: 6
Protocol size: 4
Opcode: request (1)
Sender MAC address: BelkinIn_75:b1:52 (c4:41:1e:75:b1:52)
Sender IP address: 128.119.247.66
Target MAC address: 00:00:00_00:00:00 (00:00:00:00:00:00)
Target IP address: 128.119.247.1
0000 ff ff ff ff ff ff c4 41 1e 75 b1 52 08 06 00 01
0010 08 00 06 04 00 01 c4 41 1e 75 b1 52 80 77 f7 42
0020 00 00 00 00 00 00 80 77 f7 01
Show packet bytes
Close
Help