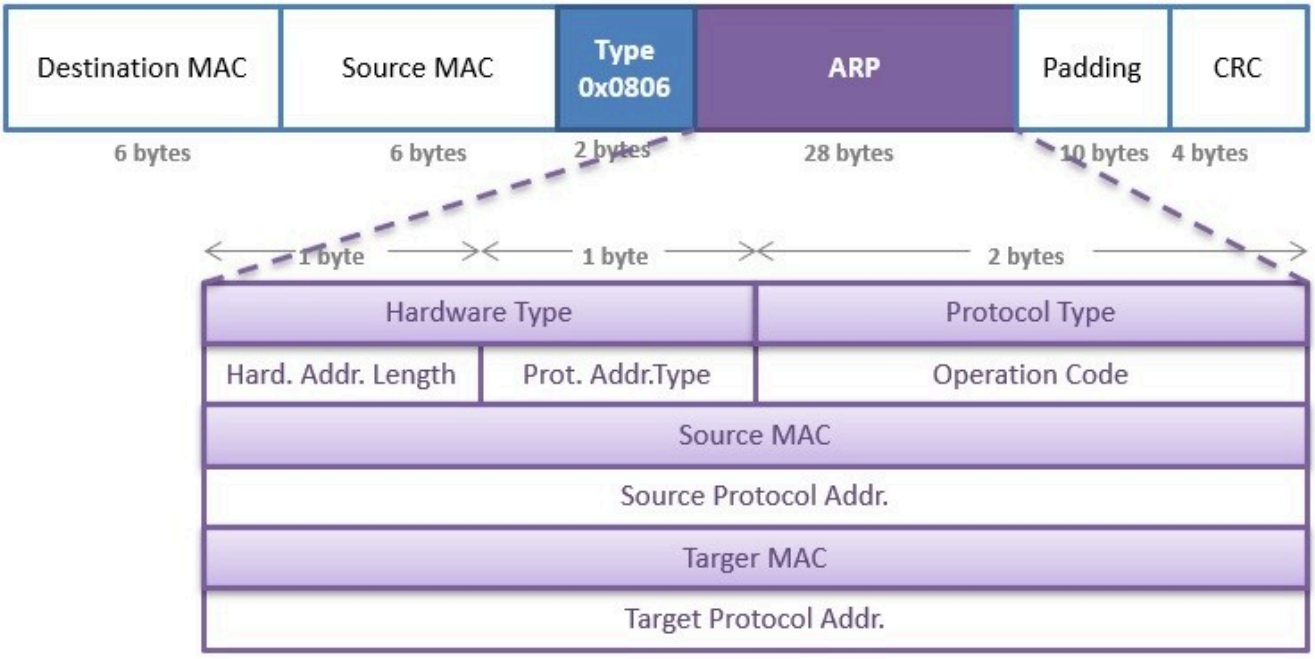
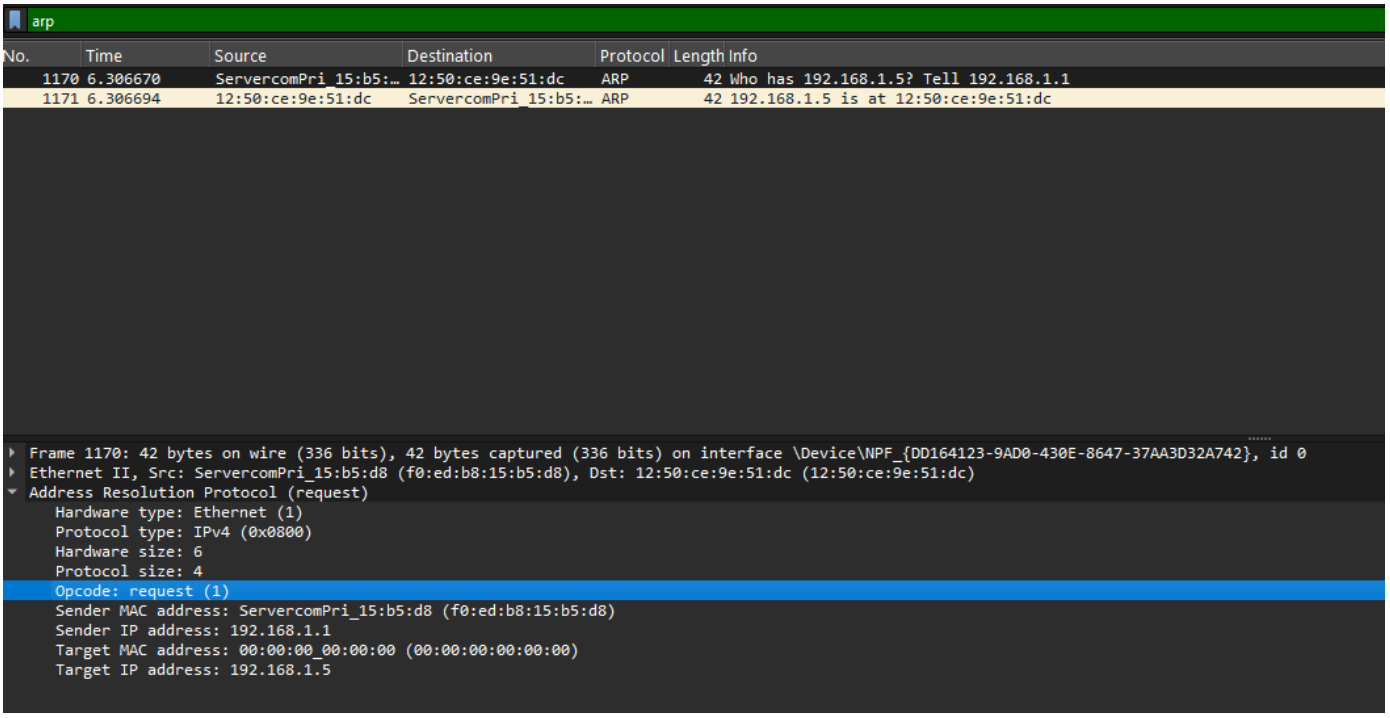
Assignment 2 wireshark

Q.1 How many bytes, from the very beginning of the Ethernet frame, does the ARP opcode field begin?
Ans - As from the diagram we can see that the total length of all the fields that exist before opcode field is 20 bytes i.e., Destination MAC (6 bytes) + Source MAC (6 bytes) + Type (2bytes) + Hardware Type (2 bytes) + Protocol Type (2 bytes) + Hardware Address Length (1 byte) + Protocol Address Type (1 byte) = 20 bytes.Thus the ARP opcode field begins after 20 bytes that is from the 21st byte from the very beginning of the Ethernet frame.



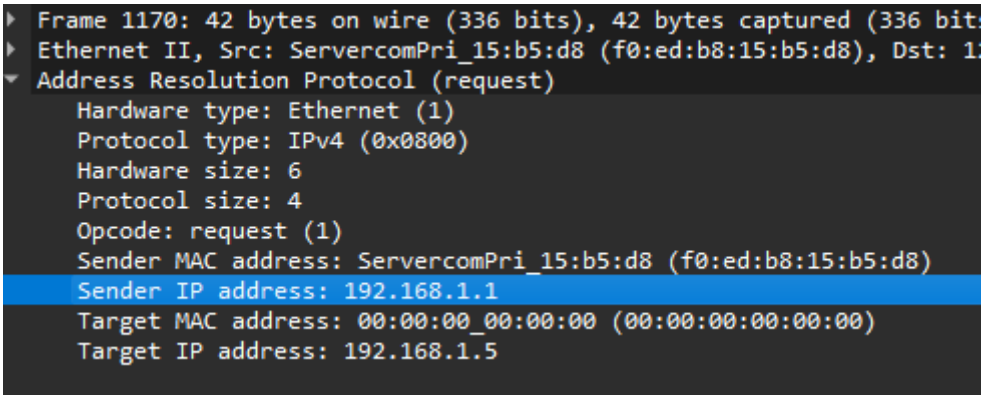
Q.2 What is the value of the opcode field within the ARP payload part of the Ethernet frame in which an ARP request is made?
Ans - The value in the opcode field within the ARP request payload part of the Ethernet frame is 1.

Below is the attached screenshot.



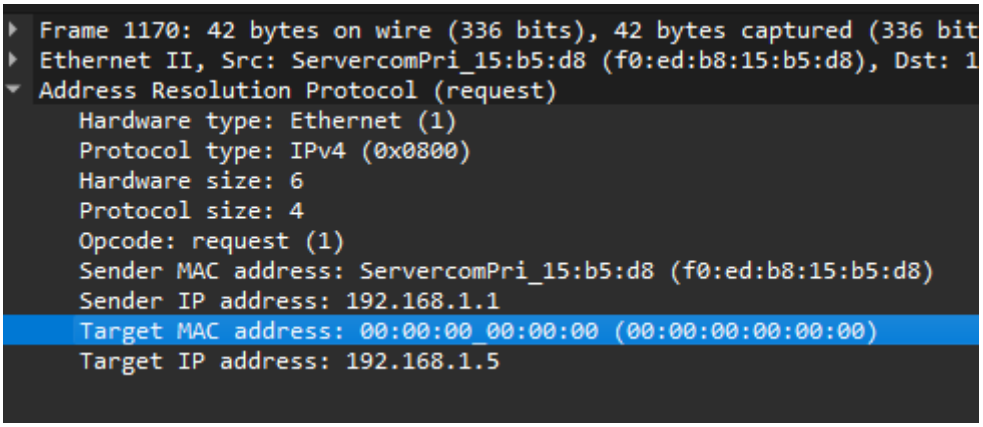
Q.3 Does the ARP message contain the IP address of the sender?

Ans - Yes the ARP message contains the IP address of the sender, below is the image proof attached.



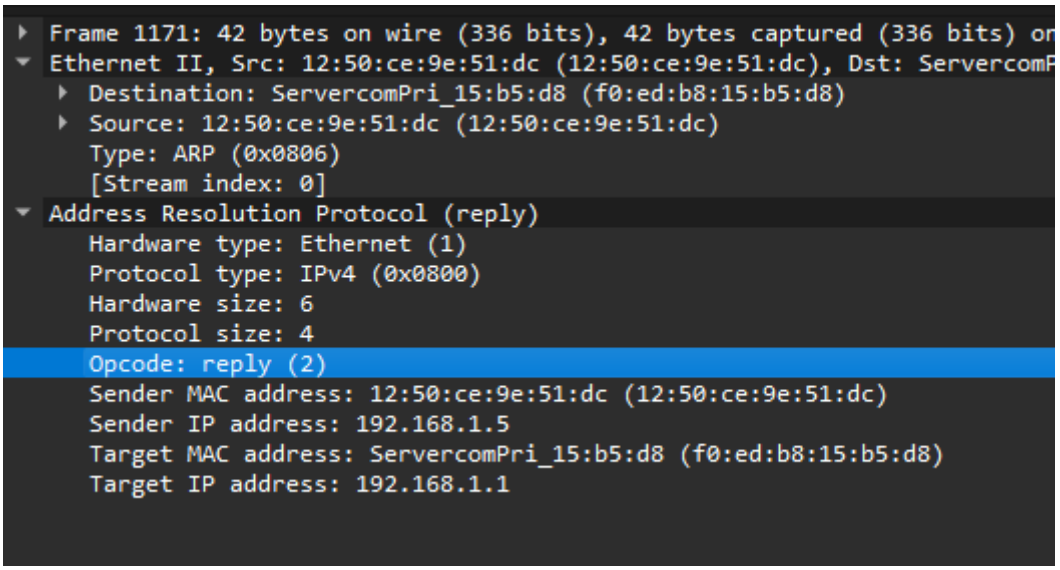
Q.4 Wherein the ARP request, does the 'question' appear, that is, the Ethernet address of the machine whose corresponding IP address is being queried?

Ans - The `question` about the MAC address that the ARP request is querying from the corresponding IP address appears in the `Target MAC address` section of the ARP Payload part that is set to 00:00:00:00:00:00. Below is the attached screenshot for proof.



Q.5 How many bytes, from the very beginning of the Ethernet frame, does the ARP opcode field begin?
Ans - Same as answered in the first question.

Q.6 What is the value of the opcode field within the ARP payload part of the Ethernet frame in which an ARP request is made?
Ans - The value in the opcode field within the ARP reply payload part of the Ethernet frame is 2. Below is the attached screenshot.



Q.7 Wherein the ARP message, does the 'answer' to the earlier ARP request appear, that is, the IP address of the machine having the Ethernet address whose corresponding IP address is being queried?
Ans - The `answer` about the MAC address that the ARP request is querying from the corresponding IP address appears in the `Sender MAC address` section of the ARP reply Payload part. Below is the attached screenshot for proof.