- School of Computer Science and Technology, Shandong University
- Lab Report on Computer Networking

Student Number	Name	Class	Lab Title	Period	Date
201900170249	李阳	智能19	Ethernet and ARP v8.0	2h	June 22, 2021

Hardware Environment

- Lenovo Legion Y7000P 2020H(Intel Core i7-10750H, 16GB DDR4)
- Windows 10 Home, Chinese Version

Software Environment

- Wireshark-win64-3.44

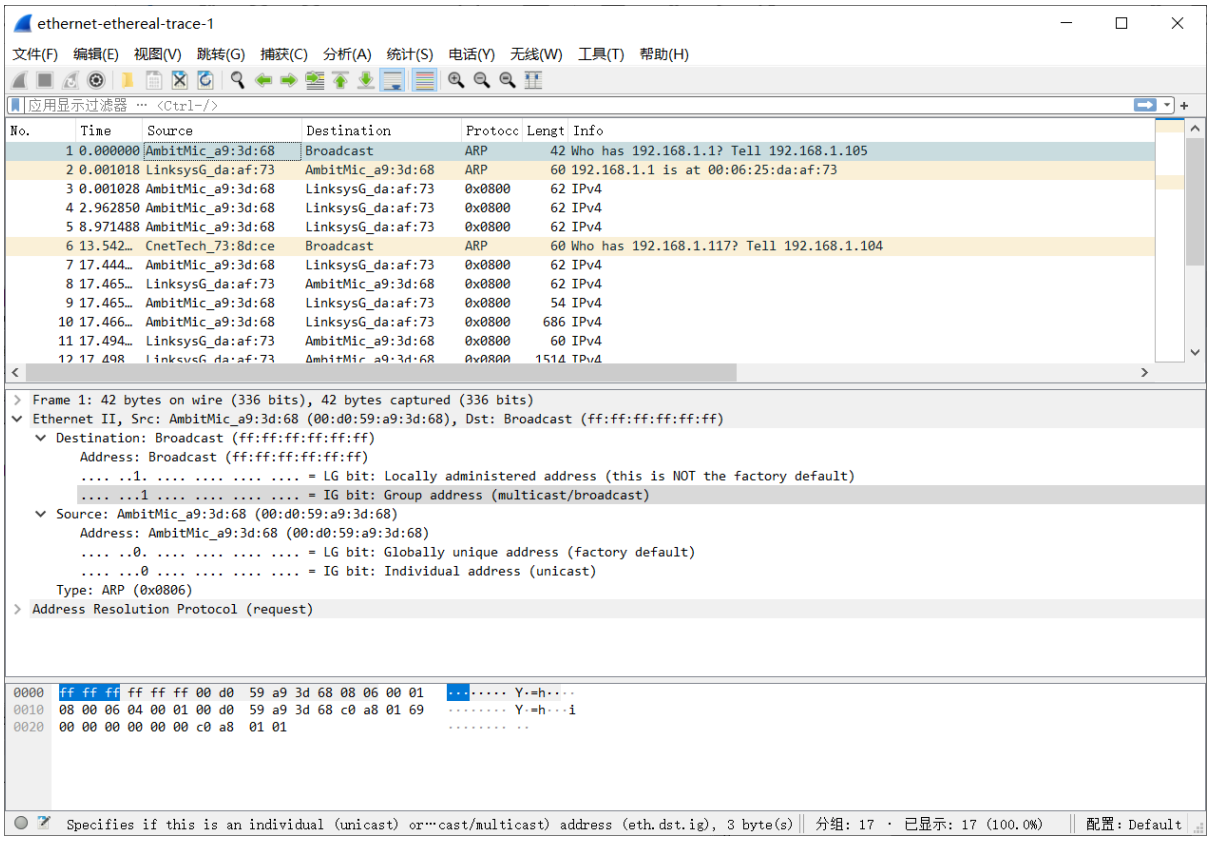
Purpose

- Investigate the Ethernet protocol and the ARP protocol.

Experimental Records

Capturing and analyzing Ethernet frames

- Make sure the browser's cache is empty, then start up the Wireshark packet sniffer.
- Enter the following URL into browser http://gaia.cs.umass.edu/wireshark-labs/HTTP-ethereal-lab-file3.html .
- Stop Wireshark packet capture. First, find the packet numbers (the leftmost column in the upper Wireshark window) of the HTTP GET message that was sent from computer to gaia.cs.umass.edu, as well as the beginning of the HTTP response message sent to computer by gaia.cs.umass.edu.
- Change Wireshark's "listing of captured packets" window, uncheck the IP box and select OK.



The Address Resolution Protocol

- Take a look at the contents of the ARP cache on the computer: type either "arp" or "c:\windows\system32\arp" in the MS-DOS command line.

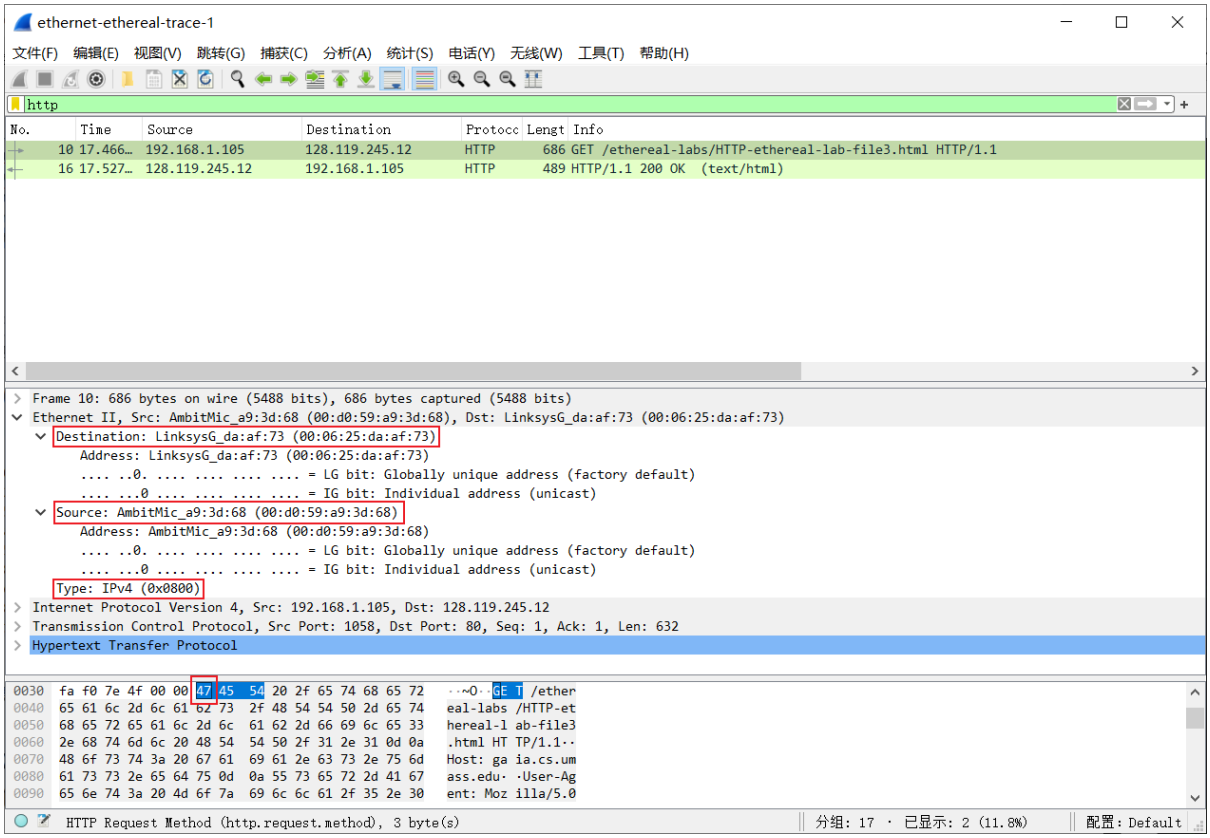
- Clear the ARP cache, type "arp –d *" command will clear ARP cache.
- Make sure browser's cache is empty, start up the Wireshark packet sniffer, and enter the following URL into browser http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-lab-file3.html .
- Stop Wireshark packet capture.

Answer to Questions

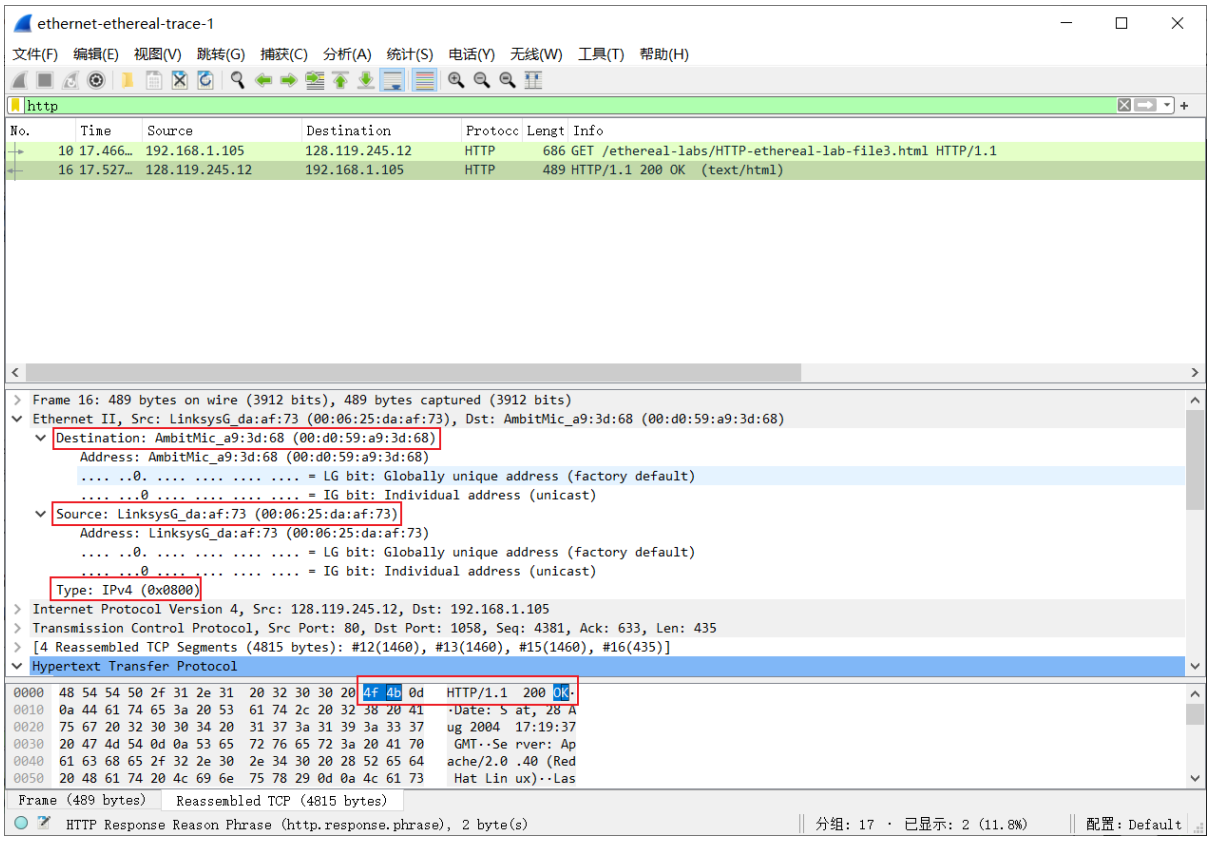
1. 00:d0:59:a9:3d:68
2. 00:06:25:da:af:73

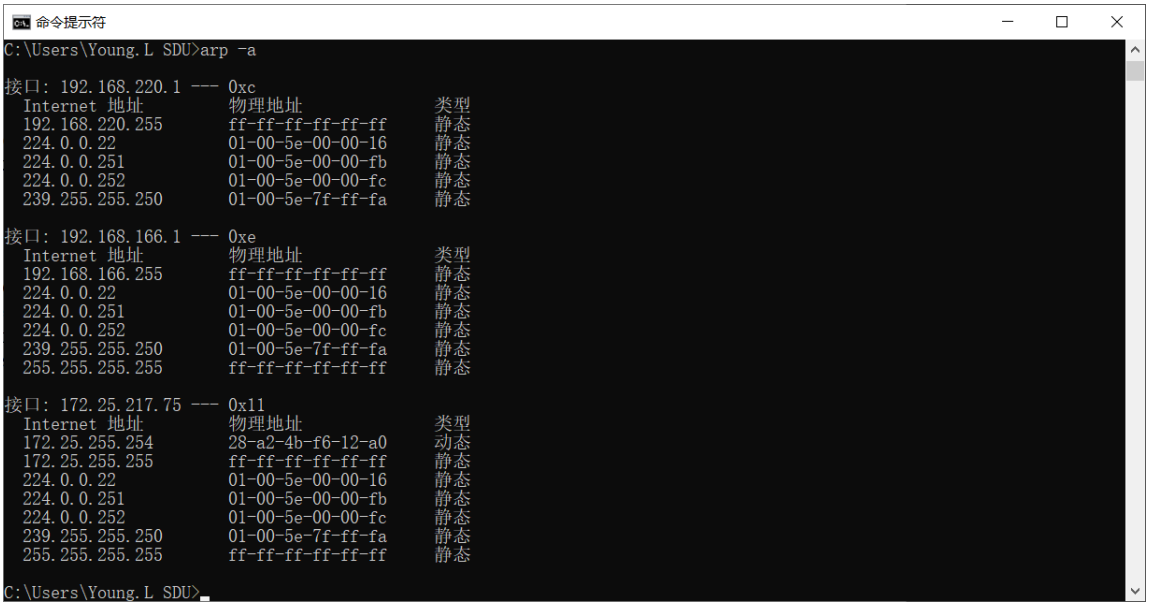
> “
>
> 这个目的MAC地址是路由器接口的地址。如果是目的主机的MAC地址，那么源主机所在的子网上的所有适配器都不会费心将IP数据报传递到它的网络层。

3. 0x0800, IPv4
4. $3 \times 16 + 7 = 55$ bytes.



5. 00:06:25:da:af:73, it's the interface address of router.
6. 00:d0:59:a9:3d:68, it's the interface address of the router on the host subnet.
7. 0x0800, IPv4
8. 14 bytes

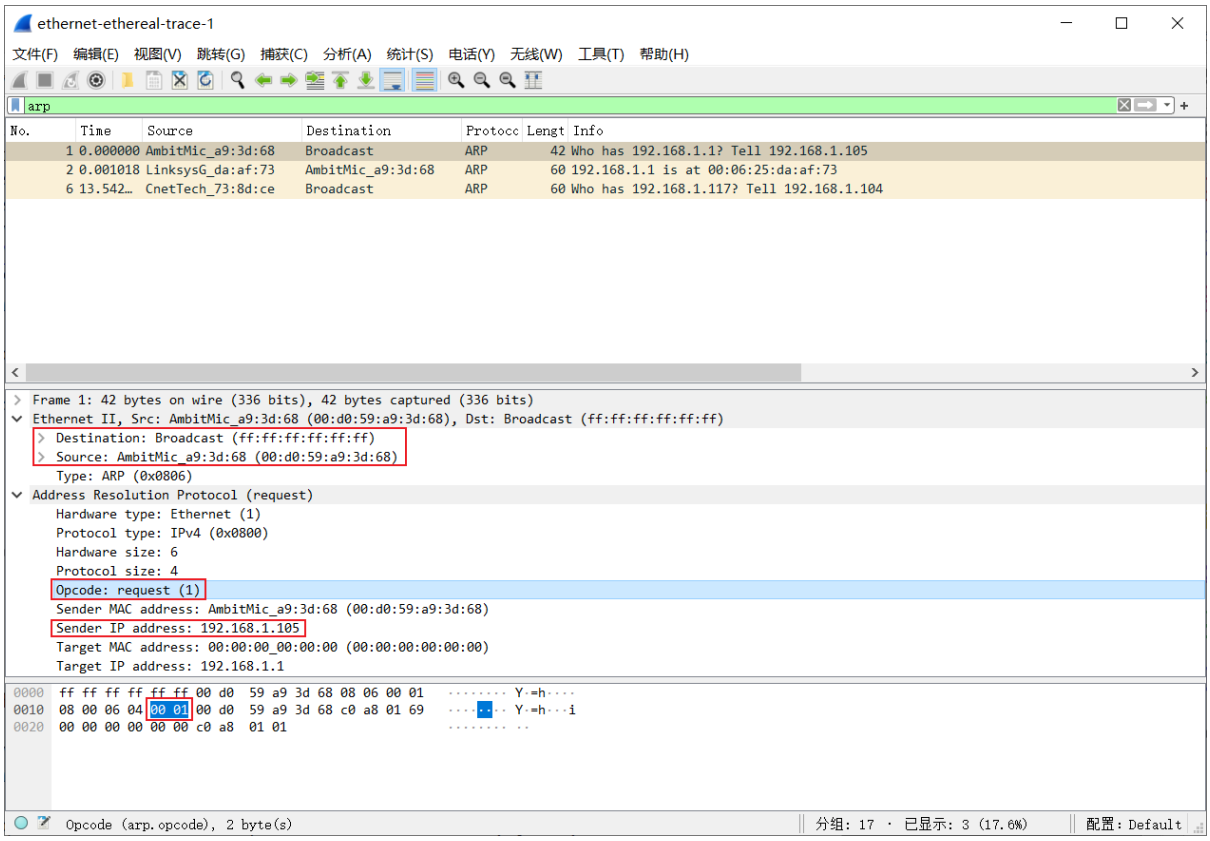


9. 

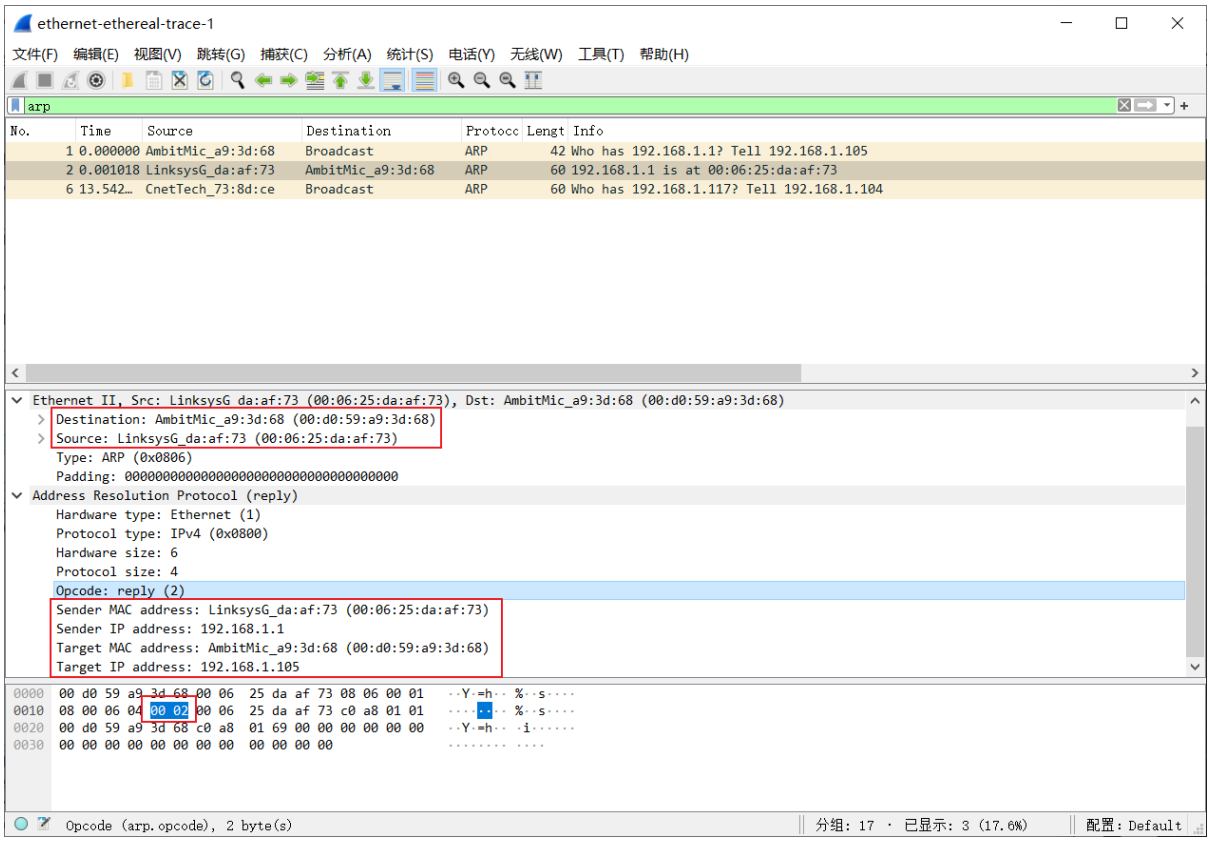
10. Source address-00:d0:59:a9:3d:68, destination address-ff:ff:ff:ff:ff:ff

11. 0x0806, ARP.

12.
    - 20 bytes
    - 0x0001
    - Yes, the IP address is 192.168.1.105.
    - In the field of Opcode: request(1)



13.
    - 20 bytes
    - 0x0002
    - Opcode: reply(2)
14. Source address-00:06:25:da:af:73, destination address-00:d0:59:a9:3d:68



15. 查询APR报文是在广播帧中发送的（子网中的所有电脑都能收到），而响应APR报文在一个标准帧中发送（只有发送请求的那台电脑能收到）。