

TRƯỜNG ĐẠI HỌC BÁCH KHOA  
ĐẠI HỌC QUỐC GIA TP HỒ CHÍ MINH



**HOMEWORK**  
**MẠNG MÁY TÍNH (THỰC HÀNH) – LAB 6**

**Giảng viên hướng dẫn:** Ths. Bùi Xuân Giang

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**Mã số sinh viên:** 2012018

**Lớp:** L10

*Thành phố Hồ Chí Minh – 2022*

## Part 1: Capturing and analyzing Ethernet frames

The Wireshark interface is shown with the title bar "Wi-Fi". The menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. A toolbar with various icons is at the top. A status bar at the bottom shows "Current filter: tcp". The main pane displays two captured frames:

No.	Time	Source	Destination	Protocol	Length	Info
272	2.420015	10.229.53.91	128.119.245.12	TCP	54	62958 → 80 [ACK] Seq=1 Ack=1 Win=66560 Len=0
273	2.420244	10.229.53.91	128.119.245.12	HTTP	547	GET /wireshark-labs/HTTP-ethereal-lab-file3.html HTTP/1.1

Frame details for frame 273:

- Frame 273: 547 bytes on wire (4376 bits), 547 bytes captured (4376 bits) on interface \Device\NPF\_{F773D6}
- Ethernet II, Src: CloudNet\_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: HewlettP\_a6:09:74 (f4:ce:46:a6:09:74)
- Destination: HewlettP\_a6:09:74 (f4:ce:46:a6:09:74)
- Source: CloudNet\_c3:3a:cb (30:c9:ab:c3:3a:cb)
- Address: CloudNet\_c3:3a:cb (30:c9:ab:c3:3a:cb)
- .... ..0. .... .... .... = LG bit: Globally unique address (factory default)
- .... ..0. .... .... .... = IG bit: Individual address (unicast)
- Type: IPv4 (0x0800)
- Internet Protocol Version 4, Src: 10.229.53.91, Dst: 128.119.245.12
- Transmission Control Protocol, Src Port: 62958, Dst Port: 80, Seq: 1, Ack: 1, Len: 493
- Hypertext Transfer Protocol

Hex dump of frame 273:

0000	f4	ce	46	a6	09	74	30	c9	ab	c3	3a	cb	0
0010	02	15	52	6c	40	00	80	06	f0	b2	0a	e5	3
0020	f5	0c	f5	ee	00	50	9d	ec	ed	0a	2a	42	c
0030	01	04	31	5e	00	00	47	45	54	20	2f	77	€
0040	68	61	72	6b	2d	6c	61	62	73	2f	48	54	5
0050	74	68	65	72	65	61	6c	2d	6c	61	62	2d	€
0060	33	2e	68	74	6d	6c	20	48	54	54	50	2f	3
0070	0a	48	6f	73	74	3a	20	67	61	69	61	2e	€
0080	6d	61	73	73	2e	65	64	75	0d	0a	43	6f	€
0090	74	69	6f	6e	3a	20	6b	65	65	70	2d	61	€
00a0	0d	0a	55	70	67	72	61	64	65	2d	49	6e	7

### 1. What is the 48-bit Ethernet address of your computer?

The Ethernet address of my computer is 30:c9:ab:c3:3a:cb

### 2. What is the 48-bit destination address in the Ethernet frame? Is this the Ethernet address of gaia.cs.umass.edu? (Hint: the answer is no). What device has this as its Ethernet address? [Note: this is an important question, and one that students sometimes get wrong. Re-read pages 468-469 in the text and make sure you understand the answer here.]

The 48-bit destination address in the Ethernet frame is f4:ce:46:a6:09:74

The device has this as its Ethernet address is my router (Hewlett Package)

### 3. Give the hexadecimal value for the two-byte Frame type field. What upper layer protocol does this correspond to?

The upper layer protocol this correspond to is IP protocol (0x0800).

The Wireshark interface is shown with the title bar "Wi-Fi". The menu bar includes File, Edit, View, Go, Capture, Analyze, Statistics, Telephony, Wireless, Tools, and Help. A toolbar with various icons is at the top. A status bar at the bottom shows "Current filter: tcp". The main pane displays two captured frames:

No.	Time	Source	Destination	Protocol	Length	Info
272	2.420015	10.229.53.91	128.119.245.12	TCP	54	62958 → 80 [ACK] Seq=1 Ack=1 Win=66560 Len=0
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Frame details for frame 273:

- Frame 273: 547 bytes on wire (4376 bits), 547 bytes captured (4376 bits) on interface \Device\NPF\_{F773D6}
- Ethernet II, Src: CloudNet\_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: HewlettP\_a6:09:74 (f4:ce:46:a6:09:74)
- Destination: HewlettP\_a6:09:74 (f4:ce:46:a6:09:74)
- Source: CloudNet\_c3:3a:cb (30:c9:ab:c3:3a:cb)
- Type: IPv4 (0x0800)

Hex dump of frame 273:

0000	f4	ce	46	a6	09	74	30	c9	ab	c3	3a	cb	0
0010	02	15	52	6c	40	00	80	06	f0	b2	0a	e5	3
0020	f5	0c	f5	ee	00	50	9d	ec	ed	0a	2a	42	c
0030	01	04	31	5e	00	00	47	45	54	20	2f	77	€
0040	68	61	72	6b	2d	6c	61	62	73	2f	48	54	5

### 4. How many bytes from the very start of the Ethernet frame does the ASCII “G” in “GET” appear in the Ethernet frame?

The length from the very start of the Ethernet frame to the ASCII “G” in “GET” appear is 52 bytes

No. Time Source Destination Protocol Length Info

272	2.420015	10.229.53.91	128.119.245.12	TCP	54	62958 → 80 [ACK] Seq=1 Ack=1 Win=66560 Len=0
273	2.420244	10.229.53.91	128.119.245.12	HTTP	547	GET /wireshark-labs/HTTP-ethereal-lab-file3.html HTTP/1.1

```

> Frame 273: 547 bytes on wire (4376 bits), 547 bytes captured (4376 bits) on interface \Device\NPF_{F773D6
> Ethernet II, Src: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: HewlettP_a6:09:74 (f4:ce:46:a6:09:74)
> Internet Protocol Version 4, Src: 10.229.53.91, Dst: 128.119.245.12
> Transmission Control Protocol, Src Port: 62958, Dst Port: 80, Seq: 1, Ack: 1, Len: 493
  Hypertext Transfer Protocol
    GET /wireshark-labs/HTTP-ethereal-lab-file3.html HTTP/1.1\r\n
      [Expert Info (Chat/Sequence): GET /wireshark-labs/HTTP-ethereal-lab-file3.html HTTP/1.1\r\n]
      ...
      Content-Type: text/html
  
```

0010 02 15 52 6c 40 00 00 06 f0 b2 0a e5 35 5b 80 77 ..R1@... 5[-w
0020 f5 0c f5 ee 00 50 9d ec ed 0a 2a 42 dd 85 50 18 ...-p...-\*B..p.
0030 01 04 31 5e 00 00 47 45 54 20 2f 77 69 72 65 73 ..1\*GE T /wires
0040 68 61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 65 hark-lab s/HTTP-e
0050 74 68 65 72 65 61 6c 2d 6c 61 62 2d 66 69 6c 65 thereal-lab-file
0060 33 2e 68 74 6d 6c 20 48 54 54 50 2f 31 2e 31 0d 3.html H HTTP/1.1-
0070 04 48 6f 73 74 3a 20 67 61 69 61 2e 63 73 2e 75 Host: g.aia.cs.u

Next, answer the following questions, based on the contents of the Ethernet frame containing the first byte of the HTTP response message.

## 5. What is the value of the Ethernet source address? Is this the address of your computer, or of gaia.cs.umass.edu (Hint: the answer is no). What device has this as its Ethernet address?

The value of the Ethernet source address is f4:ce:46:a6:09:74. This is the address of my router

No. Time Source Destination Protocol Length Info

338	2.741002	128.119.245.12	10.229.53.91	HTTP	559	HTTP/1.1 200 OK (text/html)
-----	----------	----------------	--------------	------	-----	-----------------------------

```

> Frame 338: 559 bytes on wire (4472 bits), 559 bytes captured (4472 bits) on interface \Device\NPF_{F773D6
  Hypertext Transfer Protocol
    GET / HTTP/1.1
    Host: gaia.cs.umass.edu
    User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/89.0.4369.90 Safari/537.36
    Accept: */*
    Accept-Encoding: gzip, deflate
    Accept-Language: en-US,en;q=0.9
    
```

0010 02 15 52 6c 40 00 00 06 f0 b2 0a e5 35 5b 80 77 ..R1@... 5[-w
0020 f5 0c f5 ee 00 50 9d ec ed 0a 2a 42 dd 85 50 18 ...-p...-\*B..p.
0030 01 04 31 5e 00 00 47 45 54 20 2f 77 69 72 65 73 ..1\*GE T /wires
0040 68 61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 65 hark-lab s/HTTP-e
0050 74 68 65 72 65 61 6c 2d 6c 61 62 2d 66 69 6c 65 thereal-lab-file
0060 33 2e 68 74 6d 6c 20 48 54 54 50 2f 31 2e 31 0d 3.html H HTTP/1.1-
0070 04 48 6f 73 74 3a 20 67 61 69 61 2e 63 73 2e 75 Host: g.aia.cs.u

## 6. What is the destination address in the Ethernet frame? Is this the Ethernet address of your computer?

According to the picture above, the destination address in the Ethernet frame is 30:c9:ab:c3:3a:cb. This is the Ethernet address of my computer.

## 7. Give the hexadecimal value for the two-byte Frame type field. What upper layer protocol does this correspond to?

No. Time Source Destination Protocol Length Info

338	2.741002	128.119.245.12	10.229.53.91	HTTP	559	HTTP/1.1 200 OK (text/html)
-----	----------	----------------	--------------	------	-----	-----------------------------

```

Frame 338: 559 bytes on wire (4472 bits), 559 bytes captured (4472 bits) on interface \Device\NPF_{F773D6
  Hypertext Transfer Protocol
    GET / HTTP/1.1
    Host: gaia.cs.umass.edu
    User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/89.0.4369.90 Safari/537.36
    Accept: */*
    Accept-Encoding: gzip, deflate
    Accept-Language: en-US,en;q=0.9
    
```

0010 02 15 52 6c 40 00 00 06 f0 b2 0a e5 35 5b 80 77 ..R1@... 5[-w
0020 f5 0c f5 ee 00 50 9d ec ed 0a 2a 42 dd 85 50 18 ...-p...-\*B..p.
0030 01 04 31 5e 00 00 47 45 54 20 2f 77 69 72 65 73 ..1\*GE T /wires
0040 68 61 72 6b 2d 6c 61 62 73 2f 48 54 54 50 2d 65 hark-lab s/HTTP-e
0050 74 68 65 72 65 61 6c 2d 6c 61 62 2d 66 69 6c 65 thereal-lab-file
0060 33 2e 68 74 6d 6c 20 48 54 54 50 2f 31 2e 31 0d 3.html H HTTP/1.1-
0070 04 48 6f 73 74 3a 20 67 61 69 61 2e 63 73 2e 75 Host: g.aia.cs.u

The upper layer protocol this correspond to is IP address.

## 8. How many bytes from the very start of the Ethernet frame does the ASCII “O” in “OK” (i.e., the HTTP response code) appear in the Ethernet frame?

The length from the very start of the Ethernet frame to the ASCII “O” in “OK” appear is 52 bytes

```
678 29.332343 128.119.245.12 10.229.53.91 HTTP 559 HTTP/1.1 200 OK (text/html)

> Frame 678: 559 bytes on wire (4472 bits), 559 bytes captured (4472 bits) on interface
> Ethernet II, Src: HewlettP_a6:09:74 (f4:ce:46:a6:09:74), Dst: CloudNet_c3:3a:cb
> Internet Protocol Version 4, Src: 128.119.245.12, Dst: 10.229.53.91
> Transmission Control Protocol, Src Port: 80, Dst Port: 56697, Seq: 4357, Ack: 4
> [4 Reassembled TCP Segments (4861 bytes): #530(1452), #675(1452), #676(1452), #677(1452)]
[4] 0030 00 ed 55 66 00 00 20 63 72 75 65 6c 20 61 6e 64 ..Uf.. c ruel and
[4] 0040 20 75 6e 75 73 75 61 6c 20 70 75 6e 69 73 68 6d unusual punishment.
[4] 0050 65 6e 74 73 20 69 6e 66 6c 69 63 74 65 64 2e 0a ents inf licted..
[4] 0060 0a 3c 2f 70 3e 3c 70 3e 3c 61 20 6e 61 6d 65 3d .</p><p> <a name=
[4] 0070 22 39 22 3e 3c 73 74 72 6f 6e 67 3e 3c 68 33 3e "9"><str ong><h3>
```

## PART 2 The Address Resolution Protocol

**9. Write down the contents of your computer’s ARP cache. What is the meaning of each column value**

```
C:\Users\Admin>arp -a

Interface: 169.254.107.79 --- 0xc
Internet Address Physical Address Type
169.254.255.255 ff-ff-ff-ff-ff-ff static
224.0.0.22 01-00-5e-00-00-16 static
224.0.0.251 01-00-5e-00-00-fb static
224.0.0.252 01-00-5e-00-00-fc static
239.192.152.143 01-00-5e-40-98-8f static
239.255.255.250 01-00-5e-7f-ff-fa static

Interface: 10.230.160.91 --- 0x12
Internet Address Physical Address Type
10.230.0.1 f4-ce-46-a6-09-74 dynamic
10.230.255.255 ff-ff-ff-ff-ff-ff static
224.0.0.22 01-00-5e-00-00-16 static
224.0.0.251 01-00-5e-00-00-fb static
224.0.0.252 01-00-5e-00-00-fc static
239.255.255.250 01-00-5e-7f-ff-fa static
255.255.255.255 ff-ff-ff-ff-ff-ff static

C:\Users\Admin>
```

Internet Address: IP address.

Physical Address: MAC address.

Type: the state of IP address (dynamic or static).

**10. What are the hexadecimal values for the source and destination addresses in the Ethernet frame containing the ARP request message?**

The Wireshark interface shows a single captured frame (Frame 115) in the list view. The frame details are as follows:

No.	Time	Source	Destination	Protocol	Length	Info
115	2.949794	IntelCor_89:fd:ff	Broadcast	ARP	42	Who has 10.229.0.1? Tell 10.229.21.211

The packet details pane shows the raw hex and ASCII data for the ARP frame. The hex dump highlights the destination MAC address (ff:ff:ff:ff:ff:ff) in blue. The ASCII dump shows the ARP request message.

Frame 115: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface **Ethernet II, Src: IntelCor\_89:fd:ff (f0:9e:4a:89:fd:ff)**, Dst: Broadcast (ff:ff:ff:ff:ff:ff)  
Destination: Broadcast (ff:ff:ff:ff:ff:ff)  
Address: Broadcast (ff:ff:ff:ff:ff:ff)  
.... .1. .... .... .... = LG bit: Locally administered address (this  
.... .1. .... .... .... = IG bit: Group address (multicast/broadcast)  
Source: IntelCor\_89:fd:ff (f0:9e:4a:89:fd:ff)  
Address: IntelCor\_89:fd:ff (f0:9e:4a:89:fd:ff)  
.... .0. .... .... .... = LG bit: Globally unique address (factory de  
.... .0. .... .... .... = IG bit: Individual address (unicast)  
Type: ARP (0x0806)  
Address Resolution Protocol (request)

Destination address: ff:ff:ff:ff:ff:ff

Source address: f0:9e:3a:89:fd:ff

**11. Give the hexadecimal value for the two-byte Ethernet Frame type field. What upper layer protocol does this correspond to?**

The hexadecimal value for the two-byte Ethernet Frame is 0x0806. The upper layer protocol this corresponds to is ARP.

**12. Download the ARP specification from <ftp://ftp.rfc-editor.org/in-notes/std/std37.txt>. A readable, detailed discussion of ARP is also at <http://www.erg.abdn.ac.uk/users/gorry/course/inet/pages/arp.html>.**

a) How many bytes from the very beginning of the Ethernet frame does the ARP opcode field begin?

It begins 20 bytes from the very beginning of the Ethernet frame, as we can see in the screenshot below.

b) What is the value of the opcode field within the ARP-payload part of the Ethernet frame in which an ARP request is made?

The hex value for opcode field within the ARP-payload of the request is 0x0001 as we can see in the screenshot below

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	IntelCor_4c:5b:0d	Broadcast	ARP	60	Who has 10.229.38.215? Tell 10.229.78.149
> Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface \Device\NPF_{F773D610						
> Ethernet II, Src: IntelCor_4c:5b:0d (44:af:28:4c:5b:0d), Dst: Broadcast (ff:ff:ff:ff:ff:ff)						
✓ Address Resolution Protocol (request)						
Hardware type: Ethernet (1)						
Protocol type: IPv4 (0x0800)						
Hardware size: 6						
Protocol size: 4						
Opcode: request (1)						

### c) Does the ARP message contain the IP address of the sender?

Yes, the ARP message containing the IP address 10.229.78.149 for the sender

### d) Where in the ARP request does the “question” appear – the Ethernet address of the machine whose corresponding IP address is being queried?

The field “Target MAC address” is set to 00:00:00:00:00:00 to question the machine whose corresponding IP address (192.168.1.1) is being queried

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	IntelCor_4c:5b:0d	Broadcast	ARP	60	Who has 10.229.38.215? Tell 10.229.78.149
> Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface \Device\NPF_{F773D610						
> Ethernet II, Src: IntelCor_4c:5b:0d (44:af:28:4c:5b:0d), Dst: Broadcast (ff:ff:ff:ff:ff:ff)						
✓ Address Resolution Protocol (request)						
Hardware type: Ethernet (1)						
Protocol type: IPv4 (0x0800)						
Hardware size: 6						
Protocol size: 4						
Opcode: request (1)						
Sender MAC address: IntelCor_4c:5b:0d (44:af:28:4c:5b:0d)						
Sender IP address: 10.229.78.149						
Target MAC address: 00:00:00_00:00:00 (00:00:00:00:00:00)						
Target IP address: 10.229.38.215						

### 13. Now find the ARP reply that was sent in response to the ARP request.

No.	Time	Source	Destination	Protocol	Length	Info
412	7.972745	aa:16:c1:ab:13:58	Broadcast	ARP	60	Who has 169.254.169.254? Tell 10.229.98.45
413	7.974330	a6:97:5f:64:01:df	CloudNet_c3:3a:cb	ARP	60	Who has 10.229.53.91? Tell 10.229.10.210
414	7.974342	CloudNet_c3:3a:cb	a6:97:5f:64:01:df	ARP	42	10.229.53.91 is at 30:c9:ab:c3:3a:cb
> Frame 414: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF_{F773D610						
> Ethernet II, Src: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: a6:97:5f:64:01:df (a6:97:5f:64:01:df)						
✓ Address Resolution Protocol (reply)						
Hardware type: Ethernet (1)						
Protocol type: IPv4 (0x0800)						
Hardware size: 6						
Protocol size: 4						
Opcode: reply (2)						
Sender MAC address: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb)						
Sender IP address: 10.229.53.91						
Target MAC address: a6:97:5f:64:01:df (a6:97:5f:64:01:df)						
Target IP address: 10.229.10.210						

### a) How many bytes from the very beginning of the Ethernet frame does the ARP opcode field begin?

There are 20 bytes from the very beginning of the Ethernet frame to the ARP opcode field.

414 7.974342	CloudNet_c3:3a:cb	a6:97:5f:64:01:df	ARP	42 10.229.53.91 is at 30:c9:ab:c3:3a:cb	
> Frame 414: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF_{F773D6				0000	a6 97 5f 64 01 df 30 c9 ab c3 3a cb 08 06 00 01
> Ethernet II, Src: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: a6:97:5f:64:01:df (a6:97:5f:64:01:df)				0010	08 00 06 04 00 02 30 c9 ab c3 3a cb 0a e5 35 5b
✓ Address Resolution Protocol (reply)				0020	a6 97 5f 64 01 df 0a e5 0a d2
Hardware type: Ethernet (1)					
Protocol type: IPv4 (0x0800)					
Hardware size: 6					
Protocol size: 4					
Opcode: reply (2)					

**b) What is the value of the opcode field within the ARP-payload part of the Ethernet frame in which an ARP response is made?**

The value of opcode fields within the ARP-payload part of the Ethernet frame in which an ARP is made is 0x002

414 7.974342	CloudNet_c3:3a:cb	a6:97:5f:64:01:df	ARP	42 10.229.53.91 is at 30:c9:ab:c3:3a:cb	
> Frame 414: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF_{F773D6				0000	a6 97 5f 64 01 df 30 c9
> Ethernet II, Src: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: a6:97:5f:64:01:df (a6:97:5f:64:01:df)				0010	08 00 06 04 00 02 30 c9
✓ Address Resolution Protocol (reply)				0020	a6 97 5f 64 01 df 0a e5
Hardware type: Ethernet (1)					
Protocol type: IPv4 (0x0800)					
Hardware size: 6					
Protocol size: 4					
Opcode: reply (2)					

**c) Where in the ARP message does the “answer” to the earlier ARP request appear – the IP address of the machine having the Ethernet address whose corresponding IP address is being queried?**

Lab6-2.pcapng						
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help						
arp						
No.	Time	Source	Destination	Protocol	Length	Info
412 7.972745	aa:16:c1:ab:13:58	Broadcast		ARP	60	Who has 169.254.169.254? Tell 10.229.98.45
413 7.974330	a6:97:5f:64:01:df	CloudNet_c3:3a:cb		ARP	60	Who has 10.229.53.91? Tell 10.229.10.210
414 7.974342	CloudNet_c3:3a:cb	a6:97:5f:64:01:df		ARP	42	10.229.53.91 is at 30:c9:ab:c3:3a:cb

The answer in ARP reply message to the earlier ARP request appear in the “Info” fields – 10.229.53.91 is at 30:c9:ab:c3:3a:cb.

**14. What are the hexadecimal values for the source and destination addresses in the**

Ethernet frame containing the ARP reply message?

- Source address: 30:c9:ab:c3:3a:cb
- Destination address: a6:97:5f:64:01:df

414 7.974342	CloudNet_c3:3a:cb	a6:97:5f:64:01:df	ARP	42 10.229.53.91 is at 30:c9:ab:c3:3a:cb	
>	Frame 414: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF_{F773D6				
>	Ethernet II, Src: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb), Dst: a6:97:5f:64:01:df (a6:97:5f:64:01:df)				
▼	Address Resolution Protocol (reply)				
	Hardware type: Ethernet (1)				
	Protocol type: IPv4 (0x0800)				
	Hardware size: 6				
	Protocol size: 4				
	Opcode: reply (2)				
	Sender MAC address: CloudNet_c3:3a:cb (30:c9:ab:c3:3a:cb)				
	Sender IP address: 10.229.53.91				
	Target MAC address: a6:97:5f:64:01:df (a6:97:5f:64:01:df)				
	Target IP address: 10.229.10.210				

15. Open the ethernet-ethereal-trace-1 trace file in <http://gaia.cs.umass.edu/wireshark-labs/wireshark-traces.zip>. The first and second ARP packets in this trace correspond to an ARP request sent by the computer running Wireshark, and the ARP reply sent to the computer running Wireshark by the computer with the ARP-requested Ethernet address. But there is yet another computer on this network, as indicated by packet 6 – another ARP request. Why is there no ARP reply (sent in response to the ARP request in packet 6) in the packet trace?

There is no reply in this trace because we are not in the machine that sent the request.

No.	Time	Source	Destination	Protocol	Length	Info
1 0.000000	AmbitMic_a9:3d:68	Broadcast		ARP	42	Who has 192.168.1.1? Tell 192.168.1.105
2 0.000108	LinksysG_da:af:73	AmbitMic_a9:3d:68		ARP	60	192.168.1.1 is at 00:06:25:da:af:73
6 13.542974	CnetTech_73:8d:ce	Broadcast		ARP	60	Who has 192.168.1.117? Tell 192.168.1.104
> Frame 6: 60 bytes on wire (480 bits), 60 bytes captured (480 bits)						
> Ethernet II, Src: CnetTech_73:8d:ce (00:80:ad:73:8d:ce), Dst: Broadcast (ff:ff:ff:ff:ff:ff)						
▼ Address Resolution Protocol (request)						
	Hardware type: Ethernet (1)					
	Protocol type: IPv4 (0x0800)					
	Hardware size: 6					
	Protocol size: 4					
	Opcode: request (1)					
	Sender MAC address: CnetTech_73:8d:ce (00:80:ad:73:8d:ce)					
	Sender IP address: 192.168.1.104					
	Target MAC address: 00:00:00_00:00:00 (00:00:00:00:00:00)					
	Target IP address: 192.168.1.117					