

# Computer Networks Lab - 11

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1. The IP address of the client is 192.168.1.100.

No.	Time	Source	Destination	Protocol	Length	Info
56	02:13:07.378402	192.168.1.100	64.233.169.104	HTTP	689	GET / HTTP/1.1
60	02:13:07.427932	64.233.169.104	192.168.1.100	HTTP	814	HTTP/1.1 200 OK (text/html)
62	02:13:07.550534	192.168.1.100	64.233.169.104	HTTP	719	GET /intl/en_ALL/images/logo.gif HTTP/1.1
73	02:13:07.618586	64.233.169.104	192.168.1.100	HTTP	226	HTTP/1.1 200 OK (GIF89a)
75	02:13:07.639320	192.168.1.100	64.233.169.104	HTTP	809	GET /extern_js/f/CgJlbhICdXMrMAo4NUAILCswDjgHLCswFjgQ
92	02:13:07.717784	64.233.169.104	192.168.1.100	HTTP	648	HTTP/1.1 200 OK (text/javascript)
94	02:13:07.761459	192.168.1.100	64.233.169.104	HTTP	695	GET /extern_chrome/ee36edbd3c16a1c5.js HTTP/1.1
100	02:13:07.806488	64.233.169.104	192.168.1.100	HTTP	870	HTTP/1.1 200 OK (text/html)
107	02:13:07.921971	192.168.1.100	64.233.169.104	HTTP	712	GET /images/nav_logo7.png HTTP/1.1
112	02:13:07.951496	192.168.1.100	64.233.169.104	HTTP	806	GET /csi?v=3&s=webhp&action=&tran=undefined&e=17259,2
119	02:13:07.954921	64.233.169.104	192.168.1.100	HTTP	1359	HTTP/1.1 200 OK (PNG)
122	02:13:07.978625	192.168.1.100	64.233.169.104	HTTP	670	GET /favicon.ico HTTP/1.1

- 2.
3. The source address is 192.168.1.100 and the destination address is 64.233.169.104
4. The corresponding 200 OK HTTP message was received from the Google server at 7.427932. The source (address, port) is (64.233.169.104, 80) and the (destination address, port) is (192.168.1.100, 4335).

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62	02:13:07.550534	192.168.1.100	64.233.169.104	HTTP	719	GET /intl/en_ALL/images/logo.gif HTTP/1.1
73	02:13:07.618586	64.233.169.104	192.168.1.100	HTTP	226	HTTP/1.1 200 OK (GIF89a)
75	02:13:07.639320	192.168.1.100	64.233.169.104	HTTP	809	GET /extern_js/f/CgJlbhICdXMrMAo4NUAILCswDjg
92	02:13:07.717784	64.233.169.104	192.168.1.100	HTTP	648	HTTP/1.1 200 OK (text/javascript)
94	02:13:07.761459	192.168.1.100	64.233.169.104	HTTP	695	GET /extern_chrome/ee36edbd3c16a1c5.js HTTP/1.1

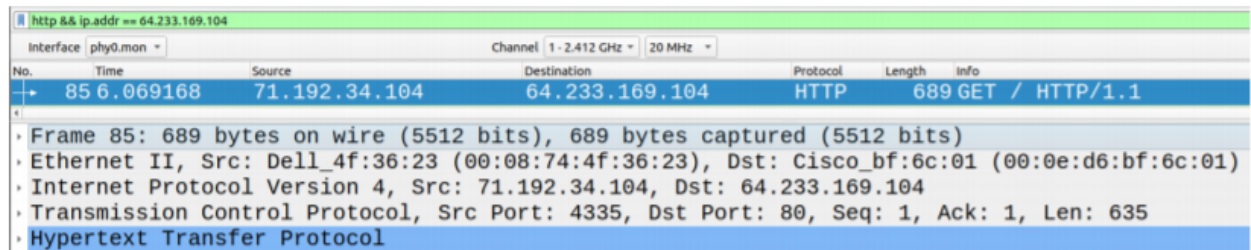
Frame 60: 814 bytes on wire (6512 bits), 814 bytes captured (6512 bits)  
Ethernet II, Src: Cisco-Li\_45:1f:1b (00:22:6b:45:1f:1b), Dst: HonHaiPr\_0d:ca:8f (00:22:68:0d:ca:8f)  
Internet Protocol Version 4, Src: 64.233.169.104, Dst: 192.168.1.100  
Transmission Control Protocol, Src Port: 80, Dst Port: 4335, Seq: 2861, Ack: 636, Len: 760  
[3 Reassembled TCP Segments (3620 bytes): #58(1430), #59(1430), #60(760)]  
Hypertext Transfer Protocol  
Line-based text data: text/html (12 lines)

5. The client sent a TCP SYN segment to the server at 7.344792. Source: (192.168.1.100, 4335) and destination: (64.233.169.104, 80). In response to the SYN, the server sent an ACK with source: (64.233.169.104, 80) and destination: (192.168.1.100, 4335). This ACK was received at 7.108986.

No.	Time	Source	Destination	Protocol	Length	Info
53	02:13:07.344792	192.168.1.100	64.233.169.104	TCP	66	4335 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 W
54	02:13:07.378121	64.233.169.104	192.168.1.100	TCP	66	80 → 4335 [SYN, ACK] Seq=0 Ack=1 Win=5720 Len=0
55	02:13:07.378188	192.168.1.100	64.233.169.104	TCP	54	4335 → 80 [ACK] Seq=1 Ack=1 Win=260176 Len=0
56	02:13:07.378402	192.168.1.100	64.233.169.104	HTTP	689	GET / HTTP/1.1
57	02:13:07.409863	64.233.169.104	192.168.1.100	TCP	60	80 → 4335 [ACK] Seq=1 Ack=636 Win=7040 Len=0
58	02:13:07.427567	64.233.169.104	192.168.1.100	TCP	1484	80 → 4335 [ACK] Seq=1 Ack=636 Win=7040 Len=1430

> Frame 53: 66 bytes on wire (528 bits), 66 bytes captured (528 bits)  
> Ethernet II, Src: HonHaiPr\_0d:ca:8f (00:22:68:0d:ca:8f), Dst: Cisco-Li\_45:1f:1b (00:22:6b:45:1f:1b)  
> Internet Protocol Version 4, Src: 192.168.1.100, Dst: 64.233.169.104  
> Transmission Control Protocol, Src Port: 4335, Dst Port: 80, Seq: 0, Len: 0

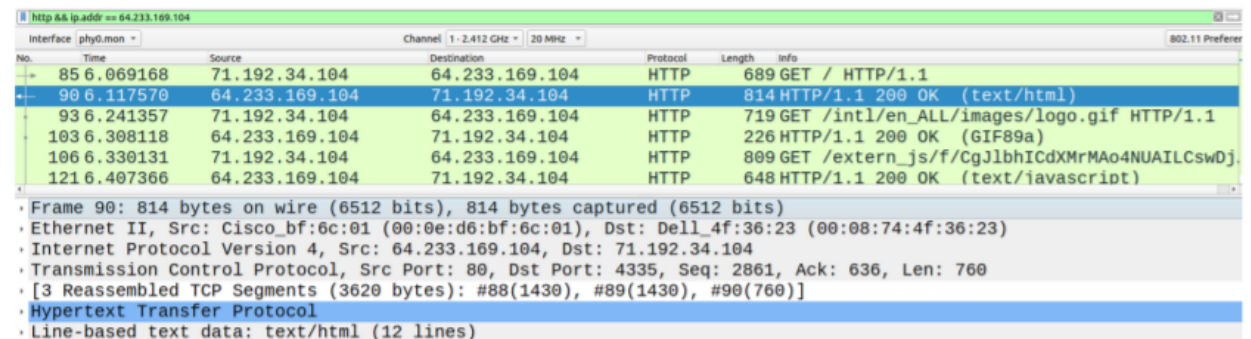
6. The message appears at 6.069168 in the NAT\_ISP\_side trace file. Source (address, port): (79.192.34.104, 4335) and destination (address, port): (64.233.169.104, 80). Only the source IP address has changed and the remaining are the same.



The screenshot shows a Wireshark packet capture on the 'phy0.mon' interface. The filter is 'http && ip.addr == 64.233.169.104'. The selected packet is number 85, timestamped 6.069168. It is an HTTP GET request from source 71.192.34.104 to destination 64.233.169.104. The packet details show Ethernet II, Internet Protocol Version 4, Transmission Control Protocol (Seq: 1, Ack: 1, Len: 635), and Hypertext Transfer Protocol.

No.	Time	Source	Destination	Protocol	Length	Info
85	6.069168	71.192.34.104	64.233.169.104	HTTP	689	GET / HTTP/1.1

7. No, the fields in the HTTP GET message have not changed.
- Version: not changed
  - Header length: not changed
  - Flags: not changed
  - Checksum: changed, since the IP source address has changed, and the checksum includes the value of the source IP address, the checksum has changed
8. The first HTTP 200 OK message was received at 6.117570. Source: (64.233.169.104, 80) and destination: (79.192.34.104, 4335). Only the destination IP address has changed.



The screenshot shows a Wireshark packet capture with the same filter. The selected packet is number 90, timestamped 6.117570. It is an HTTP 200 OK response from source 64.233.169.104 to destination 71.192.34.104. The packet details show Ethernet II, Internet Protocol Version 4, Transmission Control Protocol (Seq: 2861, Ack: 636, Len: 760), and Hypertext Transfer Protocol (text/html).

No.	Time	Source	Destination	Protocol	Length	Info
90	6.117570	64.233.169.104	71.192.34.104	HTTP	814	HTTP/1.1 200 OK (text/html)

9. SYN and ACK at 6.035475, and 6.067775 respectively. i. SYN: 1. Source: (71.192.34.104, 433) 2. Destination: (64.233.169.104, 80) 3. The source IP has changed ii. ACK: 1. Source: (64.233.169.104, 80) 2. Destination: (71.192.34.104, 433) 3. The destination IP has changed The ports remained unchanged.

tcp && ip.addr == 64.233.169.104						
No.	Time	Source	Destination	Protocol	Length	Info
82	6.035475	71.192.34.104	64.233.169.104	TCP	66	4335 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1
83	6.067775	64.233.169.104	71.192.34.104	TCP	66	80 → 4335 [SYN, ACK] Seq=0 Ack=1 Win=5720 L
84	6.068754	71.192.34.104	64.233.169.104	TCP	60	4335 → 80 [ACK] Seq=1 Ack=1 Win=260176 Len=

• Frame 83: 66 bytes on wire (528 bits), 66 bytes captured (528 bits)  
 • Ethernet II, Src: Cisco\_bf:6c:01 (00:0e:d6:bf:6c:01), Dst: Dell\_4f:36:23 (00:08:74:4f:36:23)  
 • Internet Protocol Version 4, Src: 64.233.169.104, Dst: 71.192.34.104  
 • Transmission Control Protocol, Src Port: 80, Dst Port: 4335, Seq: 0, Ack: 1, Len: 0

## 10. NAT translation table

WAN side	LAN side
71.192.34.104, 4335	192.168.1.100, 4335