

## Assignment 8

### NAT

1. IP address of the client that sends the HTTP GET request is: **192.168.10.11**

Source port number of the TCP segment is: **53924**

Destination IP address is: **138.76.29.8**

Destination port number is: **80**

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	192.168.10.11	138.76.29.8	TCP	74	53924 → 80 [SYN] Seq=0 Win=6
2	0.002091700	138.76.29.8	192.168.10.11	TCP	74	80 → 53924 [SYN, ACK] Seq=0

  

> Frame 1: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface eth1, i	0000	08 00 27 82 36 d
> Ethernet II, Src: PCSSystemtec_89:c7:7c (08:00:27:89:c7:7c), Dst: PCSSystemtec_82:36:d7	0010	00 3c 62 94 40 0
> Internet Protocol Version 4, Src: 192.168.10.11, Dst: 138.76.29.8	0020	1d 08 d2 a4 00 5
> Transmission Control Protocol, Src Port: 53924, Dst Port: 80, Seq: 0, Len: 0	0030	fa f0 9a a5 00 0
Source Port: 53924	0040	6d 51 00 00 00 0
Destination Port: 80		

2. The time at which the corresponding HTTP 200 OK message is forwarded from the web server to client on the router's LAN side is: **0.030672101 seconds**

4	0.027362245	192.168.10.11	138.76.29.8	HTTP	396	GET / HTTP/1.1
5	0.029390199	138.76.29.8	192.168.10.11	TCP	66	80 → 53924 [ACK] Seq=1 Ack=33
6	0.030672101	138.76.29.8	192.168.10.11	HTTP	613	HTTP/1.1 200 OK (text/html)

3. Source IP address: **138.76.29.8**

Destination IP address: **192.168.10.11**

TCP source port: **80**

TCP destination port: **53924**

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	192.168.10.11	138.76.29.8	TCP	74	53924 → 80 [SYN] Seq=
2	0.002091700	138.76.29.8	192.168.10.11	TCP	74	80 → 53924 [SYN, ACK]

  

> Frame 2: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface eth1, i	0000	08 00 27
> Ethernet II, Src: PCSSystemtec_82:36:d7 (08:00:27:82:36:d7), Dst: PCSSystemtec_89:c7:7c	0010	00 3c 06
> Internet Protocol Version 4, Src: 138.76.29.8, Dst: 192.168.10.11	0020	0a 0b 06
> Transmission Control Protocol, Src Port: 80, Dst Port: 53924, Seq: 0, Ack: 1, Len: 0	0030	fe 88 7c
Source Port: 80	0040	9f 2e 13
Destination Port: 53924		

4. The HTTP GET message appears at: **0.027356291 seconds**

4	0.027356291	10.0.1.254	138.76.29.8	HTTP	396	GET / HTTP/1.1
5	0.029338911	138.76.29.8	10.0.1.254	TCP	66	80 → 53924 [ACK] Seq=1 Ack=
6	0.030625966	138.76.29.8	10.0.1.254	HTTP	613	HTTP/1.1 200 OK (text/html)

5. Source IP address: **10.0.1.254**

Destination IP address is: **138.76.29.8**

TCP source port: **53924**

TCP destination port: **80**

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	10.0.1.254	138.76.29.8	TCP	74	53924 → 80 [S
2	0.002058086	138.76.29.8	10.0.1.254	TCP	74	80 → 53924 [S

  

>	Frame 1: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface eth0, id	0000	0
>	Ethernet II, Src: PCSSystemtec_43:65:cd (08:00:27:43:65:cd), Dst: PCSSystemtec_22:fd:74	0010	0
>	Internet Protocol Version 4, Src: 10.0.1.254, Dst: 138.76.29.8	0020	1
✓	Transmission Control Protocol, Src Port: 53924, Dst Port: 80, Seq: 0, Len: 0	0030	f
	Source Port: 53924	0040	6
	Destination Port: 80		

6. The fields which are different from question 1 above is **Source IP address**.

7. Yes, the fields **Checksum**, **Interface name**, **Header Checksum**, **Time to Live** have changed in the HTTP GET message.

8. Version: **No change**

Header length: **No Change**

Flags: **No Change**

Checksum: **Changes**

9. The HTTP reply containing "200 OK" appears at: **0.030625966 seconds**

10. Source IP address: **138.76.29.8**

Destination IP address: **10.0.1.254**

TCP source port: **80**

TCP destination port: **53924**

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	10.0.1.254	138.76.29.8	TCP	74	53924 → 80 [SYN] Seq
2	0.002058086	138.76.29.8	10.0.1.254	TCP	74	80 → 53924 [SYN, ACK

  

>	Frame 2: 74 bytes on wire (592 bits), 74 bytes captured (592 bits) on interface eth0, id	0000	08 00 27
>	Ethernet II, Src: PCSSystemtec_22:fd:74 (08:00:27:22:fd:74), Dst: PCSSystemtec_43:65:cd	0010	00 3c 00
>	Internet Protocol Version 4, Src: 138.76.29.8, Dst: 10.0.1.254	0020	01 fe 00
✓	Transmission Control Protocol, Src Port: 80, Dst Port: 53924, Seq: 0, Ack: 1, Len: 0	0030	fe 88 30
	Source Port: 80	0040	9f 2e 13
	Destination Port: 53924		

11. Source IP address: **138.76.29.8**

Destination IP address: **192.168.10.11**

TCP source port: **80**

TCP destination port: **53924**