

**TUGAS
KONSEP JARINGAN**



Disusun Oleh :

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2 D3 IT A

**PROGAM STUDI D3 TEKNIK INFORMATIKA
POLITEKNIK ELEKTRONIKA NEGERI SURABAYA**

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1. Select the first ICMP Echo Request message sent by your computer, and expand the Internet Protocol part of the packet in the packet details window. What is the IP address of your computer?

The image shows a Wireshark packet capture. The top pane displays a list of packets. Packet 20022 is selected, showing an ICMP Echo (ping) request from 125.168.14.21 to 192.168.100.191. The bottom pane shows the expanded details of the selected packet, specifically the Internet Protocol Version 4 section, which indicates the source IP is 192.168.100.191 and the destination is 8.241.166.126. Below this, the DHCP section is expanded, showing the DHCP Client ID as 00-01-00-01-2A-20-12-9C-1C-99-57-E6-9C-72, which is highlighted with a red box.

No.	Time	Source	Destination	Protocol	Length	Info
20021	2366.681861	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=564/13314, ttl=3 (r
20022	2366.685622	125.168.14.21	192.168.100.191	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit
20023	2366.686163	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=565/13570, ttl=4 (r
20057	2370.629157	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=566/13826, ttl=4 (r
20067	2374.630137	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=567/14082, ttl=4 (r
20091	2378.634230	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=568/14338, ttl=5 (r
20092	2378.679943	180.240.190.109	192.168.100.191	ICMP	110	Time-to-live exceeded (Time to live exceeded in transit
20093	2378.680634	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=569/14594, ttl=6 (r
20094	2378.731413	180.240.205.82	192.168.100.191	ICMP	110	Time-to-live exceeded (Time to live exceeded in transit
20095	2378.732105	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=570/14850, ttl=7 (r
20096	2378.782436	4.68.38.209	192.168.100.191	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit
20097	2378.783137	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=571/15106, ttl=8 (r
20098	2378.832990	4.69.206.174	192.168.100.191	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit
20099	2378.833711	192.168.100.191	8.241.166.126	ICMP	106	Echo (ping) request id=0x0001, seq=572/15362, ttl=9 (r
20100	2378.878931	8.241.166.126	192.168.100.191	ICMP	106	Echo (ping) reply id=0x0001, seq=572/15362, ttl=249

```

Internet Protocol Version 4, Src: 192.168.100.191, Dst: 8.241.166.126
  0100 .... = Version: 4

Connection-specific DNS Suffix  . : 
Description . . . . . : Intel(R) Dual Band Wireless-AC 8265
Physical Address. . . . . : 1C-99-57-E6-9C-72
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::9c2c:8edd:b3e3:b529%8(Preferred)
IPv4 Address. . . . . : 192.168.100.222(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Sunday, October 2, 2022 6:35:14 PM
Lease Expires . . . . . : Wednesday, October 5, 2022 6:35:15 PM
Default Gateway . . . . . : fe80::1%8
                          192.168.100.1
DHCP Server . . . . . : 192.168.100.1
DHCPv6 IAID . . . . . : 136091991
DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-20-12-9C-1C-99-57-E6-9C-72
DNS Servers . . . . . : 192.168.100.1
NetBIOS over Tcpip. . . . . : Enabled
  
```

2. Within the IP packet header, what is the value in the upper layer protocol field?

The image shows the expanded details of the selected packet (20022) in Wireshark. The Internet Protocol Version 4 section is expanded, showing the 'Upper Layer Protocol' field with a value of 1, which corresponds to ICMP.

```

Internet Protocol Version 4, Src: 192.168.100.191, Dst: 8.241.166.126
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  Upper Layer Protocol: 1 (ICMP)
  
```

3. How many bytes are in the IP header? How many bytes are in the payload of the IP datagram? Explain how you determined the number of payload bytes.

The image shows the expanded details of the selected packet (20022) in Wireshark. The Internet Protocol Version 4 section is expanded, showing the 'Total Length' field with a value of 92 bytes. The 'Header Length' field is also expanded, showing a value of 20 bytes. The payload length is determined by subtracting the header length from the total length (92 - 20 = 72 bytes).

```

Internet Protocol Version 4, Src: 192.168.100.191, Dst: 8.241.166.126
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
  Total Length: 92
  
```

4. Has this IP datagram been fragmented? Explain how you determined whether or not the datagram has been fragmented.

The image shows the expanded details of the selected packet (20022) in Wireshark. The Internet Protocol Version 4 section is expanded, showing the 'Flags' field with a value of 0x00. The 'Reserved bit' is set to 0, 'Don't fragment' is set to 0, and 'More fragments' is set to 0. The 'Fragment Offset' is set to 0. This indicates that the datagram has not been fragmented.

```

Internet Protocol Version 4, Src: 192.168.100.191, Dst: 8.241.166.126
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
  Total Length: 92
  Flags: 0x00
    0... .... = Reserved bit: Not set
    .0.. .... = Don't fragment: Not set
    ..0. .... = More fragments: Not set
    ...0 0000 0000 0000 = Fragment Offset: 0
  
```

5. Which fields in the IP datagram always change from one datagram to the next within this series of ICMP messages sent by your computer?

```

  Time to Live: 3
    [Expert Info (Note/Sequence): "Time To Live" only 3]
    Protocol: ICMP (1)
  Total Length: 92
  Identification: 0xc99a (51610)

0000  d4 d5 1b 6a 8b 67 1c 99  57 e6 9c 72 08 00 45 00  ...j.g..W...E.
0010  00 5c c9 9a 00 00 03 01  19 30 c0 a8 64 bf 08 f1  ...\\....0..d...

```

6. Which fields stay constant? Which of the fields must stay constant? Which fields must change? Why?

- Yang tetap konstan adalah IP Protocol. Karena IP Protocol adalah protocol dari pertukaran informasi tersebut, Source adalah sumber yang membutuhkan informasi, dan Destination adalah destinasi atau tujuan dari informasi yang dibutuhkan oleh Source.

7. Describe the pattern you see in the values in the Identification field of the IP datagram

- Pola tersebut merupakan heksadesimal secara urut

8. What is the value in the Identification field and the TTL field?

```

  Internet Protocol Version 4, Src: 192.168.100.191, Dst: 8.241.166.126
    0100 .... = Version: 4
    .... 0101 = Header Length: 20 bytes (5)
  > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
    Total Length: 92
    Identification: 0xc99a (51610)
  > Flags: 0x00
    ...0 0000 0000 0000 = Fragment Offset: 0
  > Time to Live: 3
    Protocol: ICMP (1)

```

9. Do these values remain unchanged for all of the ICMP TTL-exceeded replies sent to your computer by the nearest (first hop) router? Why?

- Nilai bidang identifikasi berubah untuk semua balasan melebihi ICMP TTL sejak bidang identifikasi adalah nilai unik. Jika dua atau lebih datagram IP memiliki identifikasi yang sama nilai, maka itu berarti bahwa datagram IP ini adalah fragmen dari satu datagram IP besar.