

## 1. Мой IP = 192.168.0.103

Wireshark packet capture showing ICMP Echo (ping) requests and replies. The selected packet (No. 2399) is an ICMP Echo (ping) request with a "Time-to-live exceeded" message.

No.	Time	Source	Destination	Protocol	Length	Info
2395	2022-04-28 18:15:49,702393	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=1/256, ttl=255 (reply=0x0001, seq=1/256, ttl=255)
2396	2022-04-28 18:15:49,702883	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=2/512, ttl=1 (no reply=0x0001, seq=2/512, ttl=1)
2397	2022-04-28 18:15:49,702961	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=3/768, ttl=2 (no reply=0x0001, seq=3/768, ttl=2)
2398	2022-04-28 18:15:49,703727	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=4/1024, ttl=3 (no reply=0x0001, seq=4/1024, ttl=3)
2399	2022-04-28 18:15:49,704049	192.168.0.1	192.168.0.103	ICMP	98	Time-to-live exceeded (Time to live exceeded in transit)
2400	2022-04-28 18:15:49,715651	2.21.193.158	192.168.0.103	ICMP	70	Echo (ping) reply id=0x0001, seq=1/256, ttl=55 (request=0x0001, seq=1/256, ttl=55)
2402	2022-04-28 18:15:49,741817	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=5/1280, ttl=4 (no reply=0x0001, seq=5/1280, ttl=4)

Frame 2395: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface \Device\NPF\_{AFA1B8C0-2747-4BC5-815A-D8DE55689840}, id 0  
Ethernet II, Src: IntelCor\_86:5b:64 (64:5d:86:86:5b:64), Dst: TP-Link\_4a:ce:99 (c0:06:c3:4a:ce:99)  
Internet Protocol Version 4, Src: 192.168.0.103, Dst: 2.21.193.158  
0100 .... = Version: 4  
.... 0101 = Header Length: 20 bytes (5)  
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
Total Length: 56  
Identification: 0x361b (13851)  
Flags: 0x00  
...0 0000 0000 0000 = Fragment Offset: 0  
Time to Live: 255  
Protocol: ICMP (1)  
Header Checksum: 0x00e7 [validation disabled]  
[Header checksum status: Unverified]  
Source Address: 192.168.0.103  
Destination Address: 2.21.193.158  
Internet Control Message Protocol

0000 c0 06 c3 4a ce 99 64 5d 86 86 5b 64 08 00 45 00 ...J..d...[d..E  
0010 00 28 36 1b 00 00 ff 01 00 07 c0 a8 00 67 02 15 ..86.....g..  
0020 c1 9e 08 00 36 3c 00 01 00 01 20 20 20 20 20 20 ....6<... ..

Internet Protocol Version 4 (ip), 20 byte(s) | Пакеты: 12489 · Показаны: 578 (4.6%) | Профиль: Default

## 2. Protocol: ICMP (1)

Wireshark packet capture showing ICMP Echo (ping) requests and replies. The selected packet (No. 2399) is an ICMP Echo (ping) request with a "Time-to-live exceeded" message.

No.	Time	Source	Destination	Protocol	Length	Info
2395	2022-04-28 18:15:49,702393	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=1/256, ttl=255 (reply=0x0001, seq=1/256, ttl=255)
2396	2022-04-28 18:15:49,702883	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=2/512, ttl=1 (no reply=0x0001, seq=2/512, ttl=1)
2397	2022-04-28 18:15:49,702961	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=3/768, ttl=2 (no reply=0x0001, seq=3/768, ttl=2)
2398	2022-04-28 18:15:49,703727	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=4/1024, ttl=3 (no reply=0x0001, seq=4/1024, ttl=3)
2399	2022-04-28 18:15:49,704049	192.168.0.1	192.168.0.103	ICMP	98	Time-to-live exceeded (Time to live exceeded in transit)
2400	2022-04-28 18:15:49,715651	2.21.193.158	192.168.0.103	ICMP	70	Echo (ping) reply id=0x0001, seq=1/256, ttl=55 (request=0x0001, seq=1/256, ttl=55)
2402	2022-04-28 18:15:49,741817	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=5/1280, ttl=4 (no reply=0x0001, seq=5/1280, ttl=4)

Frame 2395: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface \Device\NPF\_{AFA1B8C0-2747-4BC5-815A-D8DE55689840}, id 0  
Ethernet II, Src: IntelCor\_86:5b:64 (64:5d:86:86:5b:64), Dst: TP-Link\_4a:ce:99 (c0:06:c3:4a:ce:99)  
Internet Protocol Version 4, Src: 192.168.0.103, Dst: 2.21.193.158  
0100 .... = Version: 4  
.... 0101 = Header Length: 20 bytes (5)  
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
Total Length: 56  
Identification: 0x361b (13851)  
Flags: 0x00  
...0 0000 0000 0000 = Fragment Offset: 0  
Time to Live: 255  
Protocol: ICMP (1)  
Header Checksum: 0x00e7 [validation disabled]  
[Header checksum status: Unverified]  
Source Address: 192.168.0.103  
Destination Address: 2.21.193.158  
Internet Control Message Protocol

0010 00 28 36 1b 00 00 ff 01 00 07 c0 a8 00 67 02 15 ..86.....g..  
0020 c1 9e 08 00 36 3c 00 01 00 01 20 20 20 20 20 20 ....6<... ..  
0030 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .....

Protocol (ip.proto), 1 byte(s) | Пакеты: 12489 · Показаны: 578 (4.6%) | Профиль: Default

### 3. Заголовок IP = 20 байт, Полезная нагрузка = 56 - 20 = 36 байт

Wireshark packet capture showing ICMP Echo (ping) request. The packet list shows packet 2395 selected. The packet details pane shows the IP header with a length of 20 bytes. The packet bytes pane shows the raw data of the IP header.

No.	Time	Source	Destination	Protocol	Length	Info
2395	2022-04-28 18:15:49,702393	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=1/256, ttl=255 (reply from 2.21.193.158)

Frame 2395: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface \Device\NPF\_{AFA1B8C0-2747-4BC5-815A-D8DE55689840}, id 0

Ethernet II, Src: IntelCor\_86:5b:64 (64:5d:86:86:5b:64), Dst: TP-Link\_4a:ce:99 (c0:06:c3:4a:ce:99)

Internet Protocol Version 4, Src: 192.168.0.103, Dst: 2.21.193.158

0100 .... = Version: 4  
 .... 0101 = Header Length: 20 bytes (5)  
 > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
 Total Length: 56  
 Identification: 0x361b (13851)  
 Flags: 0x00  
 ...0 0000 0000 0000 = Fragment Offset: 0  
 Time to Live: 255  
 Protocol: ICMP (1)  
 Header Checksum: 0x00e7 [validation disabled]  
 [Header checksum status: Unverified]  
 Source Address: 192.168.0.103

0000 c0 06 c3 4a ce 99 64 5d 86 86 5b 64 08 00 45 00 ...J..d...[d...  
 0010 00 36 1b 00 00 ff 01 00 e7 c0 a8 00 67 02 15 86 .....g...  
 0020 c1 9e 08 00 36 3c 00 01 00 01 20 20 20 20 20 20 ...6<... ..

Header length in 32-bit words (ip.hdr\_len), 1 byte(s) | Пакеты: 12489 · Показаны: 578 (4.6%) | Профиль: Default

### 4.

- TTL, Identification, Checksum
- Все остальные поля. Version, Protocol, Header Length, Total Length. Identification, Checksum
- К каждому следующему прибавляется единичка

Wireshark packet capture showing ICMP Echo (ping) request. The packet list shows packet 2395 selected. The packet details pane shows the IP header with a length of 20 bytes. The packet bytes pane shows the raw data of the IP header.

No.	Time	Source	Destination	Protocol	Length	Info
12077	2022-04-28 18:17:04,402558	192.168.0.1	192.168.0.103	ICMP	98	Time-to-live exceeded (Time to live exceeded in transit)
12380	2022-04-28 18:17:06,904921	192.168.0.1	192.168.0.103	ICMP	98	Time-to-live exceeded (Time to live exceeded in transit)
2395	2022-04-28 18:15:49,702393	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=1/256, ttl=255 (reply from 2.21.193.158)

Frame 2395: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface \Device\NPF\_{AFA1B8C0-2747-4BC5-815A-D8DE55689840}, id 0

Ethernet II, Src: IntelCor\_86:5b:64 (64:5d:86:86:5b:64), Dst: TP-Link\_4a:ce:99 (c0:06:c3:4a:ce:99)

Internet Protocol Version 4, Src: 192.168.0.103, Dst: 2.21.193.158

0100 .... = Version: 4  
 .... 0101 = Header Length: 20 bytes (5)  
 > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
 Total Length: 56  
 Identification: 0x361b (13851)  
 Flags: 0x00  
 ...0 0000 0000 0000 = Fragment Offset: 0  
 Time to Live: 255  
 Protocol: ICMP (1)  
 Header Checksum: 0x00e7 [validation disabled]  
 [Header checksum status: Unverified]  
 Source Address: 192.168.0.103

0010 00 36 1b 00 00 ff 01 00 e7 c0 a8 00 67 02 15 86 .....g...  
 0020 c1 9e 08 00 36 3c 00 01 00 01 20 20 20 20 20 20 ...6<... ..  
 0030 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20

Identification (ip.id), 2 byte(s) | Пакеты: 12489 · Показаны: 578 (4.6%) · Потеряно: 0 (0.0%) | Профиль: Default

## 5. Identification: 0x361b (13851), Time to Live: 255

No.	Time	Source	Destination	Protocol	Length	Info
12380	2022-04-28 18:17:06,904921	192.168.0.1	192.168.0.103	ICMP	98	Time-to-live exceeded (Time to live exceeded in transit)
2395	2022-04-28 18:15:49,702393	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=1/256, ttl=255 (reply)
2396	2022-04-28 18:15:49,702883	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=2/512, ttl=1 (no reply)
2397	2022-04-28 18:15:49,702961	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=3/768, ttl=2 (no reply)
2398	2022-04-28 18:15:49,703727	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=4/1024, ttl=3 (no reply)
2402	2022-04-28 18:15:49,741817	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=5/1280, ttl=4 (no reply)
2405	2022-04-28 18:15:49,781305	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=6/1536, ttl=5 (no reply)
2413	2022-04-28 18:15:49,810564	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=7/1792, ttl=6 (no reply)

Ethernet II, Src: IntelCor\_86:5b:64 (64:5d:86:86:5b:64), Dst: TP-Link\_4a:ce:99 (c0:06:c3:4a:ce:99)

Internet Protocol Version 4, Src: 192.168.0.103, Dst: 2.21.193.158

0100 .... = Version: 4

.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

Total Length: 56

Identification: 0x361b (13851)

Flags: 0x00

...0 0000 0000 0000 = Fragment Offset: 0

Time to Live: 255

Protocol: ICMP (1)

Header Checksum: 0x00e7 [validation disabled]

[Header checksum status: Unverified]

Source Address: 192.168.0.103

Destination Address: 2.21.193.158

0010 00 36 1b 00 00 01 00 e7 c0 a8 00 07 02 15 ..86... g..  
0020 c1 9e 08 00 36 3c 00 01 00 01 20 20 20 20 20 ..6c...  
0030 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 .....

Time to Live (ip.ttl), 1 byte(s) | Пакеты: 12489 · Показаны: 578 (4.6%) · Потеряно: 0 (0.0%) | Профиль: Default

## 6. Нет

## 7. Identification: 0x4aaa (19114), Time to Live: 64

No.	Time	Source	Destination	Protocol	Length	Info
2395	2022-04-28 18:15:49,702393	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=1/256, ttl=255 (reply)
2396	2022-04-28 18:15:49,702883	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=2/512, ttl=1 (no reply)
2397	2022-04-28 18:15:49,702961	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=3/768, ttl=2 (no reply)
2398	2022-04-28 18:15:49,703727	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=4/1024, ttl=3 (no reply)
2399	2022-04-28 18:15:49,704049	192.168.0.1	192.168.0.103	ICMP	98	Time-to-live exceeded (Time to live exceeded in transit)
2400	2022-04-28 18:15:49,715651	2.21.193.158	192.168.0.103	ICMP	70	Echo (ping) reply id=0x0001, seq=1/256, ttl=55 (request)
2402	2022-04-28 18:15:49,741817	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=5/1280, ttl=4 (no reply)
2405	2022-04-28 18:15:49,781305	192.168.0.103	2.21.193.158	ICMP	70	Echo (ping) request id=0x0001, seq=6/1536, ttl=5 (no reply)

Ethernet II, Src: TP-Link\_4a:ce:99 (c0:06:c3:4a:ce:99), Dst: IntelCor\_86:5b:64 (64:5d:86:86:5b:64)

Internet Protocol Version 4, Src: 192.168.0.1, Dst: 192.168.0.103

0100 .... = Version: 4

.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

Total Length: 84

Identification: 0x4aaa (19114)

Flags: 0x00

...0 0000 0000 0000 = Fragment Offset: 0

Time to Live: 64

Protocol: ICMP (1)

Header Checksum: 0xae46 [validation disabled]

[Header checksum status: Unverified]

Source Address: 192.168.0.1

Destination Address: 192.168.0.103

0010 00 54 4a aa 00 00 40 01 ae 46 c0 a8 00 01 c0 a8 ..TJ... F...  
0020 00 67 0b 00 f4 ff 00 00 00 00 45 00 00 38 36 1c ..g.....E..86..  
0030 00 00 01 01 fe e6 c0 a8 00 67 02 15 c1 9e 08 00 .....

Time to Live (ip.ttl), 1 byte(s) | Пакеты: 12489 · Показаны: 578 (4.6%) · Потеряно: 0 (0.0%) | Профиль: Default

- Да, на 3 фрагмента
- Fragment Offset, Checksum, Flags, Total Length

[illegible]