Lab 3 - Session 3

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What are we going to do today?

Lab 3

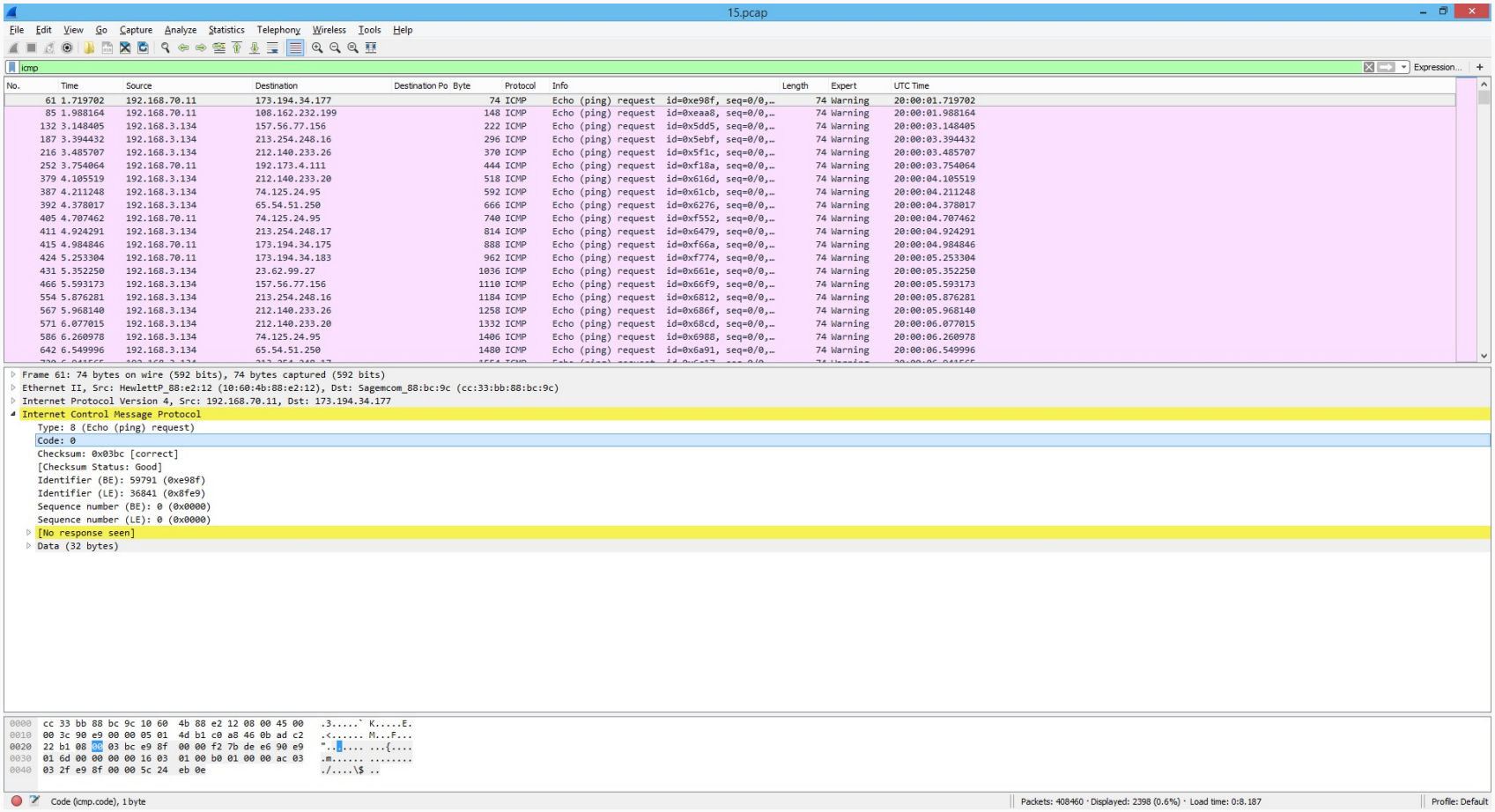
Self-assessment

Material

Important CLI tools

Lab 3

ICMP


15.pcap
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
icmp
Expression...
No. Time Source Destination Destination Po Byte Protocol Info Length Expert UTC Time
61 1.719702 192.168.70.11 173.194.34.177 74 ICMP Echo (ping) request id=0xe98f, seq=0/0,… 74 Warning 20:00:01.719702
85 1.988164 192.168.70.11 108.162.232.199 148 ICMP Echo (ping) request id=0xeaa8, seq=0/0,… 74 Warning 20:00:01.988164
132 3.148405 192.168.3.134 157.56.77.156 222 ICMP Echo (ping) request id=0x5dd5, seq=0/0,… 74 Warning 20:00:03.148405
187 3.394432 192.168.3.134 213.254.248.16 296 ICMP Echo (ping) request id=0x5ebf, seq=0/0,… 74 Warning 20:00:03.394432
216 3.485707 192.168.3.134 212.140.233.26 370 ICMP Echo (ping) request id=0x5f1c, seq=0/0,… 74 Warning 20:00:03.485707
252 3.754064 192.168.70.11 192.173.4.111 444 ICMP Echo (ping) request id=0xf18a, seq=0/0,… 74 Warning 20:00:03.754064
379 4.105519 192.168.3.134 212.140.233.20 518 ICMP Echo (ping) request id=0x616d, seq=0/0,… 74 Warning 20:00:04.105519
387 4.211248 192.168.3.134 74.125.24.95 592 ICMP Echo (ping) request id=0x61cb, seq=0/0,… 74 Warning 20:00:04.211248
392 4.378017 192.168.3.134 65.54.51.250 666 ICMP Echo (ping) request id=0x6276, seq=0/0,… 74 Warning 20:00:04.378017
405 4.707462 192.168.70.11 74.125.24.95 740 ICMP Echo (ping) request id=0xf552, seq=0/0,… 74 Warning 20:00:04.707462
411 4.924291 192.168.3.134 213.254.248.17 814 ICMP Echo (ping) request id=0x6479, seq=0/0,… 74 Warning 20:00:04.924291
415 4.984846 192.168.70.11 173.194.34.175 888 ICMP Echo (ping) request id=0xf66a, seq=0/0,… 74 Warning 20:00:04.984846
424 5.253304 192.168.70.11 173.194.34.183 962 ICMP Echo (ping) request id=0xf774, seq=0/0,… 74 Warning 20:00:05.253304
431 5.352250 192.168.3.134 23.62.99.27 1036 ICMP Echo (ping) request id=0x661e, seq=0/0,… 74 Warning 20:00:05.352250
466 5.593173 192.168.3.134 157.56.77.156 1110 ICMP Echo (ping) request id=0x66f9, seq=0/0,… 74 Warning 20:00:05.593173
554 5.876281 192.168.3.134 213.254.248.16 1184 ICMP Echo (ping) request id=0x6812, seq=0/0,… 74 Warning 20:00:05.876281
567 5.968140 192.168.3.134 212.140.233.26 1258 ICMP Echo (ping) request id=0x686f, seq=0/0,… 74 Warning 20:00:05.968140
571 6.077015 192.168.3.134 212.140.233.20 1332 ICMP Echo (ping) request id=0x68cd, seq=0/0,… 74 Warning 20:00:06.077015
586 6.260978 192.168.3.134 74.125.24.95 1406 ICMP Echo (ping) request id=0x6988, seq=0/0,… 74 Warning 20:00:06.260978
642 6.549996 192.168.3.134 65.54.51.250 1480 ICMP Echo (ping) request id=0x6a91, seq=0/0,… 74 Warning 20:00:06.549996
Frame 61: 74 bytes on wire (592 bits), 74 bytes captured (592 bits)
Ethernet II, Src: HewlettP_88:e2:12 (10:60:4b:88:e2:12), Dst: Sagemcom_88:bc:9c (cc:33:bb:88:bc:9c)
Internet Protocol Version 4, Src: 192.168.70.11, Dst: 173.194.34.177
Internet Control Message Protocol
Type: 8 (Echo (ping) request)
Code: 0
Checksum: 0x03bc [correct]
[Checksum Status: Good]
Identifier (BE): 59791 (0xe98f)
Identifier (LE): 36841 (0x8fe9)
Sequence number (BE): 0 (0x0000)
Sequence number (LE): 0 (0x0000)
[No response seen]
Data (32 bytes)
0000 cc 33 bb 88 bc 9c 10 60 4b 88 e2 12 08 00 45 00 .3.....` K.....E.
0010 00 3c 90 e9 00 00 05 01 4d b1 c0 a8 46 0b ad c2 .<...... M...F...
0020 22 b1 08 00 03 bc e9 8f 00 00 f2 7b de e6 90 e9 "..... ...{....
0030 01 6d 00 00 00 00 16 03 01 00 b0 01 00 00 ac 03 .m...... ....
0040 03 2f e9 8f 00 00 5c 24 eb 0e ./....\$ ..
Code (icmp.code), 1 byte
Packets: 408460 · Displayed: 2398 (0.6%) · Load time: 0:8.187
Profile: Default

ICMP header

- Type: 8 (request) / 1 (reply)
- Code: 0
- Checksum: computed using both ICMP header + payload
- ID: check assignment
- SEQ: incremental sequence number

UDP

- Source Port: 0-65535
- Destination Port: 0-65535
- Length: total length of the UDP header with its payload
- Checksum: optional, 0

Self-assessment

What you should have done by today

- Correct your mistakes in ARP / Ethernet
- First implementation of UDP
- Test UDP + IP (without frag.)
    - Check with Wireshark (enable IP header validation)

What you should have done by next week?

- IP without fragmentation tested and working
- Implementation of fragmentation and IP options
- Implemenation of UDP

Material

Where are these slides?

`dperdices.github.io/redes1-1391-2022/`

`github.com/dperdices/redes1-1391-2022`

- Source code of this slides (in markdown)
- Slides in PDF
- Other resources

If you want a completed version or find any mistakes,

- Fork the repo
- Complete it / Fix it yourself
- Make a PR
- Wait for my approval (or comments)

Important CLI tools