

# Lab 3 - Session 4

---

Daniel Perdices

May 13, 2024



# What are we going to do today?

About next week

Lab 3

Self-assessment

Material

Summary of the course

## About next week

---

# Lab 3

---

## Testing your program:

Once you are done with coding, you must start testing your program as much as possible.

## Testing your program:

Once you are done with coding, you must start testing your program as much as possible.

Do we know the expected behavior?

## Testing your program:

Once you are done with coding, you must start testing your program as much as possible.

Do we know the expected behavior?

Do we know possible mistakes?

## Testing your program:

Once you are done with coding, you must start testing your program as much as possible.

Do we know the expected behavior?

Do we know possible mistakes?

USE WIRESHARK



When sending UDP datagrams,

When sending UDP datagrams,

- if the port is closed, ICMP response (Destination unreachable - Port unreachable) is sent.

When sending UDP datagrams,

- if the port is closed, ICMP response (Destination unreachable - Port unreachable) is sent.
- if we open the port using `nc -l -u <port>` (or `-p <port>`)
  - stdout of the nc process should receive exactly what we have sent.
  - How do we check two files are “equal”? `md5sum`

When sending ICMP ping requests (using our program or ping),

When sending ICMP ping requests (using our program or `ping`),

- if the program is running on the destination (h2),
  - the program in h2 should print the fields of the request.
  - the program in h2 should answer.

When sending ICMP ping requests (using our program or `ping`),

- if the program is running on the destination (h2),
  - the program in h2 should print the fields of the request.
  - the program in h2 should answer.
- even if the program is not running.
  - the O.S. should also answer.
  - the sending host should receive the answers and print the RTT estimation.

Repeat all tests with IP options.

- Is the IHL right?
- The IHL is measured in 32-bits words.
  - How do we handle header lengths that are not multiple of 4B?

# IP fragmentation

Repeat all tests with fragmentation ( $\text{len}(\text{datafile}) > \text{MTU}$ ).

Behavior should be similar but...

- We do not process fragments, so our programs will not answer or process ICMP packets.
- O.S. does process fragments, so we will see answers in Wireshark
- UDP should work perfectly when using `nc`



# Self-assessment

---

# What you should have done by today

- IP working
- IP options working
- UDP working
- ICMP done (testing needed)

## What you should have done by next week?

- End all coding
- Start testing the program
- Ask any question regarding the course

## And in two weeks?

- Submit everything
- Study for the test

# 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)

# Summary of the course

---