

# Lab 1: Network Tools

Learning the tools of the trade / Debugging networks

# Network tools

- Goals:
  1. Learn how to use **ip**, **traceroute**, **ping**, **wireshark**, and **iperf**.
  2. Identify a networking issue.
  3. Fix the networking issue.

# Evaluation

- Where
  - *Lab 2: Net tools* on Moodle (already opened)
  - Submit the answers in the textbox provided by Moodle (you can insert images in the middle of the text)
  - Keep an offline copy of both text and screenshots while doing the lab (just in case!)
- Submission due
  - Sunday, 5 December, 23h59
- Assessment due
  - Thursday, 9 December, 23h59

A large, vibrant red starburst shape with multiple sharp points, resembling a stylized explosion or a star. It is centered on the page and serves as a background for the text.

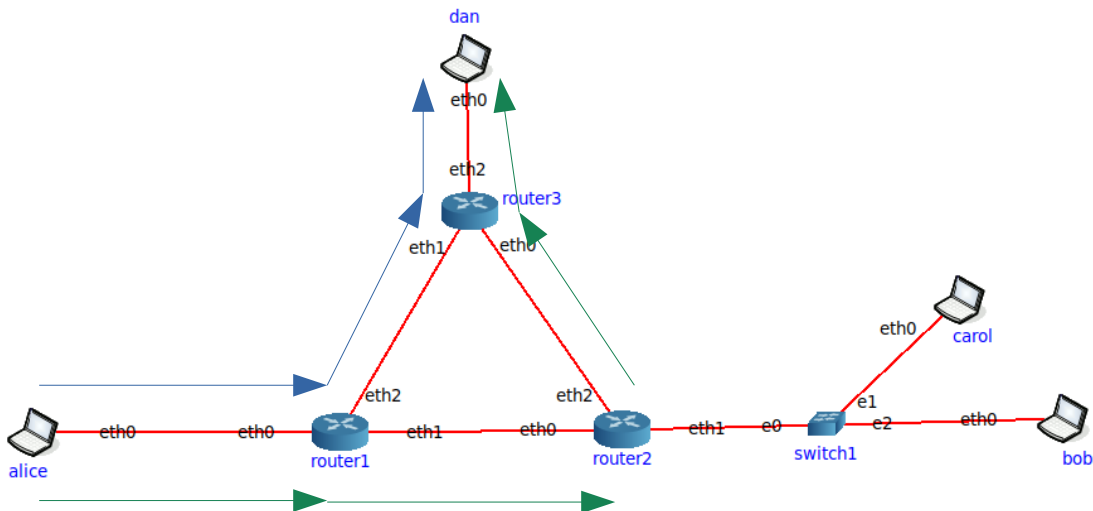
ALWAYS GIT PULL

# Tools

- ip
  - Control interfaces, routes, devices, and tunnels
  - Set/unset IP addresses
  - Bring interfaces up/down

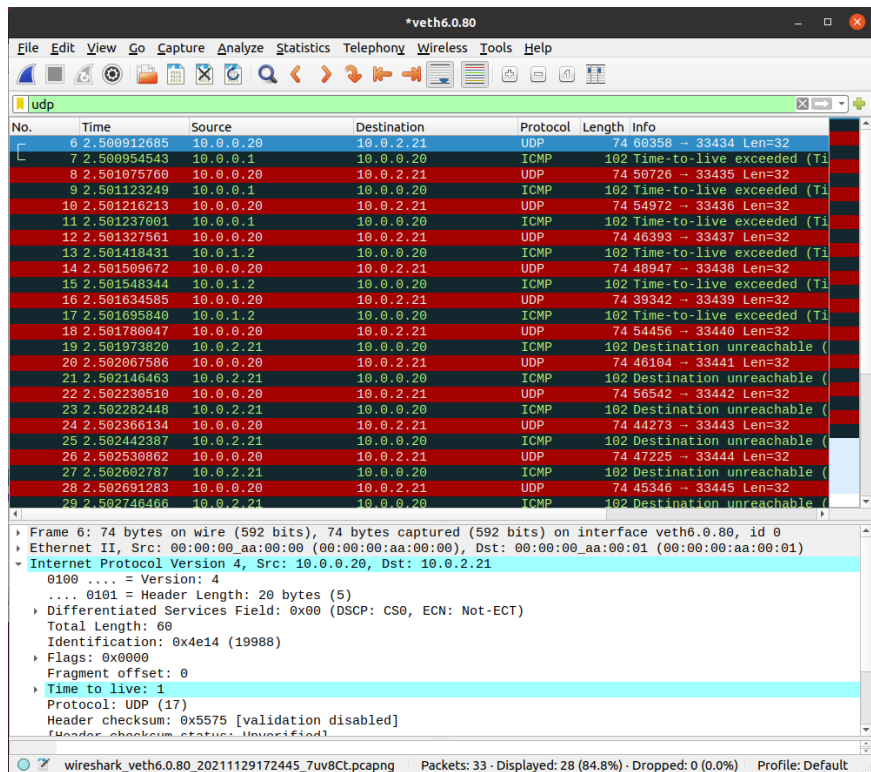
# Tools

- traceroute
  - Find networking paths from source to destination



# Tools

- wireshark
  - Packet sniffer
  - Use the filter!



# Tools

- ping
  - Sends ICMP echo requests
  - Widely used to check the connection between 2 hosts

```
-> % ping google.com
PING google.com(mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e)) 56 data bytes
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=1 ttl=60 time=17.6 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=2 ttl=60 time=17.8 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=3 ttl=60 time=17.6 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=4 ttl=60 time=17.3 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=5 ttl=60 time=17.7 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=6 ttl=60 time=17.5 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=7 ttl=60 time=17.6 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=8 ttl=60 time=17.7 ms
^C
--- google.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7010ms
rtt min/avg/max/mdev = 17.314/17.587/17.776/0.139 ms
```



# Tools

- iperf
  - Run performance tests
  - Run as server VS run as client