



Universidade de Coimbra  
Faculdade de Ciências e Tecnologia

DEPARTAMENTO DE ENG. ELETROTÉCNICA E COMPUTADORES  
Redes de Computadores

## Project – Firewall

2021/2022  
(1+4 points out of 20)

---

**Delivery date:** The work should be uploaded to InforEstudante until 15/05/2022.

**Files to submit:** The submission should be a zip file containing all the sources of the project, a compiled version and a report in pdf. Do not forget to include the name of all the elements of the group in the final report.

**Groups:** Groups of 2 students are allowed. No more than 2 students are allowed per group.

**Grading:** The work must be defended in a presentation where all members of the group must be present.

**Dates:**

- There will be a mid-term evaluation of the project in the April, 1 / April, 5 (1 point).
- The final evaluation of the project will be in the last practical class (4 points).

---

### 1. Context (@wikipedia)

A firewall is a network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules.

Firewalls are categorized as a network-based or a host-based system. Network-based firewalls can be positioned anywhere within a LAN or WAN. They are either a software appliance running on general-purpose hardware, a hardware appliance running on special-purpose hardware, or a virtual appliance running on a virtual host controlled by a hypervisor. Firewall appliances may also offer non firewall functionality, such as DHCP or VPN services. Host-based firewalls are deployed directly on the host itself to control network traffic or other computing resources. This can be a daemon or service as a part of the operating system or an agent application for protection.

## 2. Objectives

In this project each group should implement a firewall using TCP. It is intended that this firewall works as an intermediary element that allows communication between two telnet (chat) clients but block a set of pre-defined words.

Therefore, the program should support the following features:

A - The firewall should work as a bridge by receiving words from a client and sending these words to the other client. However, it will filter out a set of prohibited words.

B - The system only accepts authorized users. For this, at the beginning of each session, each customer is asked for a username and a password.

C - The system must support an administrator (admin) who, after entering the respective login and password, can select, consult and delete the set of words that will be filtered.

D – The admin also manages the authorized users.

E – The system should support a help option.

F – The system should support both telnet clients and specific clients developed in the context of this program.

## 3. Phases

3.1. Each group must prepare features B and C to present during the lesson:

- PL2/PL3: April, 5
- PL1: April, 1

3.2. The other functionalities must be prepared for the final step.

3.3. All extras implemented will also be valued.