



## **DL NGL-CYBER**

Module for the study of cybersecurity

The 'Cybersecurity' module has been developed for the study of the problems relating to the security of devices, networks and systems.

It addresses the various issues starting from a complete analysis of the OSI model, providing the student with a holistic view of security which he can then apply to the various areas in which he will operate.

In fact, the OSI model is an essential tool, not only for understanding how a network works, but also for understanding where cyber threats arise and what steps to take to eliminate them.

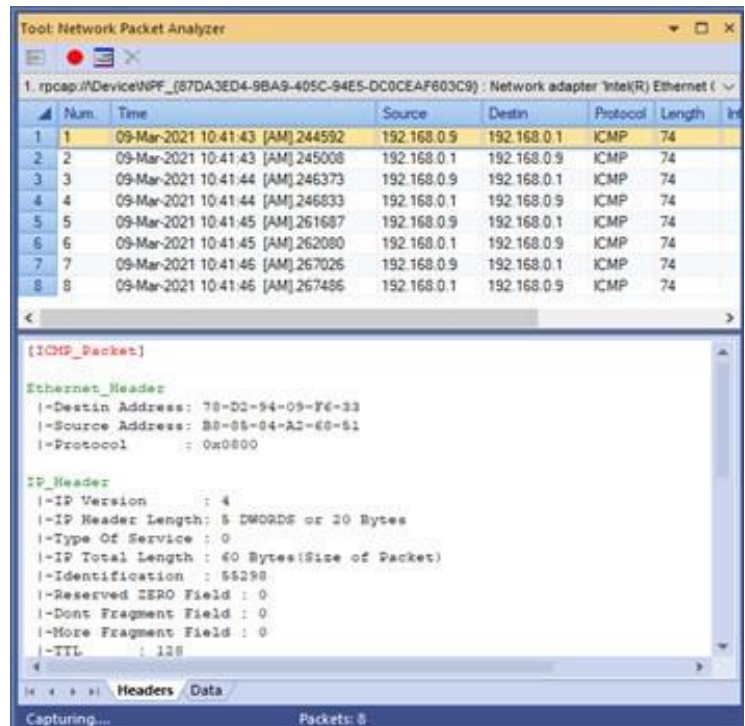
Data within networks travel through various layers represented by the OSI Model and, at each layer, there are different types of vulnerabilities.

To comprehensively address network vulnerability issues, action must be taken at every level.

Security issues at various levels include: protection against unwanted physical access, ARP spoofing, unwanted data access, capture of personal information such as identifiers and passwords, worms and viruses.

The security tools and solutions used include: physical access restriction, private Virtual LAN, Firewalls, information encryption, network user authentication, anti-virus tools.

The Module consists of a series of software tools, which integrate with the DL WORKSPACE, which allow the study and experimentation at the different levels of the OSI model on security issues: Servers, Clients, Packet Analyzers, Network Analyzers, etc.



Practical exercises are included, such as the one that simulates a 'man in the middle' type attack, where a hacker places himself between a Client and a Server and, capturing the communication packets that pass on the network, is able to steal sensitive information such as identifiers and passwords.

The solution to this type of attack is to encrypt the data with a secret key before sending it over the network.

The DL WORKSPACE contains the encryption tools for performing these kinds of hands-on experiences.

Other fundamental experiences for learning Cybersecurity issues are those relating to the Firewalls contained in the Routers of home computer networks, which protect home networks from unwanted access. Firewalls are hardware and software devices designed to protect our private networks from intrusion by strangers while connected to the Internet.

It is, therefore, necessary to pay the utmost attention to the configuration of the Router: in the event that some 'chink' is left open, a hacker could exploit it to access devices and personal data.

The Module contains Routers to perform Firewall configuration exercises to optimize the security level of your home networks.

## Educational experience

- Introduction to cybersecurity
- OSI model and security issues
- Physical level security
- Data Link level security (ARP spoofing, VLAN)
- Network level Security (VPN)
- Transport level security (Firewall)
- Session level security (encryption and authentication)
- Presentation and Application level security (antivirus).

## NEXT GENERATION LABS

The DL NGL-CYBER module can be integrated in the NEXT GENERATION LAB - DL NGL laboratory through the minimum purchase of the following modules:

- **Teacher Station - DL NGL-BASE**  
Necessary for the proper functioning of the laboratory. Quantity: 1.
- **Student Station - DL NGL-STUDENT**  
To be multiplied by the number of "student stations" to be created.

