

## Lab 01 - Introduction

### Objectives

- Simple CTF tasks
- Introduction to basic security-related tools
- Simple program compiling tools
- Basics of networking related monitoring tools

### Preparation

You will solve this lab inside a virtual machine on  [openstack](#):

OpenStack will be made available in the following days, until then, you can use your native [OS](#) for doing the labs (hint: WSL).

### CTF local tasks

Download the  [task archive](#) for this section. Each exercise will have a corresponding folder.

#### 01. [10p]B64 encoding

- The flag is in b64.txt. It should look something like this: **FLAG{...}**.
  - **Hint:** python3, base64

#### 02. [10p]EXIF

- The flag is hidden somewhere within this image. Remember its format.
  - **Hint:** it's not steganography; don't look at the pixels





#### 03. [10p]From Manchester with love

- Remember RL? Remember  Manchester?

#### 04. [10p]Corrupted file


- The header seems to be damaged...

Up for more?

-  CTFlearn
-  OverTheWire
-  Cryptopals Challenges
-  PicoCTF

## OS Management

#### 05. [10p]Web server & console browser




- Install and configure **apache2** and **links**. Use the latter to connect to  http://localhost
  - **Hint:** use the distro specific package manager.

#### 06. [10p]Disk space & usage

- Display the disk space usage for each individual directory (. and .. excluded) in the first two hierarchical levels of */usr/include/* in a human readable format
  - **Hint:** find, du
- Sort the list in ascending order, by size

## Program compilation tools

#### 07. [10p]Program compilation

- Download the following  [program](#) and compile it using **gcc**.
- What is the program intended for?
- Modify the program such that it connects to " http://localhost" (i.e. your local apache server) and prints the response (apache's default [HTML](#) test page) to stdout, just like standard curl.
  - **Hint:** you need to install libcurl's development libraries.
  - **Hint:** you need some flags for the compiler to know where libcurl is installed (see  library's documentation)

#### 08. [10p]Static compilation

- Statically compile the program (but keep a copy of the old, shared executable).
  - **Hint:** curl-config --static-libs
  - **Hint:** Note that you'll need even more development libraries: libidn11-dev librtmp-dev libssl-dev libidn11-dev librtmp-dev libssl-dev libcrypto++-dev libkrb5-dev libldap2-dev libnghttp2-dev libpsl-dev
  - **Hint:** Getting a pthread-related linker error? Try *-lpthread* at the end of the gcc command!
- Check the size difference. What does it mean?
  - **Hint:** ldd
- Uninstall libcurl and see which of the executables successfully run now!
- Reinstall curl again if you need it ;)

## Networking related tools

#### 09. [10p]Traffic sniffing

- Use the tcpdump suite to save all the traffic from interface ens3/eth0 to a file.
  - **Hint:** Tcpdump may complain that it has no privileges to write the log file. Use "-Z student" (man!) to reacquire them.

## Feedback

#### 11. [10p]Feedback

Please take a minute to fill in the  feedback form for this lab.

Search

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